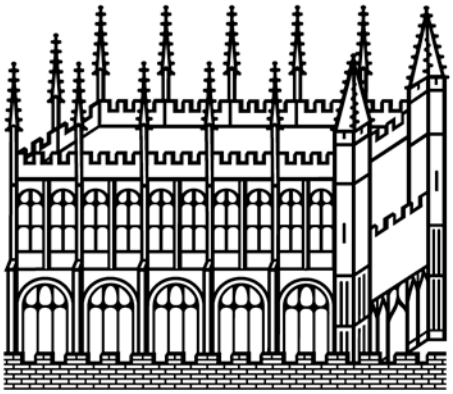


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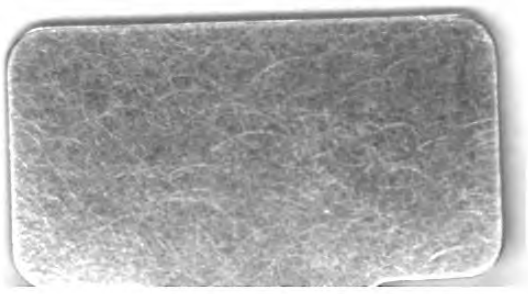
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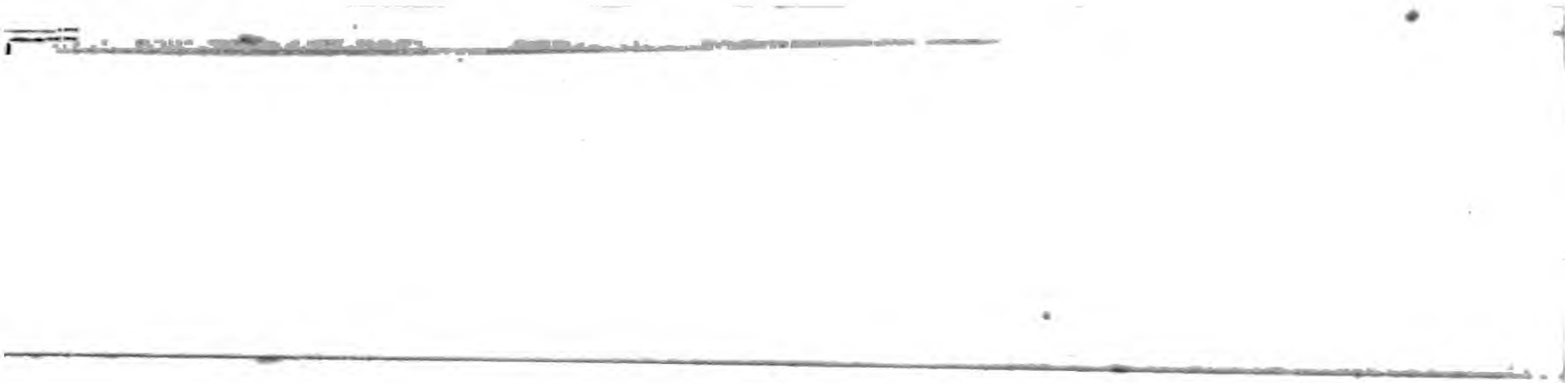
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(Alm.) 2012 e. 24





QUIGGIN'S

ISLE OF MAN

ALMANACK,

FOR THE YEAR OF OUR LORD

1859,

Being the Third after Bissextile or Leap-Year,

AND THE 22nd-23rd OF THE REIGN OF HER PRESENT MAJESTY;

WITH CORRECT

TIDE TABLES,

FOR THE

OLD DOCK SILL, LIVERPOOL, AND THE CUMBERLAND GATES, BRISTOL;

AND

MARINERS' COMPANION;

CONTAINING ALSO EVERY CALCULATION NECESSARY FOR

WORKING A LUNAR DISTANCE.

CALCULATED TO MEAN TIME, IN LATITUDE 54° 10′ N. AND LONGITUDE 4° 30′ W.

*** The Tide Table on these pages being calculated for Liverpool, LOCAL TIME, twelve minutes are required to be subtracted from the Table to give the time of high water at Douglas, LOCAL TIME; and two inches to the foot must be subtracted from the rise of the water to give an approximate height of the Tide.

THIRTY-FOURTH ANNUAL IMPRESSION.

DOUGLAS, ISLE OF MAN:
PRINTED AND PUBLISHED BY M. A. QUIGGIN,
52, NORTH QUAY.

PHASES OF THE MOON.

New Moon,	4th day, at	5h. 8m. morning.
First Quarter,	12th day, at	7h. 5m. morning.
Full Moon,	18th day, at	11h. 31m. night.
Last Quarter,	25th day, at	8h. 27m. night.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury.* rises.	☿ *Mercury.* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	M. D.
1	6 m 7	6 a 0	16 18	7m43	11m42	5m54	10m12	8 a 58	3 a 54	6m28	10 a 4	6 a 18	2m14	1
8	6 6	6 7	16 18	6 50	10 50	5 26	9 47	9 7	3 46	5 58	9 34	5 47	1 45	8
15	6 3	6 16	16 18	6 34	10 29	5 7	9 28	9 12	3 38	5 27	9 4	5 16	1 15	15
22	5 58	6 27	16 17	6 40	10 27	4 57	9 16	9 16	3 30	4 57	8 35	4 45	0 45	22
29	5 49	6 39	16 16	6 51	10 36	4 53	9 8	9 19	3 21	4 28	8 6	4 14	0 15	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	S	Circumcision	9 22	13 0	9 47	13 0	3	44
2	♓	2 Sun. aft. Christmas	10 11	14 1	10 32	13 11	4	12
3	M	*Proper Lessons.* [Isa. xli; Matthew i. — xliii; Rom. i.	10 52	14 10	11 11	14 2	4	40
4	Tu	R. Ascham died, 1568	11 29	15 3	11 46	14 8	5	8
5	W	Bank Dividends due	— —	— —	0 2	15 10	5	35
6	Th	Epiphany. 12th Day	0 18	15 0	0 36	16 2	6	2
7	F	Fenelon died, 1715	0 54	15 2	1 11	16 2	6	28
8	S	Lucian, P. & M.	1 27	15 1	1 43	16 0	6	54
9	♓	1 Sun. aft. Epiphany	2 1	14 11	2 20	15 10	7	19
10	M	*Proper Lessons.* [Isa. xliv; Matt. vi. — xlvi; Rom. vi.	2 38	14 9	2 55	15 5	7	44
11	Tu	Hilary Term begins	3 14	14 1	3 35	14 8	8	8
12	W	Lavater died, 1801	3 55	13 6	4 18	13 9	8	32
13	Th	Camb. Term begins	4 45	12 9	5 15	12 9	8	54
14	F	Oxford Term begins	5 51	12 3	6 28	12 5	9	17
15	S	Pollux souths 11 a 56	7 10	12 6	7 50	12 9	9	38
16	♓	2 Sun. aft. Epiphany	8 29	13 6	9 5	13 10	9	59
17	M	*Pro. Les.* [Isa. li; Matt. xiv. — liii; Rom. xiv.	9 38	15 2	10 5	15 4	10	19
18	Tu	Prisca, V. & M.	10 36	17 0	11 2	16 11	10	39
19	W	James Watt born, 1736	11 26	18 8	11 49	17 11	10	57
20	Th	Fabian, Bishop	— —	— —	0 14	19 9	11	15
21	F	Agnes, V. & M.	0 38	18 6	1 1	20 0	11	33
22	S	Vincent, Martyr	1 25	18 3	1 47	19 6	11	49
23	♓	3 Sun. aft. Epiphany	2 8	17 6	2 28	18 5	12	5
24	M	*Pro. Les.* [Isa. lv; Matt. xxi. — lvi; 1 Cor. v.	2 49	16 4	3 9	16 11	12	20
25	Tu	Conversion of St. Paul	3 29	14 11	3 50	15 1	12	34
26	W	Dr. Jenner died, 1823	4 11	13 4	4 35	13 2	12	47
27	Th	Mozart born, 1756	5 5	12 1	5 40	11 6	13	0
28	F	Sir F. Drake d. 1596	6 18	11 1	6 59	10 6	13	12
29	S	George III. died, 1820	7 42	11 0	8 24	10 8	13	23
30	♓	4 Sun. aft. Epiphany	9 0	11 9	9 30	11 6	13	33
31	M	*Proper Lessons.* [Isa. lvii; Matt. xxvii. — lviii.; 1 Cor. xi.	9 55	13 0	10 18	12 7	13	42

Equation of Time. Clock before Sun.—Add to Apparent Time, or Subtract from Mean Time.

M	Bristol Tides.				SUN.					MOON.				M	ASPECTS AND WEATHER.
	morn.	even.	height		rises.	sets.	rt. ascen.	declin.	S.	rises.	souths	declin.	age.		
D.	H. M.	H. M.	F.	I.	H M	H M	H. M. S.	° ′	″	H. M.	H. M.	° ′		D.	
1	4 56	5 22	24	8	8 23	3 45	18 46 10	23 2	7	6m42	9m48	26s55	27	1	☿ ☌ ☾, 8 a 46
2	5 48	6 11	26	0	8 23	3 46	18 50 35	22 57	1	7 46	10 39	27 58	28	2	*Fair*
3	6 34	6 55	26	7	8 23	3 47	18 54 59	22 51	27	8 36	11 31	27 37	29	3	☿ stationary
4	7 15	7 35	26	11	8 22	3 48	18 59 23	22 45	26	sets.	0a21	25 54	N	4	*and mild*
5	7 52	8 9	27	5	8 22	3 50	19 3 47	22 38	58	4a54	1 9	22 58	1	5	
6	8 27	8 44	27	10	8 21	3 51	19 8 10	22 32	2	6 11	1 55	19 1	2	6	☿ gr. H.L.N.
7	9 0	9 14	28	4	8 21	3 52	19 12 33	22 24	40	7 28	2 37	14 16	3	7	*for the*
8	9 29	9 45	28	5	8 20	3 54	19 16 56	22 16	52	8 45	3 19	8 55	4	8	*season,*
9	10 2	10 18	28	4	8 19	3 55	19 21 18	22 8	37	10 1	4 0	3 9	5	9	♂ ☌ ☾, 7 m 6
10	10 32	10 49	27	8	8 18	3 57	19 25 39	21 59	56	11 15	4 41	N2 51	6	10	*succeeded by*
11	11 7	11 24	26	2	8 17	3 58	19 30 0	21 50	50	morn	5 24	8 53	7	11	☿ in Perihel.
12	11 45	— —	24	5	8 17	4 0	19 34 20	21 41	18	0 33	6 10	14 42	8	12	
13	0 8	0 34	22	8	8 16	4 2	19 38 39	21 31	21	1 59	6 59	20 0	9	13	*cold, rain,*
14	1 5	1 39	22	2	8 15	4 3	19 42 58	21 20	59	3 28	7 55	24 20	10	14	
15	2 26	3 15	23	7	8 14	4 5	19 47 16	21 10	13	4 56	8 57	27 11	11	15	♅ ☌ ☾, 3 m 36
16	4 1	4 39	26	4	8 13	4 7	19 51 33	20 59	3	6 24	10 3	28 3	12	16	*or snow;*
17	5 13	5 42	29	2	8 12	4 9	19 55 50	20 47	28	7 30	11 10	26 38	13	17	
18	6 16	6 46	30	5	8 11	4 10	20 0 6	20 35	30	rises.	morn	— —	F	18	☿ at greatest
19	7 12	7 38	32	10	8 10	4 12	20 4 21	20 23	8	5 a 2	0 15	23 4	15	19	brilliancy.
20	8 5	8 29	34	5	8 9	4 14	20 8 36	20 10	24	6 40	1 15	17 47	16	20	*changeable*
21	8 51	9 14	34	10	8 8	4 16	20 12 50	19 57	16	8 13	2 9	11 26	17	21	☿ gr. elon. W.
22	9 33	9 53	34	2	8 7	4 18	20 17 3	19 43	47	9 42	3 0	4 36	18	22	*weather,*
23	10 11	10 29	32	6	8 5	4 20	20 21 15	19 29	55	11 8	3 47	s2 15	19	23	*probably*
24	10 46	11 3	30	1	8 4	4 22	20 25 26	19 15	42	morn	4 33	8 44	20	24	☾ ☌, Spica V.
25	11 21	11 39	26	11	8 2	4 24	20 29 37	19 1	8	0 32	5 19	14 36	21	25	*snow;*
26	11 59	— —	23	7	8 1	4 26	20 33 47	18 46	12	1 54	6 6	19 38	22	26	*afterwards*
27	0 25	0 56	20	8	7 59	4 28	20 37 56	18 30	56	3 15	6 54	23 37	23	27	*fair and*
28	1 29	2 12	19	2	7 58	4 30	20 42 5	18 15	20	4 32	7 44	26 25	24	28	*frosty.*
29	3 3	3 53	20	4	7 56	4 32	20 46 12	17 59	24	5 42	8 35	27 53	25	29	♄ ☍ ☉, 6 m 14
30	4 33	5 4	22	3	7 54	4 34	20 50 19	17 43	9	6 35	9 26	27 58	26	30	☿ ☌ ☾, 0 m 5
31	5 30	5 54	24	4	7 52	4 36	20 54 25	17 26	35	7 12	10 17	26 39	27	31	☿ ☌ ☾, 9 a 53

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M.	Noon.			3 Hours.			6 Hours.			9 Hours.			Midn.			15 Hour.			18 Hour.			21 Hour.		
D.	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
1E	30	3	48	28	42	28	27	21	18	26	0	17	24	39	26	23	18	45	21	58	16	20	37	59
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6W	24	37	31	25	58	3	27	18	43	28	39	32	30	0	28	31	21	32	32	42	44	34	4	3
7	35	25	30	36	47	4	38	8	46	39	30	36	40	52	34	42	14	40	43	36	54	44	59	17
8	46	21	49	47	44	30	49	7	21	50	30	22	51	53	32	53	16	54	54	40	26	56	4	10
9	57	28	6	58	52	13	60	16	33	61	41	7	63	5	53	64	30	53	65	56	8	67	21	37
10	68	47	21	70	13	21	71	39	38	73	6	10	74	33	0	76	0	7	77	27	32	78	55	15
11	80	23	18	81	51	39	83	20	21	84	49	22	86	18	44	87	48	28	89	18	33	90	48	59
12	92	19	48	93	51	0	95	22	36	96	54	34	98	26	56	99	59	43	101	32	53	103	6	29
13	104	40	29	106	14	55	107	49	46	109	25	2	111	0	44	112	36	52	114	13	25	115	50	25
14	117	27	50	119	5	41	120	43	58	122	22	40	124	1	48	125	41	21	127	21	20	129	1	42
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
22E	131	34	33	129	56	14	128	18	21	126	40	55	125	3	56	123	27	25	121	51	20	120	15	43
23	118	40	33	117	5	49	115	31	33	113	57	43	112	24	19	110	51	22	109	18	51	107	46	46
24	106	15	6	104	43	51	103	13	0	101	42	34	100	12	32	98	42	53	97	13	37	95	44	44
25	94	16	12	92	48	3	91	20	14	89	52	46	88	25	38	86	58	49	85	32	19	84	6	8
26	82	40	15	81	14	39	79	49	19	78	24	16	76	59	28	75	34	56	74	10	38	72	46	34
27	71	22	44	69	59	6	68	35	41	67	12	27	65	49	25	64	26	34	63	3	52	61	41	21
28	60	18	58	58	56	45	57	34	39	56	12	41	54	50	50	53	29	6	52	7	28	50	45	57
29	49	24	30	48	3	8	46	41	51	45	20	38	43	59	28	42	38	22	41	17	19	39	56	18
33	38	35	20	37	14	23	35	53	27	34	32	33	33	11	40	31	50	47	30	29	54	29	9	2

Explanations

The Tide Table on the left-hand pages is calculated for Liverpool mean time, with the height of each Tide at the marks on the east side of the Canning Dock, allowance being made for the diurnal inequality in the height. Greenwich mean time being now adopted at that port, the difference—12 minutes earlier—must be added to adapt it to the time now used.

PHASES OF THE MOON.

New Moon,	3rd day, at	0h. 46m. morning.
First Quarter,	10th day, at	7h. 22m. night.
Full Moon,	17th day, at	10h. 23m. morning.
Last Quarter,	24th day, at	2h. 3m. afternoon.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	
1	5m46	6a43	16 16	6m56	10m41	4m52	9m5	9a21	3a18	4m17	7a54	8m0	11a58	
8	5 35	6 55	16 15	7 3	10 56	4 53	9 2	9 25	3 9	3 50	7 27	7 31	11 28	
15	5 22	7 8	16 13	7 6	11 13	4 54	9 2	9 28	3 0	3 23	7 0	7 2	10 59	
22	5 8	8 21	16 12	7 3	11 32	4 55	9 3	9 31	2 52	2 57	6 34	6 34	10 29	
28	4 54	7 32	16 10	6 58	11 48	4 55	9 5	9 33	2 44	2 36	6 12	6 10	10 4	

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time
1	Tu	St. Bridget.	10 41	14 3	10 59	13 9	13 5
2	W	Purifica. B. V. Mary	11 15	15 4	11 32	14 8	13 5
3	Th	Blasius, Bishop	11 47	16 3	— —	— —	14
4	F	Pleiades souths 6 a 41	0 4	15 7	0 18	17 1	14 1
5	S	Agatha, V. & M.	0 32	16 3	0 47	17 6	14 1
6	B	5 Sun. aft. Epiphany	1 3	16 8	1 19	17 9	14 2
7	M	Proper Lessons. [Isaiah lix; Mark vi. — lxiv; 2 Cor. ii.	1 35	16 7	1 50	17 4	14 2
8	Tu	Mary Q. of Scots beh.	2 7	16 3	2 25	15 11	14 2
9	W	Dr. Maskelyne d. 1811	2 42	15 6	2 59	15 6	14 3
10	Th	Victoria married, 1840	3 18	14 6	3 40	14 2	14 3
11	F	Washington b. 1732	4 3	13 5	4 31	12 9	14 3
12	S	Lady Jane Grey behd.	5 6	12 3	5 49	11 8	14 3
13	B	6 Sun. aft. Epiphany	6 38	12 0	7 30	11 9	14 3
14	M	Proper Lessons. [Isaiah lxv; Mark xiii. — lxvi; 2 Cor. ix.	8 16	13 1	8 58	13 1	14 2
15	Tu	14, Valentine, Bishop	9 34	15 1	10 4	15 0	14 2
16	W	Rigel souths 7 a 20	10 30	17 3	10 53	16 10	14 2
17	Th	Regulus souths 0 m 12	11 15	18 1	11 37	17 9	14 1
18	F	Luther died, 1546	11 59	20 4	— —	— —	14 1
19	S	Galileo born, 1564	0 19	19 0	0 37	20 7	14
20	B	Septuagesima Sun.	0 57	19 0	1 17	20 2	14
21	M	Proper Lessons. [Genesis i; Luke iii. — ii; Gal. iii.	1 37	18 4	1 55	18 11	13 5
22	Tu	Fren. Revolution, 1848	2 14	17 1	2 33	17 0	13 4
23	W	Day 10h. 15m. long	2 51	15 6	3 9	14 10	13 3
24	Th	St. Matthias	3 29	13 8	3 49	12 8	13 3
25	F	Sir C. Wren died, 1723	4 14	11 11	4 46	10 7	13 2
26	S	28th, Elliott's Engage.	5 28	10 7	6 17	9 5	13 1
27	B	Sexagesima Sunday	7 1	10 4	7 46	9 8	13 0
28	M	Proper Lessons. [Genesis iii; Luke x. — vi; Ephes. iv.	8 31	11 2	9 7	10 8	12 4

Clock before Sun.—Add to Apparent Time, or Subtract from Mean Time.

The Tide Table on these pages being calculated for Liverpool, *local time*, twelve minutes are required to be subtracted from the Table to give the time of high water at Douglas, *local time;* and two inches to the foot must be subtracted from the rise of the water to give an approximate height of the Tide.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	Sun. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	Moon. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	6 20	6 40	25 4	7 51	4 37	20 58 30	17 9 42	7m38	11m6	24 s 5	28	1	*Showers*
2	6 59	7 18	26 10	7 49	4 39	21 2 34	16 52 31	7 57	11 52	22 55	29	2	☉ eclip., inv.
3	7 34	7 53	28 6	7 47	4 41	21 6 38	16 35 2	sets.	0a37	15 51	N	3	♀ gr. H. L. N.
4	8 9	8 23	29 11	7 46	4 43	21 10 41	16 17 16	6a32	0 19	10 37	1	4	*of snow*
5	8 37	8 53	30 9	7 44	4 45	21 14 42	15 59 13	7 46	2 0	4 54	2	5	♃ stationary
6	9 8	9 23	31 2	7 42	4 47	21 18 43	15 40 54	9 4	2 41	N1 3	3	6	*or sleet*
7	9 36	9 52	30 9	7 40	4 49	21 22 44	15 22 19	10 23	3 23	7 5	4	7	♂ ☌ ☾, 8 m24
8	10 8	10 23	29 10	7 38	4 51	21 26 43	15 3 28	11 43	4 7	12 56	5	8	☿ in Aphel.
9	10 37	10 53	28 3	7 36	4 53	21 30 42	14 44 23	morn	4 54	18 20	6	9	*may now*
10	11 11	11 31	25 11	7 34	4 55	21 34 39	14 25 2	1 9	5 46	22 56	7	10	
11	11 56	— —	23 3	7 32	4 57	21 38 36	14 5 27	2 37	6 43	26 18	8	11	♅ ☌ ☾, 11m15
12	0 26	1 3	21 0	7 30	4 59	21 42 32	13 45 39	4 3	7 45	28 0	9	12	♃ ☌ ☾, 7 m11
13	1 48	2 50	21 10	7 28	5 1	21 46 28	13 25 37	5 15	8 49	27 41	10	13	*be expected,*
14	3 45	4 31	25 4	7 26	5 3	21 50 22	13 5 22	6 8	9 53	25 13	11	14	
15	5 8	5 40	29 0	7 24	5 6	21 54 16	12 44 54	6 40	10 55	20 50	12	15	*with*
16	6 9	6 35	30 10	7 22	5 8	21 58 9	12 24 15	7 3	11 52	15 1	13	16	♄ ☌ ☾, 0 m31
17	7 0	7 24	33 5	7 20	5 10	22 2 1	12 3 23	rises.	morn	— —	F	17	☾ Eclip., inv.
18	7 48	8 10	35 6	7 17	5 12	22 5 54	11 42 20	7 a 7	0 45	8 19	15	18	♅ □ ☉, 4 a 54
19	8 28	8 47	36 0	7 15	5 14	22 9 45	11 21 6	8 35	1 34	1 16	16	19	*high winds*
20	9 7	9 26	35 4	7 13	5 16	22 13 35	10 59 41	10 2	2 22	s5 38	17	20	
21	9 41	9 58	34 5	7 11	5 18	22 17 25	10 38 6	11 29	3 10	12 2	18	21	*and cold*
22	10 16	10 30	30 8	7 9	5 20	22 21 14	10 16 21	morn	3 57	17 38	19	22	
23	10 45	11 3	27 3	7 7	5 22	22 25 2	9 54 27	0 55	4 46	22 12	20	23	♀ gr. elon. W
24	11 18	11 40	23 4	7 5	5 24	22 28 50	9 32 23	2 17	5 37	25 33	21	24	*weather,*
25	— —	0 7	20 2	7 2	5 26	22 32 37	9 10 11	3 30	6 28	27 33	22	25	*changing to*
26	0 44	1 28	17 5	7 0	5 28	22 36 24	8 47 50	4 30	7 20	28 8	23	26	*mild at*
27	2 14	3 7	18 4	6 58	5 30	22 40 10	8 25 22	5 13	8 12	27 18	24	27	*the end.*
28	4 1	4 40	21 1	6 55	5 32	22 43 56	8 2 46	5 43	9 1	25 10	25	28	♀ ☌ ☾, 11m10

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
5w	27 7 43	28 32 4	29 56 35	31 21 15	32 46 4	34 11 4	35 36 13	37 1 32
6	38 27 2	39 52 42	41 18 34	42 44 36	44 10 49	45 37 14	47 3 50	48 30 39
7	49 57 40	51 24 53	52 52 19	54 19 58	55 47 50	57 15 56	58 44 16	60 12 50
8	61 41 39	63 10 43	64 40 2	66 9 37	67 39 27	69 9 33	70 39 56	72 10 35
9	73 41 32	75 12 46	76 44 18	78 16 7	79 48 15	81 20 41	82 53 26	84 26 30
10	85 59 53	87 33 36	89 7 39	90 42 1	92 16 44	93 51 47	95 27 11	97 2 55
11	98 39 0	100 15 25	101 52 12	103 29 19	105 6 48	106 44 38	108 22 48	110 1 20
12	111 40 12	113 19 25	114 58 58	116 38 51	118 19 5	119 59 38	121 40 31	123 21 43
13	125 3 13	126 45 2	128 27 9	130 9 33	131 52 13	133 35 10	135 18 23	137 1 50
..	.. .. ..	.. .. ..	.. . ..	.. .. .	.. . ..	.. .. ..	.. .. ..	.. .. ..
20	138 55 23	137 19 26	135 43 55	134 8 50	132 34 11	130 59 59	129 26 13	127 52 52
21	126 19 58	124 47 30	123 15 27	121 43 50	120 12 37	118 41 49	117 11 26	115 41 27
22	114 11 52	112 42 40	111 13 51	109 45 25	108 17 20	106 49 37	105 22 15	103 55 14
23	102 28 33	101 2 11	99 36 8	98 10 24	96 44 58	95 19 49	93 54 57	92 30 21
24	91 6 1	89 41 55	88 18 4	86 54 27	85 31 3	84 7 52	82 44 53	81 22 5
25	79 59 28	78 37 1	77 14 44	75 52 36	74 30 37	73 8 45	71 47 0	70 25 22
26	69 3 51	67 42 25	66 21 4	64 59 47	63 38 35	62 17 26	60 56 19	59 35 15
27	58 14 13	56 53 12	55 32 11	54 11 11	52 50 11	51 29 10	50 8 8	48 47 5
28	47 26 0	46 4 52	44 43 42	43 22 28	42 1 10	40 39 49	39 18 23	37 56 53

The Equation of Time is given to the nearest second for Greenwich mean noon; and as the difference between the equation of time for mean noon and apparent noon does not in any instance amount to the fifth part of a second, the given minutes and seconds may be used for reducing mean time into apparent time, or the contrary. When the column is headed "Clock before Sun," the Equation is to be *subtracted* from *mean* time to reduce it to *apparent*; or, in the case of a celestial observation, the result being apparent time, the equation must be added to reduce it to mean time. And when "after Sun," the equation must be added to *mean* time, to reduce it to *apparent* time, or subtracted from *apparent* time to reduce it to *mean* time.

PHASES OF THE MOON.

New Moon,	4th day,	at 6h. 53m. evening.
First Quarter,	12th day,	at 4h. 21m. morning.
Full Moon,	18th day,	at 9h. 27m. night.
Last Quarter,	26th day,	at 9h. 9m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	4m54	7 a 35	16 10	6m57	11m51	5m54	9m 6	9 a 34	2 a 43	2m32	6 a 8	6m 6	9 a 59	1
8	4 34	7 50	16 8	sets.	0 a 12	4 52	9 9	9 37	2 35	2 8	5 43	5 37	9 31	8
15	4 16	8 4	16 7	6 a 35	0 34	4 48	9 13	9 40	2 26	1 44	5 19	5 9	9 2	15
22	3 56	8 19	16 5	7 34	0 55	4 42	9 17	9 43	2 18	1 21	4 55	4 41	8 33	22
29	3 34	8 36	16 3	8 22	1 9	4 34	9 21	9 45	2 10	0 59	4 32	4 13	8 5	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	Tu	St. David	9 34	12 6	9 56	12 2	12	38
2	W	Chad, Archbishop	10 16	14 2	10 37	13 8	12	26
3	Th	E. Waller born, 1603	10 53	15 7	11 7	15 1	12	13
4	F	Sirius souths 7 a 50	11 21	16 9	11 37	16 3	12	1
5	S	Dr. Arne died, 1778	11 51	17 10	— —	— —	11	47
6	B	**Shrove Sunday**	0 3	17 2	0 19	18 4	11	33
7	M	*Proper Lessons.* [Gen. ix. to v. 20; Luke xvii. — xii; Colos. i.	0 34	17 7	0 50	18 5	11	19
8	Tu	**Shrove Tuesday**	1 7	17 6	1 23	18 1	11	4
9	W	**Ash Wednesday**	1 39	17 4	1 57	17 3	10	49
10	Th	B. West died, 1820	2 16	16 5	2 35	15 10	10	34
11	F	Tasso born, 1544	2 56	15 1	3 18	14 2	10	18
12	S	Gregory, Bishop	3 44	13 7	4 14	12 4	10	2
13	B	**1 Sunday in Lent**	4 53	12 4	5 40	11 2	9	46
14	M	*Pro. Les.* [Gen. xix. to v. 30; Luke xxiv. — xxii.; 1 Thess. iv.	6 32	12 1	7 26	11 5	9	29
15	Tu	Rigel souths 7 a 24	8 13	13 3	8 50	13 2	9	12
16	W	Regulus souths 0 m 16	9 20	15 4	9 48	15 1	8	54
17	Th	St. Patrick	10 11	17 6	10 34	16 11	8	37
18	F	Edwd. King W. Sax.	10 56	18 11	11 15	18 2	8	19
19	S	Princess Louisa born	11 32	20 0	11 50	18 10	8	1
20	B	**2 Sunday in Lent**	— —	— —	0 9	20 2	7	43
21	M	*Pro. Less.* [Genesis xxvii; John vii. — xxxiv; 1 Tim. iv.	0 28	18 10	0 47	19 6	7	25
22	Tu	Goethe died, 1822	1 5	18 2	1 23	18 4	7	7
23	W	Aldebaran souths 0 m 6	1 41	17 0	2 0	16 5	6	48
24	Th	Qn. Elizabeth d. 1603	2 19	15 7	2 39	14 4	6	30
25	F	Annun. **Lady Day**	2 58	13 9	3 19	12 3	6	12
26	S	Pollux souths 7 a 21	3 42	12 1	4 11	10 5	5	53
27	B	**3 Sunday in Lent**	4 56	10 9	5 31	9 3	5	34
28	M	*Proper Lessons.* [Genesis xxxix; John xiv. — xlii; Titus i.	6 20	10 4	7 3	9 5	5	16
29	Tu	C. Wesley died, 1788	7 48	11 1	8 26	10 6	4	58
30	W	Pleiades sets 11 a 41	8 57	12 5	9 19	12 1	4	39
31	Th	War Proclaimed, 1854	9 39	14 1	9 58	13 9	4	21

Equation of Time. Clock before Sun.—Subtract from Mean Time, or Add to Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	5 8	5 31	23 10	6 52	5 34	22 47 41	7 40 3	6m4	9m49	21s51	26	1	*Expect changeable*
2	5 52	6 15	26 3	6 50	5 36	22 51 25	7 17 13	6 18	10 34	17 35	27	2	
3	6 34	6 50	27 7	6 48	5 38	22 55 9	6 54 17	6 29	11 17	12 32	28	3	♂ in ♌, 11m58
4	7 6	7 23	29 6	6 47	5 40	22 58 53	6 31 15	sets.	11 59	6 55	N	4	☉ eclip., inv.
5	7 39	7 53	31 3	6 44	5 42	23 2 36	6 8 8	6a51	0a40	0 57	1	5	*weather, with*
6	8 10	8 25	32 4	6 41	5 44	23 6 19	5 44 55	8 10	1 22	N5 9	2	6	
7	8 40	8 56	32 8	6 39	5 46	23 10 1	5 21 38	9 30	2 5	11 9	3	7	*showers;*
8	9 11	9 26	32 4	6 36	5 48	23 13 43	4 58 17	10 53	2 52	16 45	4	8	♂ ☌ ☾, 6 m 6
9	9 43	10 0	31 1	6 34	5 50	23 17 25	4 34 53	morn	3 42	21 37	5	9	*if wind be*
10	10 16	10 34	29 2	6 31	5 52	23 21 6	4 11 25	0 20	4 37	25 22	6	10	♅ ☌ ☾, 5 a 44
11	10 52	11 14	26 4	6 29	5 54	23 24 46	3 47 54	1 36	5 36	27 36	7	11	♃ ☌ ☾, 4 a 17
12	11 41	— —	23 1	6 26	5 56	23 28 27	3 24 20	2 49	6 38	28 0	8	12	*southerly now*
13	0 14	0 55	20 9	6 24	5 57	23 32 7	3 0 44	3 53	7 40	26 25	9	13	
14	1 43	2 46	21 8	6 21	5 59	23 35 47	2 37 6	4 42	8 41	22 55	10	14	*expect*
15	3 42	4 10	25 9	6 19	6 1	23 39 26	2 13 27	5 11	9 37	17 52	11	15	♄ ☌ ☾, 6m56
16	4 54	5 24	29 3	6 16	6 3	23 43 6	1 49 47	5 26	10 31	11 42	12	16	☾ in Perigee
17	5 49	6 15	32 4	6 14	6 5	23 46 45	1 26 5	5 36	11 21	4 53	13	17	*rain for*
18	6 39	6 59	33 6	6 11	6 7	23 50 23	1 2 24	rises.	morn	— —	F	18	
19	7 19	7 38	35 1	6 9	6 9	23 54 2	0 38 42	7a31	0 10	s2 5	15	19	*some*
20	8 0	8 19	35 6	6 6	6 11	23 57 41	0 15 0	8 58	0 57	8 49	16	20	☿ in ♌, 2m24
21	8 37	8 55	34 7	6 4	6 13	0 1 19	N0 8 41	10 27	1 46	14 56	17	21	☉ ent. ♈ Spr.
22	9 12	9 27	32 10	6 1	6 15	0 4 57	0 32 21	11 52	2 35	20 7	18	22	[com.
23	9 44	10 1	29 11	5 59	6 16	0 8 35	0 56 0	morn	3 26	24 7	19	23	*days, and*
24	10 18	10 34	26 10	5 56	6 18	0 12 13	1 19 38	1 11	4 18	26 46	20	24	☿ in Perihel.
25	10 51	11 11	23 3	5 54	6 20	0 15 52	1 43 13	2 18	5 11	27 58	21	25	*afterwards*
26	11 46	— —	19 11	5 51	6 22	0 19 30	2 6 47	3 9	6 4	27 41	22	26	*fine days*
27	0 16	0 46	17 4	5 49	6 24	0 23 8	2 30 17	3 44	6 54	26 3	23	27	☾ in Apogee
28	1 31	2 18	18 0	5 46	6 26	0 26 46	2 53 45	4 8	7 43	23 11	24	28	*for*
29	3 12	3 56	20 8	5 44	6 27	0 30 24	3 17 10	4 24	8 28	19 17	25	29	*sowing.*
30	4 30	4 53	23 8	5 41	6 29	0 34 2	3 40 31	4 36	9 12	14 33	26	30	♀ ☌ ☾, 6 a 55
31	5 14	5 34	26 8	5 39	6 31	0 37 40	4 3 48	4 46	9 54	9 9	27	31	♀ in ♍, 4 a 18

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1E	36 35 18	35 13 37	33 51 51	32 29 58	31 8 0	29 45 55	28 23 44	27 1 25
6W	19 50 30	21 18 25	22 46 31	24 14 50	25 43 22	27 12 5	28 41 0	30 10 7
7	31 39 26	33 8 56	34 38 38	36 8 32	37 38 38	39 8 55	40 39 24	42 10 5
8	43 40 58	45 12 3	46 43 19	48 14 48	49 46 28	51 18 21	52 50 25	54 22 42
9	55 55 11	57 27 52	59 0 46	60 33 52	62 7 11	63 40 42	65 14 26	66 48 22
10	68 22 31	69 56 54	71 31 29	73 6 17	74 41 18	76 16 33	77 52 0	79 27 41
11	81 3 35	82 39 42	84 16 2	85 52 36	87 29 23	89 6 23	90 43 37	92 21 4
12	93 58 43	95 36 36	97 14 42	98 53 1	100 31 32	102 10 16	103 49 13	105 28 21
13	107 7 42	108 47 15	110 26 59	112 6 54	113 47 0	115 27 17	117 7 45	118 48 22
14	120 29 8	122 10 4	123 51 8	125 32 20	127 13 40	128 55 7	130 36 40	132 18 19
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
22E	134 11 16	132 41 46	131 12 37	129 43 49	128 15 21	126 47 13	125 19 26	123 51 58
23	122 24 50	120 58 1	119 31 30	118 5 18	116 39 23	115 13 46	113 48 25	112 23 21
24	110 58 33	109 34 1	108 9 43	106 45 40	105 21 51	103 58 15	102 34 52	101 11 41
25	99 48 42	98 25 53	97 3 16	95 40 48	94 18 30	92 56 21	91 34 20	90 12 26
26	88 50 39	87 28 59	86 7 25	84 45 56	83 24 31	82 3 11	80 41 54	79 20 40
27	77 59 28	76 38 18	75 17 9	73 56 0	72 34 52	71 13 43	69 52 32	68 31 20
28	67 10 6	65 48 49	64 27 29	63 6 5	61 44 37	60 23 4	59 1 26	57 39 42
29	56 17 52	54 55 55	53 33 51	52 11 39	50 49 20	49 26 53	48 4 17	46 41 32
30	45 18 38	43 55 34	42 32 21	41 8 57	39 45 23	38 21 39	36 57 44	35 33 39
31	34 9 23	32 44 56	31 20 19	29 55 31	28 30 33	27 5 26	25 40 9	24 14 44

In the Tide Table for Bristol, on the right-hand pages, the heights are given of those Tides which happen nearest to noon in each day at the Cumberland Gates, without taking into account the diurnal inequality of the height.

PHASES OF THE MOON.

New Moon,	3rd day, at	9h. 59m. morning.
First Quarter,	10th day. at	11h. 3m. morning.
Full Moon,	17th day, at	8h. 48m. morning.
Last Quarter,	25th day, at	4h. 27m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	3m26	8 a 43	16 2	8 a 35	1 a 11	4 m30	9 m23	9 a 46	2 a 6	0m50	4 a 22	4 m 1	7 a 53	1
8	3 4	9 2	16 0	8 44	1 4	4 19	9 26	9 48	1 58	0 28	3 59	3 33	7 26	8
15	2 40	9 23	15 58	8 16	0 37	4 7	9 30	9 49	1 51	0 7	3 37	3 6	6 58	15
22	2 12	9 45	15 56	rises.	11 m57	3 54	9 33	9 51	1 43	11a43	3 15	2 39	6 32	22
29	1 42	10 12	15 54	4m14	11 16	3 40	9 36	9 52	1 36	11 22	2 53	2 12	6 5	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	F	All Fools' Day	10 15	15 8	10 32	15 4	4	3
2	S	Bat. Copenhagen, 1801	10 46	16 11	11 0	16 5	3	45
3	B	4 Sunday in Lent	11 16	17 9	11 31	17 5	3	27
4	M	*Proper Lessons.* [Genesis xliii; John xxi. — xlv; Heb. v.	11 48	18 5	— —	— —	3	9
5	Tu	Arcturus souths 1 m 18	0 3	18 0	0 20	18 5	2	51
6	W	Old Lady Day	0 38	17 11	0 55	17 11	2	34
7	Th	Lalande died, 1811	1 14	17 5	1 35	17 0	2	16
8	F	Day increased 6h. 14m.	1 57	16 8	2 20	15 9	1	59
9	S	Lord Bacon died, 1626	2 44	15 3	3 10	13 9	1	42
10	B	5 Sunday in Lent	3 40	13 10	4 15	12 2	1	26
11	M	*Proper Lessons.* [Exodus iii; Acts vii. — v; Heb. xii.	4 56	12 8	5 44	11 4	1	9
12	Tu	Dr. Young died, 1765	6 32	12 9	7 17	11 11	0	53
13	W	Regulus souths 8 a 33	7 59	14 1	8 30	13 5	0	37
14	Th	Handel died, 1759	8 58	15 7	9 24	15 1	0	22
15	F	Easter Term begins	9 48	17 2	10 8	16 6	0	—6
16	S	Oxford Term ends	10 28	18 3	10 46	17 5	0	9
17	B	Palm Sunday	11 4	18 9	11 24	17 11	0	23
18	M	*Proper Lessons.* [Exodus ix; Matthew xxvi. — x; Heb. v to ver. xi.	11 42	18 8	12 0	17 11	0	37
19	Tu	Alphege, Archbishop	— —	— —	0 18	17 10	0	51
20	W	Spanish Armada, 1657	0 37	17 4	0 56	16 9	1	4
21	Th	Napoleon III. born	1 15	16 5	1 34	15 4	1	17
22	F	Good Friday	1 53	15 3	2 13	13 9	1	30
23	S	St. George	2 34	13 11	2 55	12 3	1	42
24	B	Easter Sunday	3 19	12 7	3 45	10 10	1	53
25	M	*Pro. Les.* [Exodus xii; Romans vi. — xiv; Acts ii to ver. 22	4 16	11 6	4 55	10 2	2	4
26	Tu	Easter Tuesday	5 35	11 2	6 15	10 0	2	15
27	W	Sir W. Jones d. 1794	6 53	11 6	7 28	10 10	2	25
28	Th	Mutiny Bounty, 1789	7 58	12 7	8 26	12 1	2	35
29	F	Alex. II. born, 1818	8 50	13 10	9 12	13 7	2	44
30	S	J. Montgomery d. 1854	9 31	15 2	9 48	15 0	2	52

Clock before Sun.—Subtract from Mean Time.
Clock after Sun.—Subtract from Apparent Time.

M D.	Bristol Tides morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age. d.	M D.
1	5 53	6 12	29 1	5 36	6 33	0 41 19	4 27 0	4m54	10 m36	3s18	28	1
2	6 28	6 44	30 0	5 33	6 35	0 44 57	4 50 8	5 3	11 18	2N49	29	2
3	7 2	7 18	31 6	5 31	6 37	0 48 36	5 13 10	sets.	0 a 1	8 56	N	3
4	7 37	7 54	32 9	5 28	6 39	0 52 14	5 36 7	8a37	0 48	14 47	1	4
5	8 11	8 28	32 11	5 26	6 41	0 55 53	5 58 58	10 7	1 38	20 1	2	5
6	8 45	9 3	32 4	5 24	6 43	0 59 32	6 21 43	11 34	2 32	24 13	3	6
7	9 21	9 41	31 0	5 21	6 45	1 3 12	6 44 21	morn	3 31	26 58	4	7
8	10 2	10 22	28 11	5 19	6 47	1 6 51	7 6 52	0 54	4 32	27 56	5	8
9	10 44	11 10	26 2	5 16	6 48	1 10 31	7 29 15	1 58	5 34	26 57	6	9
10	11 41	— —	23 1	5 14	6 50	1 14 10	7 51 31	2 42	6 34	24 5	7	10
11	0 16	0 58	21 4	5 11	6 52	1 17 51	8 13 39	3 10	7 31	19 38	8	11
12	1 43	2 37	22 11	5 9	6 54	1 21 31	8 35 39	3 31	8 23	14 0	9	12
13	3 28	4 2	26 4	5 7	6 56	1 25 12	8 57 30	3 45	9 13	7 37	10	13
14	4 32	4 59	29 4	5 4	6 58	1 28 53	9 19 12	3 55	10 1	0 52	11	14
15	5 24	5 47	31 6	5 2	7 0	1 32 34	9 40 44	4 4	10 48	s5 50	12	15
16	6 9	6 29	32 5	5 0	7 1	1 36 16	10 2 7	4 14	11 35	12 9	13	16
17	6 50	7 11	33 2	4 57	7 3	1 39 58	10 23 21	rises.	morn	— —	F	17
18	7 31	7 51	33 3	4 55	7 5	1 43 40	10 44 24	9a24	0 24	17 45	15	18
19	8 9	8 28	32 2	4 53	7 7	1 47 23	11 5 16	10 45	1 15	22 19	16	19
20	8 46	9 3	30 8	4 51	7 9	1 51 6	11 25 57	morn	2 7	25 36	17	20
21	9 20	9 37	28 5	4 48	7 11	1 54 50	11 46 28	0 1	3 1	27 27	18	21
22	9 55	10 12	26 2	4 46	7 13	1 58 34	12 6 47	1 2	3 54	27 47	19	22
23	10 30	10 50	23 7	4 44	7 15	2 2 18	12 26 54	1 43	4 46	26 41	20	23
24	11 13	11 40	20 11	4 41	7 16	2 6 3	12 46 49	2 10	5 35	24 17	21	24
25	— —	0 14	19 3	4 39	7 18	2 9 49	13 6 31	2 29	6 21	20 48	22	25
26	0 49	1 26	18 11	4 37	7 20	2 13 35	13 26 1	2 42	7 6	16 25	23	26
27	2 7	2 50	20 9	4 35	7 22	2 17 21	13 45 18	2 52	7 48	11 20	24	27
28	3 27	3 58	23 8	4 33	7 24	2 21 8	14 4 21	3 1	8 30	5 43	25	28
29	4 24	4 46	26 2	4 30	7 25	2 24 56	14 23 11	3 10	9 11	N0 15	26	29
30	5 6	5 22	28 7	4 28	7 27	2 28 44	14 41 46	3 19	9 54	6 21	27	30

ASPECTS AND WEATHER.

This month will ☿ gr.elon. E. *probably be showery* ♂ ☾, 0 m 36 *weather,* ♃ ♂ ☾, 3 m 52 *which may* ♄ ♂ ☾, 0 a 37 *continue during the greatest* ♀ ♂ Phi.Aqu. *part of the month; expect rainy* ☿ in Inf. ♂ ☉ *weather about the* ♄ □ ☉, 0 a 47 *end of* ♂ ♂ ♅, 6 m 44 *the month.* ♀ ♂ ☾, 11 a 28

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
5w	26 0 23	27 33 43	29 7 18	30 41 9	32 15 14	33 49 33	35 24 4	36 58 48
6	38 33 44	40 8 51	41 44 9	43 19 37	44 55 16	46 31 4	48 7 1	49 43 7
7	51 19 21	52 55 44	54 32 15	56 8 53	57 45 39	59 22 33	60 59 33	62 36 40
8	64 13 53	65 51 13	67 28 39	69 6 11	70 43 48	72 21 31	73 59 19	75 37 12
9	77 15 10	78 53 13	80 31 20	82 9 32	83 47 48	85 26 7	87 4 31	88 42 58
10	90 21 28	92 0 2	93 38 39	95 17 18	96 56 0	98 34 45	100 13 31	101 52 20
11	103 31 10	105 10 1	106 48 54	108 27 47	110 6 41	111 45 35	113 24 30	115 3 24
12	116 42 17	118 21 9	120 0 0	121 38 49	123 17 35	124 56 20	126 35 1	128 13 38
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
21E	130 32 58	129 8 39	127 44 33	126 20 39	124 56 57	123 33 26	122 10 7	120 46 58
22	119 24 0	118 1 12	116 38 33	115 16 4	113 53 43	112 31 30	111 9 25	109 47 27
23	108 25 36	107 3 51	105 42 11	104 20 36	102 59 7	101 37 41	100 16 18	98 54 58
24	97 33 41	96 12 25	94 51 11	93 29 57	92 8 43	90 47 28	89 26 13	88 4 55
25	86 43 35	85 22 13	84 0 47	82 39 17	81 17 42	79 56 2	78 34 16	77 12 24
26	75 50 25	74 28 19	73 6 5	71 43 42	70 21 11	68 58 29	67 35 38	66 12 36
27	64 49 24	63 26 0	62 2 24	60 38 35	59 14 34	57 50 20	56 25 52	55 1 11
28	53 36 15	52 11 5	50 45 39	49 19 59	47 54 4	46 27 53	45 1 26	43 34 44
29	42 7 46	40 40 32	39 13 3	37 45 18	36 17 18	34 49 2	33 20 33	31 51 49
30	30 22 52	28 53 42	27 24 21	25 54 51	24 25 13	22 55 28	21 25 42	19 55 58

The Sun's Right Ascension is given in time to the nearest second for Greenwich mean noon, and with the table of the right ascension of the principal fixed stars, given in page 29, is useful to find the time by the meridian distance of those stars.

The Sun's Declination is given to the nearest second for the instant of *apparent* noon at Greenwich, and may be reduced to any other meridian by applying the proportional part of the daily difference.

PHASES OF THE MOON.
- New Moon, 2nd day, at 9h. 46m. night.
- First Quarter, 9th day, at 4h. 41m. evening.
- Full Moon, 16th day, at 8h. 49m. night.
- Last Quarter, 24th day, at 10h. 31m. night.

M D.	Day brek.	Twil. ends	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	1m31	10a28	15 54	4m12	11m6	3m36	9m36	9a52	1a33	11a16	2a47	2m4	5a58	1
8	0 45	11 16	15 52	3 51	10 38	3 22	9 39	9 51	1 26	10 55	2 26	1 37	5 32	8
15	noreal night.	noreal night.	15 51	3 34	10 24	3 7	9 43	9 50	1 19	10 35	2 4	1 11	5 6	15
22			15 50	3 19	10 20	2 54	9 46	9 47	1 12	10 14	1 43	0 44	4 40	22
29			15 49	3 4	10 25	2 40	9 50	9 43	1 5	9 54	1 23	0 18	4 15	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	B	1 Sun. after Easter	10 7	16 4	10 25	16 3	3	0
2	M	*Proper Lessons.* [Num. xvi; John i to v. 43	10 42	17 2	11 1	17 1	3	7
3	Tu	Inven. of the Cross	11 18	17 9	11 36	17 8	3	14
4	W	Oxf. & Cam. Terms b.	11 56	17 10	— —	— —	3	21
5	Th	Bonaparte died, 1821	0 18	17 11	0 40	17 6	3	26
6	F	St. John, Port. Lat.	1 1	17 6	1 24	16 9	3	31
7	S	Altair rises 9 a 51	1 48	16 9	2 14	15 4	3	36
8	B	2 Sun. after Easter	2 44	15 8	3 14	13 11	3	40
9	M	*Pro. Les.* [Num. xxiii, xxiv; Matthew vi.	3 45	14 6	4 19	12 9	3	44
10	Tu	Battle of Lodi, 1796	4 56	13 10	5 37	12 3	3	47
11	W	Lord Chatham d. 1778	6 16	13 10	6 52	12 8	3	49
12	Th	Strafford behd. 1641	7 25	14 6	7 55	13 7	3	51
13	F	Old May Day	8 24	15 4	8 51	14 6	3	52
14	S	Fahrenheit born, 1686	9 15	16 0	9 40	15 5	3	53
15	B	3 Sun. after Easter	10 3	16 7	10 23	16 2	3	53
16	M	*Proper Lessons.* [Deut. iv; Mat. xiii.	10 42	16 9	11 2	16 7	3	53
17	Tu	Jenner born 1749	11 21	16 8	11 41	16 7	3	52
18	W	Bonaparte Emp. 1804	11 59	16 2	— —	— —	3	51
19	Th	Dunstan, Archbishop	0 18	16 4	0 37	15 6	3	49
20	F	Lyra souths 2 m 43	0 56	15 11	1 16	14 8	3	46
21	S	Heber died 1783	1 36	15 2	1 56	13 8	3	43
22	B	4 Sun. after Easter	2 18	14 4	2 38	12 8	3	39
23	M	[Deut. vi; Matthew xx.	3 0	13 6	3 23	11 10	3	35
24	Tu	Queen Victoria born	3 46	12 8	4 12	11 2	3	30
25	W	Princess Helena born	4 43	12 1	5 17	11 1	3	25
26	Th	Trinity Term begins	5 51	12 2	6 22	11 5	3	19
27	F	Venerable Bede	6 52	12 8	7 19	12 1	3	12
28	S	Wm. Pitt born, 1759	7 45	13 5	8 11	13 2	3	5
29	B	Rogation Sunday	8 36	14 4	9 2	14 4	2	58
30	M	*Proper Lessons.* [Deut. viii; Matthew xxvii.	9 27	15 3	9 52	15 6	2	50
31	Tu	Day increased 9h 28m	10 14	16 2	10 36	16 7	2	42

Equation of Time. Clock after Sun.—Add to Mean Time, or Subtract from Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt.ascen. H. M. S.	declin. N ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age	M D.	ASPECTS AND WEATHER.
1	5 46	6 6	30 4	4 26	7 29	2 32 33	15 0 7	3m29	10m40	12N21	28	1	☿ ☌ ☾,10 a 57
2	6 25	6 46	31 0	4 24	7 30	2 36 22	15 18 13	sets.	11 29	17 55	N	2	*Now expect*
3	7 4	7 25	31 11	4 22	7 32	2 40 11	15 36 3	9a11	0a23	22 37	1	3	
4	7 47	8 9	32 4	4 20	7 34	2 44 2	15 53 39	10 39	1 21	26 1	2	4	♅ ☌ ☾,10m26
5	8 30	8 51	32 0	4 18	7 36	2 47 52	16 10 58	11 49	2 23	27 39	3	5	*fine*
6	9 11	9 32	30 9	4 16	7 38	2 51 44	16 28 2	morn	3 27	27 16	4	6	*and fair*
7	9 56	10 22	29 2	4 14	7 39	2 55 36	16 44 48	0 39	4 28	24 55	5	7	☿ in Aphel.
8	10 48	11 14	26 9	4 12	7 41	2 59 28	17 1 18	1 14	5 26	20 52	6	8	♄ ☌ ☾, 7 a 35
9	11 45	— —	24 6	4 10	7 43	3 3 21	17 17 31	1 37	6 20	15 34	7	9	*weather,*
10	0 16	0 52	23 2	4 8	7 45	3 7 15	17 33 27	1 52	7 10	9 28	8	10	*which will*
11	1 27	2 7	24 1	4 6	7 47	3 11 9	17 49 5	2 3	7 57	2 56	9	11	*continue*
12	2 49	3 25	26 5	4 5	7 48	3 15 4	18 4 25	2 13	8 43	s3 38	10	12	
13	3 57	4 25	28 2	4 3	7 50	3 18 59	18 19 27	2 23	9 30	9 57	11	13	☿ ☌ ☾ Pisci.
14	4 50	5 16	29 5	4 2	7 52	3 22 55	18 34 10	2 32	10 17	15 42	12	14	*for*
15	5 41	6 4	30 0	4 0	7 54	3 26 51	18 48 35	2 41	11 6	20 35	13	15	*the greatest*
16	6 25	6 47	30 3	3 59	7 56	3 30 48	19 2 41	rises.	11 57	24 21	F	16	*part*
17	7 8	7 30	30 2	3 57	7 57	3 34 45	19 16 27	9a43	morn	— —	15	17	*of this*
18	7 50	8 9	29 6	3 56	7 59	3 38 43	19 29 54	10 47	0 50	26 45	16	18	
19	8 27	8 44	28 8	3 54	8 0	3 42 42	19 43 1	11 36	1 44	27 40	17	19	
20	9 3	9 22	27 5	3 52	8 2	3 46 41	19 55 49	morn	2 37	27 6	18	20	♀ gr. elon. W.
21	9 40	9 58	26 0	3 51	8 3	3 50 41	20 8 15	0 10	3 28	25 10	19	21	*month as*
22	10 16	10 35	24 7	3 49	8 5	3 54 41	20 20 22	0 32	4 15	22 4	20	22	☾ in Perigee
23	10 54	11 14	23 0	3 48	8 7	3 58 42	20 32 7	0 48	5 1	18 2	21	23	*warm, and*
24	11 37	— —	21 5	3 47	8 8	4 2 43	20 43 32	1 0	5 43	13 14	22	24	
25	0 4	0 34	20 9	3 45	8 10	4 6 45	20 54 35	1 9	6 24	7 54	23	25	♅ ☌ ☉, 8 m 57
26	1 3	1 32	21 4	3 44	8 11	4 10 48	21 5 17	1 17	7 5	2 10	24	26	
27	2 7	2 41	22 9	3 42	8 13	4 14 51	21 15 37	1 25	7 47	N3 47	25	27	☿ gr. H. L. ☉.
28	3 13	3 43	25 2	3 41	8 14	4 18 54	21 25 35	1 34	8 30	9 46	26	28	
29	4 10	4 36	27 2	3 40	8 15	4 22 58	21 35 11	1 45	9 17	15 29	27	29	*still fair.*
30	5 2	5 29	28 11	3 39	8 17	4 27 3	21 44 25	2 0	10 8	20 36	28	30	☿ ☌ ☾,6 a 40
31	5 53	6 18	29 7	3 38	8 18	4 31 7	21 53 16	2 21	11 5	24 38	29	31	♅ ☌ ☾, 10 a 8

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
4W	21 15 8	22 51 39	24 28 39	26 6 2	27 43 47	29 21 49	31 0 7	32 38 39
5	34 17 24	35 56 18	37 35 22	39 14 34	40 53 54	42 33 19	44 12 49	45 52 24
6	47 32 2	49 11 43	50 51 26	52 31 10	54 10 55	55 50 41	57 30 26	59 10 10
7	60 49 52	62 29 33	64 9 11	65 48 47	67 28 19	69 7 48	70 47 13	72 26 34
8	74 5 50	75 45 1	77 24 6	79 3 7	80 42 1	82 20 50	83 59 32	85 38 8
9	87 16 36	88 54 59	90 33 14	92 11 22	93 49 22	95 27 14	97 4 59	98 42 36
10	100 20 5	101 57 25	103 34 37	105 11 41	106 48 35	108 25 21	110 1 58	111 38 25
11	113 14 44	114 50 53	116 26 52	118 2 41	119 38 21	121 13 50	122 49 9	124 24 17
12	125 59 15	127 34 1	129 8 37	130 43 1	132 17 13	133 51 13	135 25 1	136 58 36
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
20E	138 25 44	137 3 32	135 41 26	134 19 25	132 57 30	131 35 41	130 13 56	128 52 17
21	127 30 41	126 9 10	124 47 43	123 26 20	122 4 59	120 43 41	119 22 26	118 1 12
22	116 39 59	115 18 48	113 57 36	112 36 25	111 15 13	109 54 1	108 32 46	107 11 29
23	105 50 10	104 28 48	103 7 21	101 45 51	100 24 16	99 2 35	97 40 49	96 18 56
24	94 50 56	93 34 48	92 12 32	90 50 8	89 27 34	88 4 50	86 41 56	85 18 51
25	83 55 34	82 32 5	81 8 23	79 44 28	78 20 20	76 55 57	75 31 19	74 6 26
26	72 41 18	71 15 52	69 50 10	68 24 11	66 57 55	65 31 20	64 4 27	62 37 14
27	61 9 43	59 41 52	58 13 41	56 45 10	55 16 18	53 47 6	52 17 32	50 47 38
28	49 17 23	47 46 46	46 15 48	44 44 30	43 12 50	41 40 48	40 8 27	38 35 45
29	37 2 43	35 29 21	33 55 41	32 21 43	30 47 28	29 12 57	27 38 12	26 3 15

THE SUN'S RISING AND SETTING, and the MOON'S RISING, SOUTHING, AND SETTING are given, as stated in the title-page, for Latitude 54° 10′ N., and Longitude 4° 30′ W.

THE MOON'S DECLINATION is given to the nearest minute for her transit over the meridian of Greenwich.

PHASES OF THE MOON.

New Moon,	1st day, at	6h. 52m. morning.
First Quarter,	7th day, at	10h. 30m. night.
Full Moon,	15th day, at	10h. 0m. morning.
Last Quarter,	23rd day, at	2h. 14m. afternoon.
New Moon,	30th day, at	2h. 23m. afternoon.

M D.	Day brek.	Twil ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 48	3 m 0	10 m 31	2 m 35	9 m 52	9 a 41	1 a 2	9 a 45	1 a 14	0 m 6	4 a 4	1
8			15 47	2 53	10 50	2 24	9 58	9 35	0 55	9 25	0 53	11 a 37	3 39	8
15			15 47	2 57	11 20	2 14	10 4	9 29	0 47	9 4	0 32	11 11	3 15	15
22			15 46	sets.	11 58	2 5	10 11	9 18	0 40	8 43	0 12	10 45	2 50	22
29			15 46	9 a 13	0 a 36	2 3	10 19	9 7	0 32	8 22	11 m 51	10 19	2 26	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″	
1	W	Nicomede, Martyr	10 59	16 10	11 20	17 4	2	33	Clock after Sun.
2	Th	**Ascension Day**	11 41	17 2	— —	— —	2	24	
3	F	Lyra souths 1 m 48	0 4	16 11	0 29	17 2	2	15	
4	S	Br. Inst. founded, 1805	0 55	17 11	1 21	16 9	2	5	
5	B	**Sun. af. Ascens. Day**	1 47	17 6	2 15	15 10	1	54	
6	M	*Proper Lessons.* [Deut. xii; Mark vi. — xiii; 2 Cor. iii.	2 43	16 8	3 11	14 10	1	44	Add to Mean Time.
7	Tu	Reform Bill, 1832	3 39	15 9	4 8	13 10	1	33	
8	W	Antares souths 11 a 10	4 38	15 0	5 9	13 2	1	22	
9	Th	Dr. Rees died, 1825	5 39	14 5	6 12	12 11	1	11	
10	F	Oxford E. Term ends	6 43	14 1	7 15	13 1	0	59	
11	S	**St. Barnabas, Apos.**	7 45	14 2	8 16	13 6	0	47	
12	B	**Whit Sunday**	8 47	14 3	9 14	14 2	0	35	
13	M	*Pro.* [Deut. xvi. to v. 18; Acts x, v. 34. *Les.* [Isaiah xi; Acts xix to v. 21.	9 39	14 6	10 4	14 8	0	23	
14	Tu	**Whit Tuesday**	10 26	14 8	10 47	15 2	0	10	
15	W	Oxford T. Term begins	11 9	14 9	11 28	15 7	0	2	
16	Th	Trinity Term ends	11 47	14 10	— —	— —	0	14	Clock before Sun.
17	F	St. Alban, Martyr	0 6	15 10	0 23	14 9	0	27	
18	S	B. of Waterloo, 1815	0 42	15 8	1 2	14 6	0	40	
19	B	**Trinity Sunday**	1 22	15 6	1 37	14 2	0	53	
20	M	*Proper Lessons.* [Genesis i; Matthew iii. — xviii; 1 John v.	1 57	15 2	2 17	13 9	1	6	
21	Tu	20, Queen's Ac.; 21,	2 36	14 8	2 55	13 4	1	19	Substract from Apparent Time.
22	W	Day 17h. 6m. long [Pr.	3 14	14 2	3 34	12 9	1	32	
23	Th	Corpus Christi	3 55	13 7	4 20	12 6	1	45	
24	F	**St. John Baptist**	4 48	13 1	5 17	12 2	1	58	
25	S	24, Midsummer Day	5 47	12 9	6 16	12 2	2	11	
26	B	**1 Sun. after Trinity**	6 48	12 9	7 20	12 8	2	23	
27	M	[Joshua x; Luke ix. — xxiii; Ephesians iii.	7 53	13 3	8 23	13 6	2	36	
28	Tu	Lord Raglan d. 1855	8 54	14 0	9 22	14 8	2	48	
29	W	**St. Peter, Apostle**	9 51	15 1	10 19	16 1	3	1	
30	Th	Lyra souths 11 a 58	10 44	16 2	11 9	17 6	3	13	

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ N.	MOON. sets. H. M.	souths H. M.	declin. ° ′	age	M D.	ASPECTS AND WEATHER
1	6 44	7 7	30 9	3 36	8 19	4 35 13	22 1 44	9a31	0a7	27N 6	N	1	*Some*
2	7 30	7 55	31 8	3 34	8 20	4 39 18	22 9 49	10 28	1 12	27 33	1	2	☌ ☾, 8m 4
3	8 19	8 44	31 10	3 34	8 21	4 43 24	22 17 30	11 14	2 17	25 52	2	3	☾ in Perige
4	9 8	9 32	31 5	3 33	8 22	4 47 31	22 24 49	11 40	3 18	22 16	3	4	*showers*
5	9 58	10 22	30 4	3 33	8 23	4 51 37	22 31 44	11 57	4 15	17 12	4	5	♄ ☌ ☾, 5m 3
6	10 46	11 11	29 9	3 32	8 24	4 55 45	22 38 15	morn	5 7	11 11	5	6	*may be*
7	11 36	— —	26 9	3 32	8 25	4 59 52	22 44 23	0 9	5 56	4 42	6	7	☌ ☌ ♃, 3 a 2
8	0 2	0 29	25 2	3 31	8 26	5 4 0	22 50 6	0 20	6 42	s1 53	7	8	*expected,*
9	0 54	1 23	24 4	3 31	8 27	5 8 8	22 55 25	0 30	7 28	8 15	8	9	*followed*
10	1 57	2 36	24 7	3 30	8 28	5 12 16	23 0 20	0 41	8 14	14 6	9	10	☿ ☌ ♅, 10m 3
11	3 13	3 48	25 9	3 30	8 29	5 16 24	23 4 51	0 52	9 2	19 11	10	11	*by fair*
12	4 21	4 49	26 9	3 29	8 30	5 20 33	23 8 58	1 6	9 52	23 15	11	12	*and*
13	5 15	5 42	27 1	3 29	8 31	5 24 41	23 12 40	1 25	10 44	26 4	12	13	*pleasant*
14	6 6	6 30	27 2	3 29	8 31	5 28 50	23 15 58	1 51	11 37	27 28	13	14	*weather;*
15	6 54	7 15	27 5	3 28	8 32	5 32 59	23 18 51	rises.	morn	— —	F	15	
16	7 36	7 57	27 8	3 28	8 32	5 37 9	23 21 19	10a19	0 30	27 24	15	16	☿ in ♌, 1 m 37
17	8 14	8 32	27 7	3 28	8 32	5 41 18	23 23 23	10 36	1 21	25 55	16	17	*showery*
18	8 51	9 10	27 4	3 28	8 33	5 45 27	23 25 3	10 54	2 10	23 12	17	18	*and*
19	9 23	9 41	26 10	3 28	8 33	5 49 37	23 26 17	11 7	2 56	19 27	18	19	*rainy*
20	10 0	10 15	26 5	3 28	8 33	5 53 46	23 27 7	11 17	3 39	14 55	19	20	♀ in Perihel.
21	10 31	10 48	25 8	3 28	8 34	5 57 56	23 27 31	11 25	4 21	9 47	20	21	☉ en. ♋ Sum.
22	11 5	11 23	24 7	3 28	8 34	6 2 5	23 27 31	11 33	5 1	4 14	21	22	[com.
23	11 46	— —	23 6	3 29	8 34	6 6 15	23 27 7	11 41	5 41	N1 33	22	23	*again;*
24	0 10	0 35	22 6	3 29	8 34	6 10 24	23 26 17	11 51	6 23	7 25	23	24	☿ ☌ ♃, 2 m 54
25	1 1	1 27	22 3	3 29	8 34	6 14 34	23 25 3	morn	7 7	13 8	24	25	♃ ☌ ☉, 5 a 37
26	2 1	2 41	23 3	3 30	8 34	6 18 43	23 23 23	0 3	7 55	18 26	25	26	*changeable*
27	3 21	3 55	25 4	3 30	8 34	6 22 52	23 21 20	0 21	8 49	22 57	26	27	*towards*
28	4 28	4 57	27 2	3 31	8 34	6 27 1	23 18 51	0 49	9 48	26 10	27	28	♀ ☌ ☾, 9 a 47
29	5 28	5 58	29 1	3 31	8 34	6 31 10	23 15 58	1 32	10 52	27 37	28	29	*the end.*
30	6 26	6 55	30 0	3 32	8 34	6 35 19	23 12 40	2 35	11 58	26 55	N	30	♃ ☌ ☾, 8m 26

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
3w	30 27 5	32 9 19	33 51 37	35 33 59	37 16 23	38 58 48	40 41 11	42 23 31
4	44 5 48	45 48 1	47 30 7	49 12 8	50 54 0	52 35 45	54 17 21	55 58 47
5	57 40 3	59 21 8	61 2 2	62 42 44	64 23 13	66 3 30	67 43 34	69 23 24
6	71 3 0	72 42 22	74 21 29	76 0 22	77 39 1	79 17 23	80 55 31	82 33 24
7	84 11 0	85 48 22	87 25 27	89 2 18	90 38 52	92 15 10	93 51 13	95 27 0
8	97 2 32	98 37 48	100 12 49	101 47 34	103 22 3	104 56 17	106 30 14	108 3 57
9	109 37 24	111 10 37	112 43 35	114 16 18	115 48 47	117 21 0	118 52 59	120 24 44
10	121 56 14	123 27 30	124 58 32	126 29 20	127 59 54	129 30 14	131 0 19	132 30 12
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
19E	135 11 26	133 50 20	132 29 12	131 8 3	129 46 52	128 25 40	127 4 24	125 43 6
20	124 21 44	123 0 18	121 38 49	120 17 15	118 55 36	117 33 51	116 12 0	114 50 3
21	113 27 59	112 5 47	110 43 28	109 21 0	107 58 23	106 35 37	105 12 40	103 49 33
22	102 26 15	101 2 45	99 39 3	98 15 8	96 51 0	95 26 38	94 2 2	92 37 11
23	91 12 4	89 46 41	88 21 2	86 55 5	85 28 51	84 2 19	82 35 28	81 8 18
24	79 40 48	78 12 58	76 44 48	75 16 16	73 47 23	72 18 8	70 48 30	69 18 30
25	67 48 7	66 17 20	64 46 9	63 14 34	61 42 36	60 10 12	58 37 23	57 4 10
26	55 30 31	53 56 27	52 21 58	50 47 4	49 11 45	47 36 0	45 59 50	44 23 15
27	42 46 16	41 8 52	39 31 4	37 52 53	36 14 19	34 35 23	32 56 5	31 16 27

THE MOON'S SEMI-DIAMETER is given to the nearest second for Greenwich mean noon and midnight on page 26, and the HORIZONTAL PARALLAX on page 27.

THE LUNAR DISTANCES FROM THE SUN are given with a view to assist those who may not have an opportunity of using the Nautical Almanack, and are given for every three hours of Greenwich astronomical mean time. As the rest of the Almanack is adapted to CIVIL time, this distinction must be kept in mind; the *Civil*

PHASES OF THE MOON.
- First Quarter, 7th day, at 5h. 36m. morning.
- Full Moon, 15th day, at 0h. 35m. morning.
- Last Quarter, 23rd day, at 3h. 8m. morning.
- New Moon, 29th day, at 9h. 26m. night.

M D.	Day brek.	Twil end.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 46	9 a 23	0 a 47	2m 2	10m 21	9 a 4	0 a 30	3m 15	11m 45	10a 11	2 a 19	1
8			15 46	9 32	1 16	2 4	10 30	8 51	0 22	2 54	11 25	9 45	1 55	8
15			15 46	9 25	1 37	2 9	10 39	8 37	0 14	2 34	11 4	9 20	1 30	15
22			15 47	9 10	1 48	2 19	10 49	8 22	0 6	2 14	10 43	8 54	1 6	22
29			15 47	8 48	1 52	2 34	10 58	8 5	11m 57	1 54	10 22	8 28	0 42	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	F	Battle of Boyne, 1690	11 34	17 1	11 59	18 6	3	25
2	S	Visit. B. V. Mary	— —	— —	0 25	17 1	3	37
3	B	2 Sun. after Trinity	0 49	18 11	1 14	17 6	3	48
4	M	Proper Lessons. [Judges iv; Luke xv. — v; Phil. iii.	1 38	18 9	2 3	17 0	3	59
5	Tu	Chusan taken, 1840	2 29	18 1	2 55	16 1	4	9
6	W	Old Midsummer Day	3 21	17 1	3 45	15 0	4	20
7	Th	John Huss exec. 1415	4 9	15 8	4 34	13 10	4	30
8	F	Cambridge Term ends	5 0	14 4	5 29	12 9	4	40
9	S	Oxford Term ends	6 1	13 1	6 32	12 3	4	49
10	B	3 Sun. after Trinity	7 7	12 5	7 42	12 3	4	58
11	M	Proper Lessons. [1 Samuel ii; Luke xxii. — iii; 1 Thess. ii.	8 19	12 4	8 53	12 9	5	6
12	Tu	Erasmus died, 1536	9 22	12 8	9 48	13 7	5	14
13	W	Dr. Bradley died, 1752	10 13	13 3	10 37	14 8	5	22
14	Th	Bastile destroyed, 1789	10 56	14 5	11 15	15 6	5	29
15	F	Swithin, Bishop	11 34	14 7	11 52	14 11	5	35
16	S	Sir J. Reynolds born	— —	— —	0 9	14 10	5	41
17	B	4 Sun. after Trinity	0 26	16 3	0 43	15 2	5	47
18	M	[1 Samuel xii; John v. — xiii; 1 Tim. i.	0 58	16 5	1 15	15 3	5	52
19	Tu	Bodleian Liby. f. 1610	1 32	16 4	1 49	15 2	5	56
20	W	Margaret, V. & M.	2 6	16 0	2 24	14 10	6	0
21	Th	Ld. Russel behd. 1683	2 41	15 6	2 59	14 4	6	4
22	F	St. Mary Magdalene	3 17	14 8	3 37	13 7	6	7
23	S	R. Burns died, 1796	3 58	13 9	4 21	13 2	6	9
24	B	5 Sun. after Trinity	4 48	12 10	5 20	12 4	6	11
25	M	Proper Lessons. [1 Samuel xiv; John xii. — xvii; 2 Tim. iii.	5 58	12 2	6 38	12 2	6	12
26	Tu	St. Anne	7 17	12 1	7 55	12 11	6	13
27	W	Paris Revolution, 1830	8 34	13 2	9 9	14 4	6	13
28	Th	Bat. of Talavera, 1809	9 39	14 6	10 9	16 3	6	12
29	F	Wilberforce d. 1833	10 37	16 1	11 1	18 0	6	11
30	S	[2 Saml. xii; John xix. — xix; Hebrews iii.	11 27	17 6	11 50	19 5	6	10
31	B	6 Sun. after Trinity	— —	— —	0 12	18 5	6	7

Equation of Time. Clock before Sun.—Subtract from Mean Time, or add to Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. asc. H. M. S.	declin. ° ′	N. ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.
1	7 22	7 49	31 11	3 33	8 33	6 39 27	23 8	58	9 a 40	1 a 2	24 N 4	1	1
2	8 16	8 39	32 10	3 34	8 33	6 43 36	23 4	51	10 2	2 3	19 26	2	2
3	9 3	9 24	33 2	3 35	8 33	6 47 43	23 0	21	10 17	2 59	13 32	3	3
4	9 47	10 11	32 5	3 36	8 32	6 51 51	22 55	26	10 28	3 50	6 56	4	4
5	10 34	10 56	31 2	3 37	8 32	6 55 58	22 50	7	10 38	4 39	0 9	5	5
6	11 17	11 38	28 11	3 38	8 31	7 0 5	22 44	24	10 48	5 25	s6 27	6	6
7	11 59	— —	26 4	3 39	8 31	7 4 12	22 38	18	10 59	6 12	12 33	7	7
8	0 22	0 46	23 9	3 40	8 30	7 8 18	22 31	48	11 12	7 0	17 54	8	8
9	1 14	1 42	22 4	3 41	8 29	7 12 24	22 24	55	11 30	7 49	22 16	9	9
10	2 25	3 7	22 6	3 42	8 28	7 16 29	22 17	39	11 55	8 40	25 26	10	10
11	3 50	4 27	23 7	3 43	8 27	7 20 34	22 10	0	morn	9 32	27 15	11	11
12	4 57	5 24	24 9	3 44	8 26	7 24 39	22 1	58	0 31	10 25	27 37	12	12
13	5 51	6 17	26 2	3 45	8 25	7 28 43	21 53	33	1 22	11 17	26 34	13	13
14	6 39	7 1	26 10	3 46	8 24	7 32 47	21 44	46	2 26	morn	— —	14	14
15	7 21	7 41	27 2	3 47	8 23	7 36 50	21 35	37	rises.	0 6	24 13	F	15
16	8 0	8 17	28 0	3 49	8 22	7 40 52	21 26	6	9a15	0 53	20 46	16	16
17	8 33	8 47	28 6	3 50	8 20	7 44 54	21 16	12	9 25	1 37	16 27	17	17
18	9 3	9 19	28 9	3 51	8 19	7 48 56	21 5	57	9 33	2 19	11 29	18	18
19	9 35	9 50	28 7	3 53	8 18	7 52 57	20 55	21	9 41	2 59	6 4	19	19
20	10 6	10 20	28 1	3 54	8 17	7 56 58	20 44	23	9 49	3 39	0 22	20	20
21	10 36	10 52	26 10	3 56	8 15	8 0 58	20 33	4	9 58	4 20	N5 25	21	21
22	11 9	11 27	25 4	3 57	8 14	8 4 57	20 21	25	10 9	5 2	11 6	22	22
23	11 47	— —	24 0	3 59	8 12	8 8 56	20 9	25	10 23	5 47	16 28	23	23
24	0 11	0 38	22 3	4 0	8 11	8 12 54	19 57	5	10 44	6 36	21 13	24	24
25	1 11	1 48	21 8	4 2	8 9	8 16 52	19 44	24	11 17	7 31	24 58	25	25
26	2 36	3 22	23 1	4 3	8 8	8 20 49	19 31	24	morn	8 32	27 14	26	26
27	4 7	4 43	26 0	4 4	8 6	8 24 46	19 18	4	0 10	9 36	27 36	27	27
28	5 14	5 46	29 1	4 6	8 4	8 28 42	19 4	25	1 25	10 41	25 50	28	28
29	6 18	6 45	30 7	4 7	8 3	8 32 38	18 50	27	sets.	11 44	22 0	N	29
30	7 13	7 39	32 11	4 9	8 1	8 36 32	18 36	11	8a21	0 a 43	16 34	1	30
31	8 3	8 26	34 8	4 11	7 59	8 40 27	18 21	36	8 35	1 38	10 4	2	31

ASPECTS AND WEATHER.

Changeable ☉ in Apogee *weather begins this month,* ☾ ☌ Spica [virginis *which inclines to rainy about the* ☿ ☌ ♄, 11m28 *middle* ☾ in Apogee *of the month; fair and* ☌ ☌ ☉, 1 a 15 *settled about* ☿ in ♉, 10 a 58 *now;* ♅ ☌ ☾, 10 a 39 *showery at* ☉ Eclip. inv. *the end.* ☿ ☌ ☾, 7 a 42

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
2 W	26 39 45	28 24 27	30 9 6	31 53 40	33 38 7	35 22 26	37 6 35	38 50 33
3	40 34 19	42 17 52	44 1 10	45 44 14	47 27 1	49 9 32	50 51 46	52 33 42
4	54 15 19	55 56 37	57 37 36	59 18 15	60 58 33	62 38 31	64 18 8	65 57 24
5	67 36 19	69 14 52	70 53 3	72 30 53	74 8 21	75 45 27	77 22 11	78 58 34
6	80 34 35	82 10 14	83 45 32	85 20 28	86 55 3	88 29 18	90 3 11	91 36 44
7	93 9 56	94 42 49	96 15 21	97 47 34	99 19 28	100 51 2	102 22 18	103 53 16
8	105 23 55	106 54 17	108 24 21	109 54 8	111 23 39	112 52 53	114 21 51	115 50 33
9	117 18 59	118 47 11	120 15 8	121 42 50	123 10 18	124 37 33	126 4 34	127 31 22
10	128 57 57	130 24 20	131 50 30	133 16 29	134 42 15	136 7 51	137 33 15	138 58 28
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
19 E	131 26 5	130 3 29	128 40 45	127 17 54	125 54 54	124 31 46	123 8 28	121 45 1
20	120 21 24	118 57 36	117 33 38	116 9 28	114 45 6	113 20 32	111 55 45	110 30 44
21	109 5 30	107 40 2	106 14 18	104 48 20	103 22 6	101 55 35	100 28 47	99 1 43
22	97 34 20	96 6 39	94 38 40	93 10 21	91 41 43	90 12 44	88 43 24	87 13 44
23	85 43 42	84 13 18	82 42 31	81 11 22	79 39 49	78 7 53	76 35 33	75 2 49
24	73 29 40	71 56 7	70 22 8	68 47 44	67 12 54	65 37 38	64 1 57	62 25 49
25	60 49 16	59 12 16	57 34 50	55 56 58	54 18 40	52 39 56	51 0 46	49 21 10
26	47 41 9	46 0 43	44 19 52	42 38 37	40 56 58	39 14 55	37 32 30	35 49 42
27	34 6 33	32 23 3	30 39 13	28 55 4	27 10 36	25 25 51	23 40 50	21 55 34
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
31 W	22 38 3	24 23 38	26 8 59	27 54 5	29 38 55	31 23 28	33 7 42	34 51 38

day commences at *Midnight*, and the *Astronomical day* at the following *Noon*, being twelve hours later; thus the hours named 15, 18, and 21, on the 1st January, are according to Civil reckoning, 3, 6, and 9 in the morning of the 2nd of January, and

PHASES OF THE MOON.
- First Quarter, 5th day, at 3h. 4m. afternoon.
- Full Moon, 13th day, at 4h. 16m. evening.
- Last Quarter, 21st day, at 1h. 28m. afternoon.
- New Moon, 28th day, at 4h. 56m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no	night	15 48	8 a 38	1 a 50	2m42	11m 2	3m47	11m 53	1m45	10m 13	8 a 18	0 a 32	1
8	1m17	10 49	15 49	8 10	1 40	3 2	11 11	3 46	11 44	1 25	9 52	7 52	0 8	8
15	1 52	10 15	15 50	7 37	1 17	3 23	11 19	3 45	11 35	1 5	9 31	rises.	11 m44	15
22	2 18	9 45	15 51	rises.	0 39	3 46	11 26	3 44	11 25	0 44	9 9	3m 40	11 20	22
29	2 41	9 17	15 53	5m 13	11m 51	4 10	11 32	3 43	11 15	0 24	8 47	3 18	10 56	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	M	Lammas Day	0 35	20 1	0 58	18 8	6	4
2	Tu	Battle of Nile, 1798	1 21	20 0	1 42	18 2	6	1
3	W	E. Baines died, 1848	2 3	19 2	2 25	17 1	5	57
4	Th	Bat. Kurukdere, 1854	2 48	17 8	3 9	15 9	5	52
5	F	Cabul taken, 1839	3 29	15 10	3 51	14 1	5	47
6	S	Transfig. Pr. Alfred b.	4 15	13 9	4 42	12 7	5	41
7	B	7 Sun. after Trinity	5 14	11 11	5 51	11 5	5	34
8	M	Proper Lessons. [2 Samuel xxi; Acts v. — xxiv; Heb. x.	6 33	10 9	7 18	11 3	5	27
9	Tu	Dryden born, 1631	7 59	10 8	8 36	11 10	5	19
10	W	St. Laurence	9 9	11 5	9 38	13 0	5	11
11	Th	Dog Days end	10 1	12 7	10 23	14 3	5	2
12	F	Altair souths 10 a 20	10 43	14 10	11 0	15 7	4	52
13	S	Old Lammas day	11 17	14 9	11 32	16 4	4	42
14	B	8 Sun. after Trinity	11 48	15 7	—	—	4	31
15	M	Proper Lessons. [1 Kings xiii; Acts xii. — xvii; James iv.	0 2	17 1	0 16	16 2	4	20
16	Tu	Bat. Tchernaya, 1855	0 31	17 5	0 45	16 6	4	8
17	W	Duchess of Kent born	1 0	17 6	1 15	16 5	3	56
18	Th	J. Flamstead b., 1646	1 31	17 2	1 47	16 1	3	43
19	F	Royal Geo. sunk, 1782	2 5	16 4	2 23	15 5	3	30
20	S	Mar. Arnaud b., 1801	2 40	16 4	2 59	14 6	3	16
21	B	9 Sun. after Trinity	3 20	14 0	3 43	13 3	3	2
22	M	Pro. Less. [1 Kings xviii; Acts xix. — xix; 2 Peter i.	4 9	12 7	4 43	12 3	2	48
23	Tu	Herschell died, 1822	5 23	11 6	6 8	11 10	2	33
24	W	St. Bathlomew	6 55	11 5	7 42	12 9	2	17
25	Th	Cæsar landed, B.C. 55	8 24	12 8	8 59	14 7	2	1
26	F	Prince Albert b. 1819	9 31	14 6	10 0	16 9	1	45
27	S	Thomson died, 1748	10 24	16 7	10 47	18 10	1	28
28	B	10 Sun. after Trinity	11 11	18 2	11 31	20 3	1	11
29	M	[1 Kings xxi; Acts xxvi. — xxii; 1 John v.	11 51	19 1	—	—	0	54
30	Tu	Paley born, 1743	0 12	20 10	0 31	19 4	0	36
31	W	John Bunyan d. 1688	0 52	20 6	1 12	18 7	0	18

Clock before Sun.—Subtract from Mean Time, or add to Apparent Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin ° ′	age	M. D.	ASPECTS AND WEATHER
1	8 48	9 9	35 2	4 13	7 57	8 44 20	18 6 43	8a46	2a29	3 N 5	3	1	*The weather*
2	9 28	9 48	34 5	4 15	7 56	8 48 13	17 51 32	8 55	3 18	s3 53	4	2	*will*
3	10 8	10 28	32 7	4 17	7 54	8 52 6	17 36 4	9 7	4 7	10 25	5	3	☿ in Aphel.
4	10 46	11 3	30 1	4 18	7 52	8 55 58	17 20 18	9 20	4 55	16 13	6	4	*probably*
5	11 22	11 42	26 7	4 20	7 50	8 59 49	17 4 16	9 36	5 45	21 2	7	5	*be*
6	— —	0 5	23 0	4 22	7 48	9 3 39	16 47 58	9 57	6 36	24 39	8	6	*changeable,*
7	0 33	1 4	20 2	4 24	7 46	9 7 29	16 31 23	10 29	7 28	26 55	9	7	*which*
8	1 43	2 36	19 8	4 25	7 44	9 11 19	16 14 32	11 16	8 21	27 43	10	8	*will*
9	3 25	4 8	21 5	4 27	7 42	9 15 7	15 57 26	morn	9 13	27 6	11	9	♄ ☌ ☉, 0 m 42
10	4 43	5 13	23 5	4 29	7 40	9 18 55	15 40 5	0 15	10 3	25 8	12	10	*incline*
11	5 37	6 1	25 4	4 31	7 38	9 22 43	15 22 28	1 28	10 51	22 1	13	11	*to fair*
12	6 24	6 43	26 3	4 32	7 36	9 26 30	15 4 37	2 43	11 36	17 57	14	12	*about*
13	7 3	7 19	27 10	4 34	7 34	9 30 16	14 46 31	rises.	morn	— —	F	13	☉ eclip., inv.
14	7 37	7 53	29 3	4 36	7 32	9 34 2	14 28 12	7a43	0 18	13 9	16	14	☿ stationary
15	8 7	8 21	30 3	4 38	7 30	9 37 48	14 9 38	7 51	0 59	7 50	17	15	*this time;*
16	8 34	8 48	30 10	4 40	7 28	9 41 33	13 50 51	7 59	1 39	2 11	18	16	*and*
17	9 2	9 17	30 9	4 41	7 25	9 45 17	13 31 50	8 8	2 19	N3 35	19	17	*towards*
18	9 32	9 49	30 0	4 43	7 23	9 49 1	13 12 37	8 18	3 0	9 18	20	18	*the end*
19	10 6	10 20	28 10	4 45	7 21	9 52 44	12 53 11	8 30	3 44	14 45	N	19	
20	10 35	10 54	27 1	4 47	7 18	9 56 27	12 33 32	8 47	4 31	19 39	22	20	♂ ☌ ♄, 5 m 40
21	11 14	11 36	24 5	4 49	7 16	10 0 9	12 13 42	9 14	5 22	23 43	23	21	♀ ☌ ♂, 11 m 47
22	— —	0 6	21 11	4 50	7 14	10 3 51	11 53 39	9 58	6 18	26 32	24	22	*of the*
23	0 40	1 20	20 7	4 52	7 11	10 7 33	11 33 25	11 0	7 19	27 42	25	23	*month*
24	2 10	3 6	22 7	4 54	7 9	10 11 14	11 13 0	morn	8 22	26 57	26	24	♄ ☌ ☾, 11 m 50
25	3 56	4 33	26 4	4 55	7 7	10 14 54	10 52 25	0 21	9 25	24 10	27	25	♀ in Perihel.
26	5 6	5 37	29 11	4 57	7 4	10 18 35	10 31 39	1 56	10 25	19 35	28	26	*again*
27	6 4	6 30	31 7	4 59	7 2	10 22 14	10 10 42	3 36	11 21	13 35	29	27	♄ ☌ ☾, 3 m 38
28	6 57	7 19	34 4	5 0	7 0	10 25 54	9 49 36	sets.	0a15	6 45	N	28	☿ ☌ ☾, 5 m 6
29	7 41	8 3	35 11	5 2	6 57	10 29 33	9 28 21	7 a 3	1 6	s0 24	1	29	*be rainy*
30	8 22	8 42	36 2	5 4	6 55	10 33 12	9 6 57	7 13	1 56	7 22	2	30	*or showery*
31	9 1	9 19	35 2	5 6	6 53	10 36 50	8 45 24	7 25	2 46	13 44	3	31	☿ ☌ ♀, 8 a 44

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	36 35 14	38 18 29	40 1 23	41 43 55	43 26 5	45 7 51	49 49 14	48 30 13
2	50 10 48	51 50 57	53 30 42	55 10 2	56 48 56	58 27 25	60 5 28	61 43 6
3	63 20 18	64 57 4	66 33 24	68 9 19	69 44 48	71 19 52	72 54 30	74 28 44
4	76 2 33	77 35 58	79 8 58	80 41 35	82 13 48	83 45 38	85 17 5	86 48 10
5	88 18 52	89 49 13	91 19 12	92 48 51	94 18 10	95 47 8	97 15 47	98 44 8
6	100 12 9	101 39 53	103 17 19	104 34 28	106 1 20	107 27 57	108 54 17	110 20 23
7	111 46 14	113 11 50	114 37 13	116 2 23	117 27 20	118 52 5	120 16 37	121 40 59
8	123 5 10	124 29 10	125 53 0	127 16 40	128 40 12	130 3 35	131 26 49	132 49 55
..	.. .. ..	.. .. ..	.. . ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
17e	137 53 39	136 29 0	135 4 11	133 39 12	132 14 2	130 48 42	129 23 10	127 57 27
18	126 31 33	125 5 26	123 39 7	122 12 35	120 45 50	119 18 51	117 51 38	116 24 10
19	114 56 28	113 28 31	112 0 18	110 31 49	109 3 4	107 34 2	106 4 43	104 35 6
20	103 5 12	101 34 59	100 4 28	98 33 37	97 2 27	95 30 58	93 59 8	92 26 58
21	90 54 27	89 21 36	87 48 23	86 14 48	84 40 51	83 6 33	81 31 52	79 56 48
22	78 21 22	76 45 33	75 9 20	73 32 45	71 55 47	70 18 25	68 40 40	67 2 31
23	65 24 0	63 45 5	62 5 47	60 26 7	58 46 4	57 5 38	55 24 50	53 43 40
24	52 2 9	50 20 17	48 38 4	46 55 32	45 12 39	43 29 28	41 45 58	40 2 11
25	38 18 7	36 33 46	34 49 11	33 4 21	31 19 17	29 34 2	27 48 35	26 2 57
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..	.. .. ..	.. .. ..	.. .. ..
30w	31 51 6	33 32 6	35 12 42	36 52 54	38 32 42	40 12 4	41 51 1	43 29 32
31	45 7 38	46 45 17	48 22 29	49 59 16	51 35 36	53 11 29	54 46 56	56 21 57

in any other part of the Almanack would be set down as such. The letters E. and W. inserted in the first column refer to the position of the Sun; E. East, W. West.

The Planets

Mercury [☿] will be visible in the mornings about the 21st January, 20th May, and 14th September, and in the evenings about the 3rd April, 1st August, and 26th November. The most favourable time for seeing this beautiful planet will be

PHASES OF THE MOON.

First Quarter,	4th day, at	3h. 47m. morning.
Full Moon,	12th day, at	8h. 13m. morning.
Last Quarter,	19th day, at	9h. 56m. night.
New Moon,	26th day, at	1h. 38m. afternoon.

M D.	Day brek.	Twil. ends.	⊙'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	2m52	9 a 6	15 54	4 m43	11m 30	4m20	11 m35	3m 43	11m 10	0m 15	8m 38	3 m 8	10m 46	1
8	3 10	8 44	15 55	3 53	10 57	4 44	11 40	3 42	11 0	11a51	8 15	2 46	10 22	8
15	3 27	8 21	15 57	3 45	10 50	5 8	11 45	3 41	10 49	11 30	7 53	2 23	9 58	15
22	3 45	8 0	15 59	4 13	11 2	5 31	11 50	3 40	10 39	11 8	7 30	2 0	9 53	22
29	3 58	7 40	16 1	4 58	11 20	5 54	11 54	3 39	10 28	10 45	7 6	1 37	9 9	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Th	Giles, Abbot	1 32	19 3	1 52	17 6	0 1
2	F	New style, 1752	2 11	17 6	2 32	15 11	0 19
3	S	Cromwell died, 1658	2 53	15 3	3 14	14 1	0 38
4	B	11 Sun. after Trinity	3 37	12 11	4 3	12 3	0 58
5	M	Proper Lessons. [2 Kings v; Mat. v. — ix; Rom. v.	4 35	10 10	5 16	11 0	1 17
6	Tu	Hannah More d. 1823	6 2	9 8	6 49	10 8	1 37
7	W	Enurchas, Bishop	7 32	9 9	8 14	11 5	1 57
8	Th	Nativity B. V. Mary	8 51	10 11	9 19	12 10	2 18
9	F	Battle Flodden, 1513	9 39	12 4	9 58	14 4	2 38
10	S	Tea first import. 1391	10 18	13 10	10 36	15 8	2 59
11	B	12 Sun. aft. Trinity	10 50	15 2	11 4	16 10	3 20
12	M	Proper Lessons. [2 Kings x; Matt. xii. — xviii; Rom. xii.	11 18	16 3	11 31	17 7	3 41
13	Tu	Battle Quebec, 1759	11 45	16 11	11 58	18 0	4 2
14	W	Holy Cross Day	— —	— —	0 14	17 4	4 23
15	Th	Moscow burnt, 1812	0 30	18 0	0 45	17 3	4 44
16	F	James II. died, 1701	1 1	17 8	1 17	17 0	5 5
17	S	Lambert, Bishop	1 33	16 10	1 52	16 3	5 26
18	B	13 Sun. after Trinity	2 12	15 7	2 33	15 0	5 47
19	M	Proper Lessons. [2 Kings xix; Mat. xix. — xxiii; 1 Cor. iii.	2 54	14 1	3 18	13 7	6 9
20	Tu	Mnx.H.Flet.lost,1787	3 47	12 5	4 25	12 4	6 30
21	W	St. Matthew, Ap.	5 10	11 3	5 59	11 11	6 51
22	Th	Battle Katcha, 1854	6 48	11 4	7 37	13 1	7 12
23	F	R. Exch. found. 1667	8 18	12 10	8 48	15 2	7 33
24	S	Charles I. dethroned	9 15	14 9	9 40	17 2	7 53
25	B	14 Sun. after Trinity	10 2	16 10	10 25	18 11	8 14
26	M	Proper Lessons. [Jeremiah v; Mat. xxvi. — xxii; 1 Cor. x.	10 44	18 4	11 5	20 2	8 34
27	Tu	Jesuits founded, 1540	11 24	19 1	11 43	20 6	8 54
28	W	G. Buchanan d. 1582	— —	— —	0 3	19 2	9 14
29	Th	St. Michael	0 24	19 10	0 44	18 6	9 34
30	F	St. Jerome	1 3	18 5	1 17	17 5	9 54

Equation of Time. Clock after Sun.—Add to Mean Time, or Subtract from Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″	N.	MOON. sets. H. M.	souths H. M.	declin. ° ′	N.	age.	M D.	ASPECTS AND WEATHER.
1	9 37	9 54	32 10	5 8	6 51	10 40 28	8 23 42		7a41	3 a 36	19 s 9		4	1	[Gemi
2	10 12	10 30	29 10	5 10	6 48	10 44 6	8 1 53		8 2	4 28	23 23		5	2	♃ ☌ ☿ delta
3	10 47	11 7	26 0	5 12	6 46	10 47 44	7 39 56		8 30	5 21	26 14		6	3	*Probably*
4	11 30	11 57	22 1	5 14	6 43	10 51 21	7 17 51		9 10	6 15	27 35		7	4	☌ gr. H.L.N
5	— —	0 32	18 10	5 16	6 40	10 54 58	6 55 40		10 7	7 8	27 26		8	5	*this month*
6	1 14	2 3	18 2	5 18	6 38	10 58 34	6 33 22		11 16	7 59	25 55		9	6	☿ stationary
7	2 55	3 44	20 3	5 20	6 36	11 2 11	6 10 57		morn	8 47	23 10		10	7	☿ ☌ ☌, 0 m 3(
8	4 24	4 53	22 11	5 21	6 33	11 5 47	5 48 27		0 30	9 33	19 24		11	8	☾ in Apogee
9	5 14	5 34	25 6	5 23	6 31	11 9 23	5 25 51		1 47	10 17	14 50		12	9	*will begin*
10	5 56	6 17	26 7	5 25	6 28	11 12 59	5 3 9		3 2	10 58	9 40		13	10	*with*
11	6 33	6 49	28 9	5 26	6 26	11 16 35	4 40 22		4 17	11 38	4 6		14	11	*rainy*
12	7 4	7 19	30 4	5 28	6 23	11 20 10	4 17 31		rises.	morn	— —		F	12	*weather,*
13	7 34	7 49	31 6	5 30	6 21	11 23 46	3 54 35		6a17	0 19	N1 41		16	13	
14	8 5	8 20	31 11	5 31	6 18	11 27 21	3 31 34		6 26	1 0	7 29		17	14	☿ gr. elon. W
15	8 35	8 50	32 0	5 33	6 16	11 30 57	3 8 30		6 38	1 43	13 3		18	15	*which*
16	9 5	9 19	31 2	5 35	6 13	11 34 32	2 45 22		6 53	2 29	18 9		19	16	☿ in Perihel.
17	9 36	9 55	29 9	5 37	6 11	11 38 7	2 22 11		7 17	3 18	22 29		20	17	*will* be
18	10 12	10 29	27 7	5 38	6 8	11 41 43	1 58 57		7 54	4 12	25 41		21	18	♅ ☌ ☾, 2 a 32
19	10 49	11 14	24 9	5 40	6 6	11 45 18	1 35 40		8 47	5 10	27 24		22	19	*succeeded*
20	11 48	— —	21 10	5 42	6 3	11 48 54	1 12 21		10 19	6 11	27 22		23	20	*by*
21	0 27	1 10	20 6	5 44	6 1	11 52 29	0 49 0		11 29	7 11	25 27		24	21	♃ ☌ ☾, 3 a 41
22	2 3	3 2	23 0	5 46	5 58	11 56 5	0 25 37		morn	8 10	21 44		25	22	*fine*
23	3 50	4 22	27 1	5 48	5 56	11 59 41	N0 2 13		1 3	9 7	16 31		26	23	☉ enters ♎
24	4 50	5 16	30 9	5 50	5 53	12 3 16	s0 21 12		2 39	10 0	10 12		27	24	[Aut. com.
25	5 41	6 7	33 7	5 52	5 51	12 6 52	0 44 38		4 13	10 52	3 17		28	25	*weather*
26	6 28	6 51	34 6	5 54	5 48	12 10 29	1 8 3		sets.	11 42	s3 47		N	26	♀ ☌ ☾, 4 a 51
27	7 12	7 33	35 10	5 56	5 46	12 14 5	1 31 29		5 a 32	0 a 32	10 32		1	27	♀ in sup. ☌ ☉
28	7 54	8 15	35 7	5 57	5 43	12 17 42	1 54 54		5 45	1 23	16 33		2	28	*for the*
29	8 34	8 52	34 3	5 59	5 41	12 21 18	2 18 18		6 3	2 16	21 28		3	29	*harvest*
30	9 5	9 27	31 10	6 1	5 39	12 24 55	2 41 40		6 28	3 10	25 1		4	30	*season.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	57 56 31	59 30 39	61 4 20	62 37 37	64 10 27	65 42 52	67 14 52	68 46 27
2	70 17 38	71 48 24	73 18 47	74 48 46	76 18 23	77 47 37	79 16 29	80 44 59
3	82 13 9	83 40 58	85 8 27	86 35 36	88 2 26	89 28 58	90 55 12	92 21 8
4	93 46 48	95 12 11	96 37 18	98 2 10	99 26 48	100 51 11	102 15 21	103 39 18
5	105 3 2	106 26 35	107 49 56	109 13 6	110 36 6	111 58 57	113 21 38	114 44 10
6	116 6 35	117 28 51	118 51 1	120 13 4	121 35 1	122 56 52	124 18 38	125 40 19
7	127 1 56	128 23 29	129 44 59	131 6 26	132 27 50	133 49 12	135 10 32	136 31 51
..	.. . ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
16s	132 7 8	130 38 7	129 8 53	127 39 26	126 9 46	124 39 52	123 9 45	121 39 24
17	120 8 48	118 37 59	117 6 55	115 35 37	114 4 4	112 32 16	111 0 13	109 27 55
18	107 55 21	106 22 31	104 49 25	103 16 4	101 42 26	100 8 32	98 34 21	96 59 54
19	95 25 10	93 50 9	92 14 51	90 39 16	89 3 23	87 27 14	85 50 47	84 14 3
20	82 37 1	80 59 42	79 22 6	77 44 13	76 6 2	74 27 35	72 48 50	71 9 49
21	69 30 32	67 50 57	66 11 7	64 31 2	62 50 40	61 10 4	59 29 13	57 48 7
22	56 6 48	54 25 15	52 43 30	51 1 33	49 19 24	47 37 4	45 54 34	44 11 55
23	42 29 7	40 46 12	39 31 10	37 20 3	35 36 51	33 33 36	32 10 19	30 27 2
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..
28w	26 10 46	27 47 30	29 23 56	31 0 3	32 35 51	34 11 17	35 46 23	37 21 6
29	38 55 28	40 29 26	42 3 2	43 36 14	45 9 4	46 41 30	48 13 32	49 45 12
30	51 16 28	52 47 21	54 17 51	55 47 59	57 17 44	58 47 7	60 16 7	61 44 46

the first week in April, being then in the best position for observation in the evening sky.

Venus [♀] will be a morning star to the 27th Sept., then an evening star to the end of the year; its greatest brilliancy will be on the 18th January, and its greatest apparent elongation westward from the sun on the 23rd February.

PHASES OF THE MOON.
- First Quarter, 3rd day, at 8h. 14m. night.
- Full Moon, 11th day, at 11h. 33m. night.
- Last Quarter, 19th day, at 5h. 25m. morning.
- New Moon, 26th day, at 0h. 14m. morning.

M D.	Day brek.	Twil. end.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout
1	4 m 3	7 a 36	16 1	5m12	11 m45	6 m 1	11 m55	3 m39	10m 24	10a34	6m59	1m 31	9m
8	4 18	7 19	16 3	5 59	11 42	sets.	0 a 0	3 37	10 13	10 14	6 35	1 7	8 3
15	4 30	7 0	16 5	sets.	11 58	5 a 16	0 5	3 36	10 2	9 51	6 11	0 44	8 1
22	4 44	6 46	16 7	4 a 57	0 a 13	5 2	0 10	3 35	9 51	9 26	5 45	0 19	7 46
29	4 56	6 31	16 9	4 45	0 28	4 50	0 16	3 34	9 39	9 0	5 19	11a51	7 21

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equat of Ti
1	S	Remigius, Bishop	1 42	16 8	2 2	15 10	10
2	B	15 Sun. after Trinity	2 24	14 6	2 44	14 1	10
3	M	*Proper Lessons.* [Jeremiah xxxv; Mark v. — xxxvi; 2 Cor. i.	3 6	12 4	3 32	12 4	10
4	Tu	Sir J. Rennie d. 1821	4 5	10 7	4 44	11 0	11
5	W	Battle of Cadiz, 1804	5 29	9 5	6 12	10 8	11
6	Th	Faith, V. & M.	6 55	9 9	7 36	11 4	11
7	F	Arcturus sets 9 a 11	8 12	10 8	8 43	12 7	12
8	S	Dr. Kippis died, 1795	9 6	12 4	9 25	14 2	12
9	B	16 Sun. after Trinity	9 41	13 10	9 56	15 7	12
10	M	*Pro. Les.* [Ezekiel ii; Mark xii. — xiii; 2 Cor. viii.	10 13	15 3	10 28	16 8	12
11	Tu	Old Michaelmas Day	10 41	16 4	10 57	17 5	13
12	W	Wat Tyler died, 1381	11 13	17 1	11 28	17 11	13
13	Th	Trans. King Edward	11 43	17 7	12 0	18 1	13
14	F	W. Penn born, 1644	— —	— —	0 16	17 6	13
15	S	Virgil born, B.C. 70	0 34	17 5	0 53	17 1	14
16	B	17 Sun. after Trinity	1 13	16 6	1 34	16 4	14
17	M	*Proper Lessons.* [Ezekiel xiv; Luke ii. — xviii; Gal. ii.	1 56	15 3	2 19	15 2	14
18	Tu	St. Luke Evangelist	2 43	13 9	3 11	13 11	14
19	W	Dean Swift died, 1745	3 44	12 4	4 24	12 11	14
20	Th	Battle Navarino, 1827	5 10	11 6	5 55	12 8	15
21	F	Battle Trafalgar, 1805	6 38	11 10	7 21	13 10	15
22	S	Dr. Arnold died, 1802	7 57	13 4	8 25	15 6	15
23	B	18 Sun. after Trinity	8 51	14 11	9 14	17 1	15
24	M	*Pro. Less.* [Ezekiel xx; Luke ix. — xxiv; Ephes. iii.	9 37	16 6	9 58	18 4	15
25	Tu	St. Crispin Martyr	10 20	17 7	10 40	18 11	15
26	W	Hogarth died, 1764	11 1	18 3	11 20	18 11	15
27	Th	Servetus burnt, 1553	11 39	18 4	11 58	18 4	15
28	F	St. Sim. & St. Jude	— —	— —	0 18	17 10	16
29	S	Bristol Riots, 1831	0 38	17 1	0 58	16 11	16
30	B	19 Sun. after Trinity	1 18	15 8	1 39	15 8	16
31	M	*Proper Lessons.* [Daniel iii; Luke xvi. — vi; Phil. iv.	2 1	14 0	2 23	14 3	16

Clock after Sun.—Add to Mean Time, or Subtract from Apparent Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′	S. ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M. D.	ASPECTS AND WEATHER.
1	9 45	10 3	28 11	6 3	5 36	12 28 33	3 5	11	7 a 6	4 a 5	27 s 3	5	1	*This month*
2	10 19	10 38	25 6	6 5	5 33	12 32 10	3 28	30	7 59	4 59	27 31	6	2	*will*
3	11 0	11 29	21 9	6 7	5 31	12 35 48	3 51	47	9 2	5 52	26 30	7	3	*probably*
4	— —	0 3	18 9	6 9	5 28	12 39 26	4 15	0	10 16	6 42	24 10	8	4	*come in*
5	0 43	1 22	17 11	6 10	5 26	12 43 5	4 38	11	11 31	7 29	20 46	9	5	*with*
6	2 12	3 1	19 8	6 12	5 23	12 46 44	5 1	18	morn	8 13	16 30	10	6	☽ in Apogee
7	3 43	4 16	22 7	6 14	5 21	12 50 23	5 24	21	0 46	8 55	11 33	11	7	*showers,*
8	4 40	5 0	25 5	6 16	5 19	12 54 2	5 47	20	2 2	9 36	6 8	12	8	*unless*
9	5 17	5 34	27 10	6 18	5 16	12 57 42	6 10	15	3 16	10 16	0 25	13	9	♂ in Aphelion
10	5 53	6 10	28 11	6 20	5 14	13 1 23	6 33	5	4 30	10 57	N5 24	14	10	*the wind*
11	6 25	6 43	30 5	6 22	5 11	13 5 4	6 55	49	rises.	11 40	11 7	F	11	☿ in sup. ♂ ☉
12	7 0	7 17	31 7	6 24	5 9	13 8 45	7 18	28	4 a 47	morn	— —	16	12	*be northerly.*
13	7 33	7 51	32 2	6 25	5 7	13 12 27	7 41	0	5 2	0 26	16 27	17	13	*About*
14	8 7	8 24	31 11	6 27	5 4	13 16 9	8 3	27	5 24	1 15	21 5	18	14	*this*
15	8 42	9 0	31 0	6 29	5 2	13 19 52	8 25	47	5 56	2 8	24 41	19	15	♅ ☌ ☾, 7 a 11
16	9 19	9 39	29 5	6 31	5 0	13 23 36	8 48	0	6 44	3 5	26 53	20	16	*time it*
17	9 58	10 18	27 4	6 33	4 57	13 27 20	9 10	5	7 51	4 5	27 22	21	17	*will*
18	10 42	11 11	24 9	6 35	4 54	13 31 5	9 32	3	9 13	5 5	26 2	22	18	♄ □ ☉, 3 m 7
19	11 57	— —	22 5	6 37	4 52	13 34 50	9 53	52	10 44	6 3	22 57	23	19	*incline*
20	0 26	1 6	21 7	6 39	4 50	13 38 36	10 15	33	morn	6 59	18 22	24	20	☿ ☌ ♀, 3 m 5
21	1 53	2 45	24 0	6 41	4 48	13 42 22	10 37	5	0 16	7 52	12 38	25	21	♄ ☌ ☾, 7 m 11
22	3 28	3 59	27 7	6 43	4 46	13 46 10	10 58	28	1 46	8 42	6 10	26	22	*to fair*
23	4 25	4 49	30 6	6 45	4 43	13 49 58	11 19	40	3 16	9 31	s0 39	27	23	♂ ☌ ☾, 6 a 20
24	5 14	5 37	32 7	6 47	4 41	13 53 46	11 40	43	4 46	10 20	7 24	28	24	*weather;*
25	6 2	6 24	33 2	6 49	4 39	13 57 36	12 1	35	6 15	11 10	13 42	29	25	*probably*
26	6 47	7 8	33 9	6 51	4 37	14 1 26	12 22	16	sets.	0 a 2	19 8	N	26	♀ ☌ ☾, 5 a 33
27	7 29	7 49	33 6	6 53	4 35	14 5 17	12 42	45	4a29	0 56	23 21	1	27	*some*
28	8 8	8 28	32 3	6 55	4 33	14 9 8	13 3	3	5 0	1 52	26 7	2	28	*frost*
29	8 47	9 4	30 4	6 57	4 31	14 13 1	13 23	8	5 47	2 47	27 17	3	29	*in the*
30	9 23	9 43	27 11	6 59	4 29	14 16 54	13 43	0	6 49	3 42	26 52	4	30	☿ in Apheli.
31	10 1	10 18	25 5	7 0	4 27	14 20 48	14 2	40	7 59	4 34	25 2	5	31	*mornings.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ″ ′	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	63 13 4	64 41 0	66 8 36	67 35 52	69 2 49	70 29 25	71 55 43	73 21 43
2	74 47 25	76 12 49	77 37 57	79 2 48	80 27 23	81 51 44	83 15 49	84 39 40
3	86 3 18	87 26 43	88 49 55	90 12 56	91 35 45	92 58 23	94 20 52	95 43 11
4	97 5 20	98 27 22	99 49 16	101 11 2	102 32 42	103 54 16	105 15 44	106 37 7
5	107 58 26	109 19 41	110 40 53	112 2 2	113 23 8	114 44 13	116 5 16	117 26 19
6	118 47 22	120 8 25	121 29 28	122 50 33	124 11 39	125 32 48	126 53 58	128 15 12
7	129 36 28	130 57 49	132 19 13	133 40 41	135 2 14	136 23 51	137 45 34	139 7 21
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
15e	137 24 4	135 51 38	134 18 59	132 46 8	131 13 5	129 39 51	128 6 25	126 32 47
16	124 58 58	123 24 58	121 50 46	120 16 24	118 41 51	117 7 7	115 32 12	113 57 7
17	112 21 51	110 46 25	109 10 49	107 35 2	105 59 5	104 22 58	102 46 41	101 10 14
18	99 33 38	97 56 51	96 19 55	94 42 49	93 5 34	91 28 10	89 50 36	88 12 53
19	86 35 2	84 57 1	83 18 52	81 40 35	80 2 9	78 23 35	76 44 53	75 6 4
20	73 27 8	71 48 4	70 8 54	68 29 37	66 50 14	65 10 46	63 31 12	61 51 33
21	60 11 50	58 32 3	56 52 12	55 12 18	53 32 22	51 52 24	50 12 25	48 32 25
22	46 52 25	45 12 26	43 32 29	41 52 35	40 12 44	38 32 57	36 53 16	35 13 42
23	33 34 16	31 54 59	30 15 54	28 37 1	26 58 24	25 20 5	23 42 6	22 4 33
..	.. .. ..	.. .. ..	.. .. ..	.. .. .	.. .. ..	.. .. ..	.. .. ..	.. .. ..
28w	31 34 50	33 4 27	34 33 49	36 2 55	37 31 45	39 0 18	40 28 35	41 56 34
29	43 24 17	44 51 42	46 18 50	47 45 40	49 12 14	50 38 31	52 4 31	53 30 15
30	54 55 43	56 20 54	57 45 50	59 10 31	60 34 57	61 59 9	63 23 6	64 46 50
31	66 10 21	67 33 39	68 56 44	70 19 38	71 42 21	73 4 53	74 27 14	75 49 27
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..

Mars [♂] will be an evening star to the 21st July, then a morning star to the end of the year. It will not appear in opposition during the year 1859.

PHASES OF THE MOON.

First Quarter,	2nd day, at 4h. 1m.	afternoon.
Full Moon,	10th day, at 1h. 47m.	afternoon.
Last Quarter,	17th day, at 0h. 48m.	afternoon.
New Moon,	24th day, at 1h. 25m.	afternoon.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	M D.
1	5 m 2	6 a 21	16 10	4 a 41	0 a 34	4 a 45	0 a 18	3 m 32	9 m 34	8 a 50	5 m 8	11 a 40	7 m 10	1
8	5 13	6 13	16 11	4 33	0 49	4 36	0 27	3 31	9 23	8 23	4 41	11 15	6 44	8
15	5 24	6 5	16 13	4 31	1 4	4 29	0 36	3 29	9 4	7 55	4 14	10 49	6 18	15
22	5 34	5 58	16 14	4 34	1 16	4 26	0 45	3 27	9 0	7 26	3 46	10 23	5 51	22
29	5 44	5 53	16 15	4 40	1 19	4 29	0 56	3 25	8 49	6 57	3 17	9 56	5 24	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Tu	All Saints' Day	2 44	12 5	3 8	12 10	16 17
2	W	Michael. Term begins	3 35	11 1	4 6	11 9	16 18
3	Th	Holywell Day	4 42	10 2	5 23	11 3	16 18
4	F	William III. lan. 1688	6 1	10 1	6 37	11 7	16 18
5	S	Gunpowder Plot	7 12	10 11	7 43	12 6	16 16
6	B	20 Sun. after Trinity	8 10	12 0	8 34	13 8	16 14
7	M	*Proper Lessons.* [Joel ii; Luke xxii. Micah vi; 1 Thess. ii.	8 56	13 5	9 16	14 11	16 12
8	Tu	Milton died, 1674	9 35	14 8	9 52	15 10	16 8
9	W	P. of Wales born, 1841	10 10	15 10	10 27	16 7	16 3
10	Th	Luther born, 1483	10 46	16 8	11 3	17 1	15 58
11	F	St. Martin, Bishop	11 22	17 2	11 39	17 5	15 52
12	S	♅ souths 0 m 56	11 57	17 6	— —	— —	15 45
13	B	21 Sun. after Trinity	0 18	17 1	0 39	17 4	15 37
14	M	*Proper Lessons.* [Habakkuk ii; John v. Proverbs i; 1 Timothy i.	1 1	16 5	1 24	16 9	15 28
15	Tu	Machutus, Bishop	1 49	15 5	2 16	15 11	15 18
16	W	Ferguson died, 1776	2 44	14 3	3 12	14 10	15 8
17	Th	Hugh, Bishop	3 42	13 2	4 16	14 1	14 56
18	F	Sirius rises 10 a 21	4 55	12 6	5 36	13 10	14 44
19	S	Capella souths 1 m 14	6 11	12 7	6 46	14 3	14 31
20	B	22 Sun. after Trinity	7 21	13 4	7 51	15 1	14 17
21	M	*Proper Lessons* [Prov. ii; John xii. — iii; 2 Tim. iii.	8 19	14 4	8 46	15 10	14 2
22	Tu	Cecilia, V. & M.	9 12	15 4	9 37	16 5	13 47
23	W	St. Clement	10 0	16 2	10 23	16 10	13 30
24	Th	John Knox died, 1572	10 45	16 9	11 4	16 9	13 13
25	F	Michaelmas Term ends	11 23	17 0	11 42	16 6	12 55
26	S	Cowper born, 1721	— —	— —	0 3	16 11	12 37
27	B	Advent Sunday	0 24	15 11	0 44	16 5	12 17
28	M	*Proper Lessons.* [Isaiah i; John xix. — ii; Heb. iii.	1 3	15 1	1 23	15 9	11 57
29	Tu	Sirius rises 9 a 37	1 43	14 2	2 4	14 11	11 36
30	W	St. Andrew, Apostle	2 25	13 3	2 45	12 9	11 15

Clock after Sun. Add to Mean Time, or Subtract from Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height. F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.
1	10 39	11 2	22 7	7 2	4 25	14 24 42	14 21 52	9a14	5a22	22 s 2	6	1
2	11 29	— —	20 4	7 4	4 23	14 28 38	14 41 4	10 31	6 8	18 4	7	2
3	0 1	0 36	19 0	7 6	4 21	14 32 34	15 0 1	11 46	6 50	13 24	8	3
4	1 12	1 51	19 9	7 8	4 19	14 36 31	15 18 44	morn	7 31	8 12	9	4
5	2 34	3 12	22 1	7 10	4 17	14 40 29	15 37 12	0 59	8 12	2 39	10	5
6	3 42	4 8	24 8	7 12	4 15	14 44 27	15 55 24	2 12	8 52	N3 6	11	6
7	4 30	4 51	26 10	7 14	4 13	14 48 27	16 13 20	3 27	9 34	8 51	12	7
8	5 11	5 30	28 8	7 16	4 11	14 52 27	16 30 59	4 43	10 19	14 21	13	8
9	5 50	6 9	30 0	7 18	4 9	14 56 28	16 48 22	6 5	11 7	19 20	14	9
10	6 30	6 49	30 9	7 20	4 7	15 0 30	17 5 28	rises.	12 0	23 24	F	10
11	7 10	7 29	31 5	7 22	4 5	15 4 33	17 22 16	3a56	morn	— —	16	11
12	7 48	8 8	31 6	7 24	4 3	15 8 36	17 38 47	4 41	0 57	26 9	17	12
13	8 28	8 49	31 0	7 26	4 2	15 12 41	17 54 59	5 43	1 58	27 13	18	13
14	9 10	9 33	29 10	7 28	4 0	15 16 46	18 10 53	7 13	2 59	26 25	19	14
15	9 56	10 20	28 5	7 30	3 59	15 20 52	18 26 27	8 31	3 59	23 48	20	15
16	10 44	11 10	26 3	7 32	3 57	15 24 59	18 41 42	10 3	4 55	19 36	21	16
17	11 40	— —	24 5	7 34	3 56	15 29 7	18 56 38	11 32	5 48	14 14	22	17
18	0 14	0 49	23 6	7 36	3 54	15 33 16	19 11 13	morn	6 38	8 4	23	18
19	1 22	2 3	24 7	7 38	3 53	15 37 26	19 25 27	0 59	7 26	1 31	24	19
20	2 45	3 22	26 11	7 40	3 51	15 41 36	19 39 21	2 26	8 14	s5 5	25	20
21	3 52	4 20	28 8	7 42	3 50	15 45 48	19 52 53	3 53	9 2	11 22	26	21
22	4 47	5 13	29 10	7 43	3 48	15 50 0	20 6 3	5 20	9 52	17 1	27	22
23	5 39	6 5	30 6	7 45	3 47	15 54 13	20 18 51	6 48	10 44	21 39	28	23
24	6 29	6 50	30 7	7 47	3 46	15 58 26	20 31 17	sets.	11 38	25 0	N	24
25	7 11	7 32	30 6	7 49	3 45	16 2 41	20 43 20	3a40	0a34	26 50	1	25
26	7 54	8 14	29 11	7 51	3 44	16 6 56	20 54 59	4 39	1 30	27 4	2	26
27	8 33	8 51	29 1	7 52	3 43	16 11 12	21 6 15	5 43	2 23	25 47	3	27
28	9 9	9 27	27 8	7 54	3 42	16 15 29	21 17 7	6 57	3 14	23 12	4	28
29	9 46	10 4	26 5	7 56	3 41	16 19 46	21 27 35	8 13	4 1	19 35	5	29
30	10 20	10 38	24 9	7 57	3 40	16 24 4	21 37 38	9 28	4 45	15 9	6	30

ASPECTS AND WEATHER.

Expect
☾ in Apogee.
fair
and
mild
weather
to begin
this
month,
then
☿ in ♌, 8m54
♃ stationary
changeable
for
♃ ☌ ☾, 10m10
some
♄ ☌ ☾, 3 a 52
♄ □ ☉, 1 a 42
days, and
inclined
♂ ☌ ☾, 8m53
to snow
or
sleet
♀ ☌ ☾, 7 a 42
about
the
♅ ☍ ☉, 11m18
end of
the month.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	77 11 30	78 33 24	79 55 10	81 16 49	82 38 20	83 59 46	85 21 5	86 42 20
2	88 3 30	89 24 36	90 45 39	92 6 38	93 27 36	94 48 32	96 9 26	97 30 21
3	98 51 15	100 12 10	101 33 6	102 54 4	104 15 5	105 36 8	106 57 15	108 18 25
4	109 39 41	111 1 1	112 22 27	113 43 59	115 5 38	116 27 24	117 49 17	119 11 18
5	120 33 28	121 55 46	123 18 14	124 40 51	126 3 39	127 26 36	128 49 45	130 13 4
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
14E	129 46 50	128 9 24	126 31 52	124 54 16	123 16 35	121 38 50	120 1 1	118 23 9
15	116 45 14	115 7 17	113 29 17	111 51 15	110 13 12	108 35 7	106 57 1	105 18 54
16	103 40 47	102 2 40	100 24 32	98 46 25	97 8 18	95 30 12	93 52 6	92 14 1
17	90 35 58	88 57 56	87 19 56	85 41 57	84 4 1	82 26 6	80 48 14	79 10 24
18	77 32 38	75 54 54	74 17 13	72 39 36	71 2 2	69 24 33	67 47 7	66 9 45
19	64 32 28	62 55 16	61 18 9	59 41 7	58 4 11	56 27 21	54 50 37	53 14 0
20	51 37 30	50 1 7	48 24 52	46 48 45	45 12 47	43 36 58	42 1 19	40 25 50
21	38 50 32	37 15 25	35 40 31	34 5 50	32 31 23	30 57 11	29 23 16	27 49 39
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
26w	23 17 41	24 42 59	26 8 14	27 33 24	28 58 27	30 23 22	31 48 8	33 12 46
27	34 37 13	36 1 30	37 25 37	38 49 33	40 13 19	41 36 54	43 0 19	44 23 33
28	45 46 37	47 9 31	48 32 15	49 54 49	51 17 14	52 39 29	54 1 36	55 23 35
29	56 45 26	58 7 9	59 28 45	60 50 15	62 11 38	63 32 55	64 54 6	66 15 13
30	67 36 16	68 57 14	70 18 9	71 39 2	72 59 52	74 20 41	75 41 28	77 2 15

JUPITER [♃] will be an evening star to the 25th January, and a morning star from thence till its opposition in January 1860.

SATURN [♄] will be a morning star to the 29th January; an evening star from thence to the 9th August; then a morning star to the end of the year.

PHASES OF THE MOON.
- First Quarter, 2nd day, at 1h. 22m. afternoon.
- Full Moon, 10th day, at 2h. 55m. morning.
- Last Quarter, 16th day, at 8h. 57m. night.
- New Moon, 24th day, at 5h. 29m. morning.

Day brek.	Twi. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	D
5m48	5 a 50	16 16	4 a 40	1 a 17	4 a 30	0 a 59	3m 24	8m 46	6m 48	3m 9	9 a 49	5 m 17	
5 53	5 50	16 17	4 26	0 49	4 39	1 10	3 23	8 34	6 17	2 39	9 21	4 49	
6 1	5 51	16 17	rises.	11m48	4 53	1 21	3 21	8 23	5 46	2 9	8 53	4 22	1
6 4	5 53	16 18	6m45	10 52	5 11	1 31	3 19	8 12	5 14	1 38	8 25	3 53	2
6 6	5 58	16 18	6 25	10 28	5 30	1 41	3 17	8 2	4 42	1 7	7 56	3 25	2

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	Th	Leo X. died, 1521	3 6	12 4	3 28	13 2	10 53
2	F	Qn. Adelaide d. 1849	3 53	11 8	4 19	12 6	10 30
3	S	James II. abdi. 1688	4 51	11 2	5 24	12 2	10 6
4	B	**2 Sunday in Advent**	5 56	11 2	6 29	12 3	9 42
5	M	*Proper Lessons.* [Isaiah v; Acts v. — xxiv; Heb. x.	6 59	11 8	7 28	12 8	9 18
6	Tu	Nicholas, Bishop	7 57	12 6	8 22	13 5	8 53
7	W	Mars. Ney shot, 1815	8 48	13 7	9 11	14 5	8 27
8	Th	Conception V. Mary	9 34	14 9	9 58	15 4	8 1
9	F	Milton born, 1608	10 22	15 10	10 43	16 2	7 34
0	S	Pleiades souths 10 a 22	11 4	16 11	11 24	16 10	7 8
1	B	**3 Sunday in Advent**	11 46	17 9	— —	— —	6 40
2	M	*Proper Lessons.* [Isaiah xxv; Acts. xi. — xxvi; James iv.	0 9	17 1	0 34	18 0	6 12
3	Tu	Lucy, V. & M.	0 59	16 11	1 24	17 11	5 44
4	W	Washington d., 1799	1 49	16 6	2 15	17 5	5 16
5	Th	Day 7h. 17m. long	2 41	15 8	3 5	16 7	4 47
6	F	Cambridge Term ends	3 30	14 8	3 57	15 7	4 18
7	S	Oxford Term ends	4 27	13 9	4 59	14 8	3 48
8	B	**4 Sunday in Advent**	5 30	13 1	6 4	14 0	3 19
9	M	*Pro. Les.* [Isaiah xxx; Acts xviii. — xxxii; 1 Peter i.	6 37	12 10	7 13	13 9	2 49
0	Tu	Day decreas. 9h. 50m.	7 47	13 2	8 18	13 10	2 19
1	W	**St. Thomas, Apostle**	8 49	13 10	9 19	14 3	1 49
2	Th	♅ souths 10 a 7	9 45	14 8	10 10	14 8	1 19
3	F	Sirius souths 0 m 35	10 32	15 5	10 54	15 1	0 49
4	S	[Isaiah ix to v. 8; Luke ii to v. 15. — vii v. 10 to 17; Titus iii v. 4 to 9.	11 15	16 1	11 37	15 5	0 19
5	B	**Christmas Day**	11 55	16 5	— —	— —	0 11
6	M	**St. Stephen**	0 12	15 4	0 31	16 6	0 41
7	Tu	**St. John**	0 49	15 3	1 7	16 4	1 11
8	W	**Innocents' Day**	1 25	15 0	1 43	15 11	1 41
9	Th	Wickliff died, 1348	2 2	14 6	2 21	15 5	2 10
0	F	R. Boyle died, 1691	2 39	13 11	2 56	14 8	2 39
1	S	Silvester, Bishop	3 14	13 4	3 33	14 0	2 8

Clock after Sun.—Add to Mean Time, or Subtract from Apparent Time.—Clock before Sun.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M. D.
1	10 57	11 20	23 1	7 59	3 39	16 28 23	21 47 17	10a41	5a26	10s10	7	1
2	11 42	— —	21 9	8 0	3 39	16 32 42	21 56 30	11 54	6 6	4 48	8	2
3	0 10	0 39	20 9	8 2	3 38	16 37 2	22 5 19	morn	6 46	N0 49	9	3
4	1 7	1 40	21 1	8 3	3 37	16 41 23	22 13 41	1 6	7 27	6 28	10	4
5	2 17	2 53	22 8	8 5	3 37	16 45 44	22 21 38	2 20	8 10	12 2	11	5
6	3 27	3 55	24 8	8 6	3 36	16 50 5	22 29 8	3 40	8 56	17 13	12	6
7	4 22	4 46	26 8	8 7	3 36	16 54 28	22 36 12	5 3	9 47	21 42	13	7
8	5 10	5 36	28 4	8 8	3 35	16 58 50	22 42 50	6 27	10 43	25 5	14	8
9	6 2	6 26	29 0	8 10	3 35	17 3 13	22 49 1	7 50	11 43	26 55	15	9
10	6 50	7 12	30 4	8 11	3 35	17 7 37	22 54 44	rises.	morn	— —	F	10
11	7 36	8 0	31 5	8 13	3 35	17 12 1	23 0 1	4 43	0 46	26 53	17	11
12	8 25	8 49	31 8	8 14	3 34	17 16 25	23 4 51	6 14	1 48	24 51	18	12
13	9 12	9 34	31 7	8 15	3 34	17 20 50	23 9 13	7 45	2 48	21 3	19	13
14	9 58	10 20	30 10	8 16	3 34	17 25 15	23 13 7	9 17	3 43	15 52	20	14
15	10 40	11 2	28 9	8 17	3 34	17 29 40	23 16 34	10 47	4 35	9 48	21	15
16	11 25	11 52	27 4	8 18	3 35	17 34 6	23 19 32	morn	5 24	3 16	22	16
17	— —	0 19	25 4	8 19	3 35	17 38 32	23 22 3	0 13	6 11	s3 20	23	17
18	0 45	1 16	24 2	8 19	3 35	17 42 58	23 24 6	1 39	6 59	9 40	24	18
19	1 50	2 33	24 2	8 20	3 35	17 47 24	23 25 40	3 5	7 48	15 25	25	19
20	3 14	3 50	25 6	8 20	3 35	17 51 51	23 26 46	4 31	8 38	20 18	26	20
21	4 23	4 53	26 6	8 21	3 36	17 56 17	23 27 24	5 55	9 30	24 1	27	21
22	5 21	5 48	27 5	8 21	3 36	18 0 44	23 27 34	7 14	10 25	26 21	28	22
23	6 13	6 38	27 11	8 22	3 37	18 5 11	23 27 15	8 19	11 20	27 9	29	23
24	7 1	7 25	28 5	8 22	3 37	18 9 37	23 26 27	sets.	0a14	26 25	N	24
25	7 44	8 3	28 10	8 22	3 38	18 14 4	23 25 12	4a38	1 6	24 18	1	25
26	8 22	8 39	28 10	8 22	3 39	18 18 30	23 23 28	5 55	1 54	21 1	2	26
27	8 56	9 12	28 8	8 23	3 39	18 22 57	23 21 16	7 11	2 40	16 51	3	27
28	9 28	9 46	28 0	8 23	3 40	18 27 23	23 18 35	8 26	3 22	12 2	4	28
29	10 3	10 18	27 4	8 23	3 41	18 31 49	23 15 27	9 38	4 2	6 47	5	29
30	10 32	10 48	26 3	8 23	3 42	18 36 15	23 11 50	10 50	4 42	1 18	6	30
31	11 4	11 21	24 11	8 23	3 43	18 40 41	23 7 46	12 2	5 21	N4 17	7	31

ASPECTS AND WEATHER

Rain or snow, or ☿ stationar *both, may* ♄ stationar *now be expected.*

♃ ☌ ☾, 2 a 4
☿ in Perihe.
☿ in Inf. ☌ ☉
♀ in Apheli
Changeable but fair if the
☌ ☌ ☾, 10 a *wind be northerly.*
☉ enters Cap
[Win. com
☿ stationary
Rainy
♀ ☌ ☾, 4 m 2
near the
☾ in Apogee
end of the month.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	1 Hour. ° ′ ″
1w	78 23 2	79 43 49	81 4 38	82 25 28	83 46 20	85 7 15	86 28 14	87 49 17
2	89 10 25	90 31 38	91 52 56	93 14 21	94 35 53	95 57 33	97 19 21	98 41 17
3	100 3 23	101 25 39	102 48 6	104 10 44	105 33 33	106 56 34	108 19 48	109 43 16
4	111 6 57	112 30 52	113 55 2	115 19 28	116 44 9	118 9 6	119 34 19	120 59 50
5	122 25 38	123 51 43	125 18 7	126 44 49	128 11 49	129 39 8	131 6 47	132 34 44
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
13E	134 49 46	133 8 56	131 28 8	129 47 24	128 6 43	126 26 8	124 45 37	123 5 13
14	121 24 55	119 44 44	118 4 40	116 24 44	114 44 57	113 5 18	111 25 49	109 46 29
15	108 7 18	106 28 18	104 49 28	103 10 49	101 32 20	99 54 2	98 15 56	96 38 1
16	95 0 17	93 22 45	91 45 24	90 8 16	88 31 19	86 54 34	85 18 1	83 41 40
17	82 5 31	80 29 34	78 53 50	77 18 17	75 42 56	74 7 48	72 32 52	70 58 7
18	69 23 35	67 49 15	66 15 6	64 41 10	63 7 26	61 33 53	60 0 33	58 27 24
19	56 54 27	55 21 42	53 49 9	52 16 48	50 44 39	49 12 41	47 40 56	46 9 23
20	44 38 2	43 6 53	41 35 56	40 5 11	38 34 39	37 4 19	35 34 12	34 4 18
21	32 34 38	31 5 11	29 35 57	28 6 58	26 38 14	25 9 46	23 41 34	22 13 39
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
26w	25 22 26	26 44 35	28 6 38	29 28 36	30 50 29	32 12 17	33 34 0	34 55 37
27	36 17 9	37 38 36	38 59 58	40 21 15	41 42 28	43 3 37	44 24 41	45 45 42
28	47 6 40	48 27 35	49 48 27	51 9 17	52 30 5	53 50 51	55 11 37	56 32 22
29	57 53 7	59 13 53	60 34 39	61 55 27	63 16 17	64 37 9	65 58 4	67 19 2
30	68 40 4	70 1 11	71 22 23	72 43 41	74 5 5	75 26 36	76 48 14	78 10 0
31	79 31 55	80 53 59	82 16 12	83 38 36	85 1 11	86 23 57	87 46 56	89 10 7

Uranus [♅] may be observed in the evenings until May, and in the mornings from June to November; thence in the evenings to the year's end.

D.	JANUARY.		FEBRUARY		MARCH.		APRIL.		MAY.		JUNE.	
	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
1	14 50	14 48	14 45	14 46	14 48	14 49	15 11	15 16	15 40	15 46	16 22	16 25
2	14 46	14 45	14 47	14 48	14 51	14 54	15 20	15 25	15 51	15 56	16 28	16 29
3	14 44	14 44	14 50	14 52	14 56	14 59	15 29	15 34	16 1	16 5	16 30	16 29
4	14 44	14 44	14 55	14 58	15 3	15 6	15 38	15 43	16 9	16 11	16 28	16 26
5	14 44	14 45	15 1	15 4	15 10	15 13	15 46	15 50	16 14	16 15	16 23	16 19
6	14 46	14 48	15 8	15 12	15 17	15 21	15 54	15 57	16 16	16 16	16 16	16 11
7	14 50	14 53	15 16	15 21	15 25	15 29	16 0	16 2	16 16	16 15	16 6	16 1
8	14 56	14 59	15 26	15 31	15 33	15 38	16 5	16 7	16 14	16 12	15 56	15 51
9	15 3	15 8	15 37	15 42	15 42	15 46	16 8	16 10	16 11	16 8	15 46	15 41
10	15 13	15 18	15 48	15 55	15 50	15 55	16 11	16 12	16 6	16 3	15 36	15 32
11	15 24	15 31	16 1	16 7	15 59	16 3	16 12	16 12	16 0	15 57	15 27	15 23
12	15 38	15 45	16 13	16 19	16 7	16 11	16 12	16 11	15 54	15 50	15 19	15 15
13	15 53	16 0	16 24	16 29	16 15	16 18	16 10	16 9	15 46	15 43	15 11	15 8
14	16 8	16 15	16 33	16 36	16 21	16 23	16 6	16 4	15 39	15 35	15 4	15 1
15	16 23	16 29	16 38	16 39	16 24	16 25	16 1	15 57	15 31	15 26	14 58	14 55
16	16 35	16 40	16 39	16 37	16 25	16 24	15 53	15 49	15 22	15 18	14 53	14 51
17	16 43	16 46	16 34	16 30	16 22	16 19	15 44	15 39	15 14	15 10	14 49	14 48
18	16 47	16 47	16 25	16 20	16 16	16 11	15 34	15 28	15 6	15 2	14 47	14 46
19	16 45	16 42	16 13	16 6	16 6	16 1	15 23	15 18	14 59	14 56	14 46	14 47
20	16 38	16 32	15 58	15 51	15 55	15 48	15 13	15 8	14 53	14 51	14 48	14 50
21	16 26	16 19	15 43	15 35	15 42	15 34	15 4	15 0	14 50	14 49	14 52	14 55
22	16 11	16 3	15 28	15 21	15 28	15 22	14 57	14 54	14 48	14 48	14 59	15 3
23	15 55	15 47	15 15	15 9	15 16	15 10	14 52	14 50	14 49	14 51	15 8	15 13
24	15 39	15 32	15 4	14 59	15 5	15 1	14 49	14 49	14 53	14 56	15 20	15 26
25	15 25	15 18	14 55	14 52	14 57	14 54	14 50	14 51	15 0	15 4	15 33	15 41
26	15 12	15 6	14 50	14 48	14 51	14 50	14 53	14 56	15 9	15 14	15 48	15 56
27	15 2	14 57	14 47	14 46	14 49	14 48	14 59	15 3	15 20	15 26	16 3	16 11
28	15 54	14 51	14 46	14 47	14 49	14 50	15 7	15 12	15 33	15 40	16 18	16 24
29	15 48	14 47	.. ..	.. ..	14 51	14 53	15 17	15 23	15 47	15 54	16 29	16 34
30	14 45	14 44	.. ..	.. ..	14 56	14 59	15 29	15 35	16 0	16 7	16 37	16 40
31	14 44	14 44	.. ..	.. ..	15 3	15 7	.. ..	.. ..	16 12	16 18	.. ..	.. ..

D.	JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER		DECEMBER	
	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
1	16 41	16 40	16 30	16 24	15 50	15 42	15 22	15 16	14 54	14 52	14 49	14 49
2	16 39	16 36	16 17	16 10	15 35	15 28	15 10	15 5	14 50	14 49	14 51	14 53
3	16 33	16 28	16 2	15 54	15 21	15 15	15 1	14 57	14 49	14 49	14 55	14 59
4	16 23	16 17	15 47	15 39	15 9	15 4	14 54	14 51	14 51	14 52	15 3	15 8
5	16 11	16 4	15 32	15 26	14 59	14 56	14 49	14 48	14 55	14 58	15 13	15 19
6	15 58	15 51	15 19	15 14	14 53	14 50	14 48	14 48	15 2	15 6	15 25	15 31
7	15 45	15 38	15 9	15 4	14 48	14 47	14 49	14 50	15 10	15 15	15 38	15 44
8	15 32	15 26	15 0	14 56	14 46	14 46	14 52	14 54	15 20	15 25	15 50	15 57
9	15 21	15 16	14 53	14 51	14 46	14 47	14 57	15 0	15 30	15 35	16 2	16 7
10	15 12	15 7	14 49	14 47	14 48	14 49	15 3	15 7	15 40	15 44	16 12	16 15
11	15 4	15 0	14 46	14 45	14 51	14 53	15 11	15 14	15 49	15 53	16 19	16 21
12	14 57	14 54	14 45	14 45	14 56	14 58	15 18	15 22	15 57	16 0	16 22	16 23
13	14 52	14 50	14 45	14 46	15 1	15 4	15 26	15 30	16 3	16 5	16 22	16 21
14	14 48	14 47	14 47	14 48	15 8	15 12	15 34	15 38	16 7	16 8	16 20	16 17
15	14 46	14 45	14 50	14 52	15 15	15 19	15 42	15 46	16 9	16 10	16 15	16 12
16	14 45	14 45	14 55	14 58	15 24	15 28	15 50	15 53	16 11	16 11	16 8	16 4
17	14 45	14 46	15 1	15 5	15 33	15 38	15 57	16 0	16 10	16 10	16 1	15 57
18	14 48	14 50	15 9	15 14	15 43	15 48	16 3	16 6	16 9	16 8	15 53	15 49
19	14 52	14 55	15 19	15 24	15 54	15 59	16 9	16 12	16 6	16 4	15 45	15 41
20	14 58	15 3	15 30	15 36	16 4	16 10	16 14	16 16	16 2	16 0	15 37	15 33
21	15 7	15 12	15 43	15 49	16 15	16 19	16 17	16 18	15 57	15 54	15 29	15 25
22	15 18	15 24	15 56	16 3	16 23	16 27	16 18	16 18	15 51	15 47	15 21	15 17
23	15 31	15 38	16 10	16 17	16 30	16 32	16 17	16 15	15 43	15 38	15 13	15 10
24	15 46	15 53	16 23	16 29	16 33	16 32	16 13	16 10	15 34	15 29	15 6	15 3
25	16 1	16 9	16 34	16 38	16 31	16 29	16 6	16 1	15 24	15 20	14 59	14 56
26	16 16	16 23	16 41	16 42	16 26	16 22	15 56	15 51	15 15	15 11	14 54	14 51
27	16 29	16 35	16 43	16 42	16 17	16 11	15 45	15 39	15 6	15 2	14 49	14 48
28	16 39	16 43	16 40	16 36	16 4	15 57	15 33	15 27	14 59	14 55	14 47	14 47
29	16 45	16 46	16 32	16 26	15 50	15 43	15 21	15 15	14 53	14 51	14 47	14 47
30	16 45	16 43	16 20	16 13	15 36	15 29	15 10	15 5	14 49	14 49	14 49	14 51
31	16 42	16 35	16 6	15 59	.. ..	.. ..	15 1	14 57	.. ..	.. ..	14 54	14 57

M D.	JANUARY. Noon.	JANUARY. Midn.	FEBRUARY Noon.	FEBRUARY Midn.	MARCH. Noon	MARCH. Midn.	APRIL. Noon.	APRIL. Midn.	MAY. Noon.	MAY. Midn.	JUNE. Noon.	JUNE. Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	54 19	54 12	53 59	54 2	54 10	56 16	55 36	55 52	57 23	57 44	59 55	60 7	1
2	54 6	54 1	54 7	54 13	54 24	54 33	56 9	56 26	58 3	58 22	60 16	60 22	2
3	53 58	53 56	54 19	54 27	54 42	54 53	56 43	56 59	58 38	58 53	60 23	60 22	3
4	53 55	53 56	54 37	54 47	55 5	55 18	57 16	57 31	59 6	59 16	60 16	60 8	4
5	53 58	54 1	54 58	55 10	55 31	55 45	57 45	57 59	59 24	59 30	59 58	59 45	5
6	54 5	54 12	55 24	55 38	55 59	56 13	58 12	58 23	59 33	59 35	59 30	59 14	6
7	54 19	54 28	55 54	56 11	56 28	56 43	58 34	58 43	59 34	59 31	58 57	58 39	7
8	54 39	54 52	56 29	56 48	56 58	57 13	58 51	58 59	59 27	59 21	58 21	58 2	8
9	55 7	55 23	57 9	57 30	57 29	57 44	59 5	59 10	59 13	59 5	57 44	57 27	9
10	55 42	56 2	57 52	58 15	58 0	58 16	59 15	59 18	58 56	58 46	57 9	56 52	10
11	56 24	56 48	58 38	59 1	58 31	58 47	59 19	59 20	58 35	58 23	56 36	56 20	11
12	57 13	57 40	59 23	59 45	59 1	59 16	59 19	59 16	58 11	57 59	56 5	55 50	12
13	58 8	58 36	60 4	60 21	59 29	59 40	59 12	59 6	57 45	57 31	55 37	55 23	13
14	59 4	59 31	60 36	60 47	59 50	59 58	58 59	58 49	57 17	57 2	55 11	54 59	14
15	59 57	60 21	60 54	60 58	60 3	60 6	58 38	58 24	56 47	56 32	54 48	54 38	15
16	60 43	61 0	60 56	60 50	60 6	60 2	58 10	57 53	56 17	56 1	54 29	54 22	16
17	61 14	61 23	60 40	60 26	59 55	59 45	57 36	57 17	55 46	55 31	54 15	54 10	17
18	61 27	61 26	60 8	59 46	59 32	59 16	56 58	56 39	55 17	55 4	54 7	54 5	18
19	61 20	61 9	59 22	58 56	58 58	58 37	56 20	56 1	54 52	54 41	54 5	54 7	19
20	60 53	60 33	58 29	58 1	58 15	57 51	55 42	55 25	54 31	54 23	54 11	54 17	20
21	60 10	59 44	57 33	57 5	57 27	57 3	55 9	54 55	54 17	54 14	54 26	54 37	21
22	59 16	58 47	56 38	56 13	56 39	56 16	54 43	54 33	54 12	54 13	54 50	55 6	22
23	58 17	57 48	55 50	55 28	55 54	55 33	54 25	54 19	54 16	54 21	55 24	55 44	23
24	57 19	56 51	55 9	54 52	55 15	54 59	54 16	54 16	54 30	54 40	56 7	56 31	24
25	56 25	56 1	54 38	54 26	54 45	54 33	54 18	54 23	54 53	55 9	56 57	57 24	25
26	55 39	55 19	54 17	54 11	54 24	54 17	54 30	54 40	55 27	55 47	57 52	58 20	26
27	55 1	54 46	54 6	54 4	54 13	54 12	54 52	55 6	56 9	56 32	58 48	59 14	27
28	54 33	54 22	54 4	54 7	54 13	54 17	55 22	55 40	56 56	57 22	59 40	60 3	28
29	54 13	54 6	.. ..	.. ..	54 23	54 31	55 59	56 20	57 47	58 12	60 23	60 39	29
30	54 1	53 58	.. ..	.. ..	54 41	54 53	56 40	57 2	58 37	59 0	60 52	61 0	30
31	53 57	53 57	.. ..	.. ..	55 6	55 21	.. ..	.. ..	59 21	59 39	.. ..	.. ..	31

M D.	JULY. Noon.	JULY. Midn.	AUGUST. Noon.	AUGUST. Midn.	SEPT. Noon.	SEPT. Midn.	OCTOBER. Noon.	OCTOBER. Midn.	NOVEMBER Noon.	NOVEMBER Midn.	DECEMBER Noon.	DECEMBER Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	61 4	61 3	60 24	60 2	57 58	57 30	56 17	55 54	54 34	54 25	54 13	54 16	1
2	60 57	60 48	59 37	59 10	57 3	56 36	55 33	55 14	54 19	54 16	54 21	54 28	2
3	60 34	60 18	58 42	58 14	56 11	55 49	54 58	54 43	54 15	54 17	54 39	54 51	3
4	59 58	59 37	57 47	57 20	55 28	55 9	54 32	54 23	54 21	54 28	55 6	55 24	4
5	59 14	58 50	56 54	56 29	54 53	54 39	54 16	54 12	54 37	54 48	55 43	56 4	5
6	58 26	58 2	56 6	55 46	54 28	54 19	54 10	54 11	55 1	55 16	56 26	56 49	6
7	57 38	57 15	55 27	55 10	54 12	54 7	54 14	54 19	55 32	55 49	57 13	57 37	7
8	56 53	56 32	54 54	54 41	54 4	54 3	54 25	54 34	56 7	56 26	58 0	58 22	8
9	56 13	55 54	54 30	54 21	54 4	54 6	54 44	54 55	56 44	57 3	58 43	59 2	9
10	55 38	55 22	54 13	54 7	54 10	54 16	55 7	55 20	57 21	57 38	59 18	59 32	10
11	55 8	54 55	54 3	54 0	54 23	54 30	55 34	55 48	57 54	58 9	59 43	59 51	11
12	54 44	54 34	53 59	53 59	54 39	54 49	56 3	56 17	58 23	58 34	59 56	59 58	12
13	54 25	54 18	54 0	54 3	55 0	55 12	56 32	56 47	58 44	58 53	59 56	59 53	13
14	54 11	54 6	54 7	54 12	55 24	55 37	57 1	57 16	59 0	59 6	59 47	59 39	14
15	54 3	54 0	54 19	54 27	55 51	56 6	57 39	57 43	59 10	59 12	59 29	59 17	15
16	53 59	54 0	54 36	54 47	56 22	56 39	57 57	58 10	59 13	59 14	59 5	58 52	16
17	54 2	54 5	54 59	55 13	56 56	57 14	58 23	58 35	59 13	59 11	58 38	58 24	17
18	54 10	54 17	55 28	55 45	57 33	57 52	58 47	58 58	59 7	59 3	58 9	57 54	18
19	54 26	54 37	56 3	56 23	58 12	58 31	59 8	59 18	58 58	58 51	57 40	57 25	19
20	54 49	55 4	56 45	57 7	58 51	59 10	59 26	59 33	58 44	58 35	57 10	56 56	20
21	55 21	55 40	57 31	57 56	59 28	59 45	59 38	59 41	58 25	58 13	56 41	56 27	21
22	56 1	56 24	58 22	58 47	60 0	60 13	59 42	59 41	58 1	57 47	56 12	55 58	22
23	56 49	57 15	59 12	59 37	60 23	60 30	59 37	59 31	57 32	57 16	55 44	55 30	23
24	57 42	58 10	59 59	60 20	60 34	60 34	59 22	59 10	56 59	56 42	55 17	55 5	24
25	58 39	59 7	60 38	60 53	60 30	60 21	58 56	58 39	56 25	56 7	54 53	54 42	25
26	59 34	59 59	61 3	61 10	60 10	59 54	58 21	58 1	55 50	55 33	54 32	54 23	26
27	60 23	60 43	61 11	61 8	59 35	59 14	57 40	57 18	55 18	55 3	54 16	54 11	27
28	60 59	61 12	61 1	60 48	58 51	58 26	56 55	56 33	54 50	54 38	54 7	54 6	28
29	61 19	61 22	60 32	60 11	58 0	57 33	56 12	55 51	54 29	54 21	54 7	54 9	29
30	61 19	61 12	59 48	59 23	57 7	56 41	55 32	55 14	54 16	54 13	54 14	54 22	30
31	61 0	60 44	58 55	58 27	.. ..	.. ..	54 59	54 45	.. ..	.. ..	54 33	54 45	31

Mean Refraction.

App Alt.	Refr.	App Alt.	Refr	App. Alt.	Refr	App. Alt.	Refr	App. Alt.	Refr
° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
0 0	33 0	5 0	9 54	10 0	5 15	20 0	2 35	34 0	1 24
0 5	32 10	5 5	9 46	10 10	5 10	20 10	2 34	34 30	1 23
0 10	31 22	5 10	9 38	10 20	5 5	20 20	2 32	35 0	1 21
0 15	30 35	5 15	9 30	10 30	5 0	20 30	2 31	35 30	1 20
0 20	29 50	5 20	9 23	10 40	4 56	20 40	2 29	36 0	1 18
0 25	29 6	5 25	9 15	10 50	4 51	20 50	2 28	36 30	1 17
0 30	28 23	5 30	9 8	11 0	4 47	21 0	2 27	37 0	1 16
0 35	27 41	5 35	9 1	11 10	4 43	21 10	2 26	37 30	1 14
0 40	27 0	5 40	8 54	11 20	4 39	21 20	2 25	38 0	1 13
0 45	26 20	5 45	8 47	11 30	4 34	21 30	2 24	38 30	1 11
0 50	25 42	5 50	8 41	11 40	4 31	21 40	2 23	39 0	1 10
0 55	25 5	5 55	8 34	11 50	4 27	21 50	2 21	39 30	1 9
1 0	24 29	6 0	8 28	12 0	4 23	22 0	2 20	40 0	1 8
1 5	23 54	6 5	8 21	12 10	4 20	22 10	2 19	41 0	1 5
1 10	23 20	6 10	8 15	12 20	4 16	22 20	2 18	42 0	1 3
1 15	22 47	6 15	8 9	12 30	4 13	22 30	2 17	43 0	1 1
1 20	22 15	6 20	8 3	12 40	4 9	22 40	2 16	44 0	0 59
1 25	21 44	6 25	7 57	12 50	4 6	22 50	2 15	45 0	0 57
1 30	21 15	6 30	7 51	13 0	4 3	23 0	2 14	46 0	0 55
1 35	20 46	6 35	7 45	13 10	4 0	23 10	2 13	47 0	0 53
1 40	20 18	6 40	7 40	13 20	3 57	23 20	2 12	48 0	0 51
1 45	19 51	6 45	7 35	13 30	3 54	23 30	2 11	49 0	0 49
1 50	19 25	6 50	7 30	13 40	3 51	23 40	2 10	50 0	0 48
1 55	19 0	6 55	7 25	13 50	3 48	23 50	2 9	51 0	0 46
2 0	18 35	7 0	7 20	14 0	3 45	24 0	2 8	52 0	0 44
2 5	18 11	7 5	7 15	14 10	3 43	24 10	2 7	53 0	0 43
2 10	17 48	7 10	7 11	14 20	3 40	24 20	2 6	54 0	0 41
2 15	17 26	7 15	7 6	14 30	3 38	24 30	2 5	55 0	0 40
2 20	17 4	7 20	7 2	14 40	3 35	24 40	2 4	56 0	0 38
2 25	16 44	7 25	6 57	14 50	3 33	24 50	2 3	57 0	0 37
2 30	16 24	7 30	6 53	15 0	3 30	25 0	2 2	58 0	0 35
2 35	16 4	7 35	6 49	15 10	3 28	25 10	2 1	59 0	0 34
2 40	15 45	7 40	6 45	15 20	3 26	25 20	2 0	60 0	0 33
2 45	15 27	7 45	6 41	15 30	3 24	25 30	1 59	61 0	0 32
2 50	15 9	7 50	6 37	15 40	3 21	25 40	1 58	62 0	0 30
2 55	14 52	7 55	6 33	15 50	3 19	25 50	1 57	63 0	0 29
3 0	14 36	8 0	6 29	16 0	3 17	26 0	1 56	64 0	0 28
3 5	14 20	8 5	6 25	16 10	3 15	26 10	1 55	65 0	0 26
3 10	14 4	8 10	6 22	16 20	3 12	26 20	1 55	66 0	0 25
3 15	13 49	8 15	6 18	16 30	3 10	26 30	1 54	67 0	0 24
3 20	13 34	8 20	6 15	16 40	3 8	26 40	1 53	68 0	0 23
3 25	13 20	8 25	6 11	16 50	3 6	26 50	1 52	69 0	0 22
3 30	13 6	8 30	6 8	17 0	3 4	27 0	1 51	70 0	0 21
3 35	12 53	8 35	6 5	17 10	3 3	27 15	1 50	71 0	0 19
3 40	12 40	8 40	6 1	17 20	3 1	27 30	1 49	72 0	0 18
3 45	12 27	8 45	5 58	17 30	2 59	27 45	1 48	73 0	0 17
3 50	12 15	8 50	5 55	17 40	2 57	28 0	1 47	74 0	0 16
3 55	12 3	8 55	5 52	17 50	2 55	28 15	1 46	75 0	0 15
4 0	11 51	9 0	5 48	18 0	2 54	28 30	1 45	76 0	0 14
4 5	11 40	9 5	5 45	18 10	2 52	28 45	1 44	77 0	0 13
4 10	11 29	9 10	5 42	18 20	2 51	29 0	1 42	78 0	0 12
4 15	11 18	9 15	5 39	18 30	2 49	29 30	1 40	79 0	0 11
4 20	11 8	9 20	5 36	18 40	2 47	30 0	1 38	80 0	0 10
4 25	10 58	9 25	5 34	18 50	2 46	30 30	1 37	81 0	0 9
4 30	10 48	9 30	5 31	19 0	2 44	31 0	1 35	82 0	0 8
4 35	10 39	9 35	5 28	19 10	2 43	31 30	1 33	83 0	0 7
4 40	10 29	9 40	5 25	19 20	2 41	32 0	1 31	84 0	0 6
4 45	10 20	0 45	5 23	19 30	2 40	32 30	1 30	86 0	0 4
4 50	10 11	9 50	5 20	19 40	2 38	33 0	1 28	88 0	0 2
4 55	10 2	9 55	5 18	19 50	2 37	33 30	1 26	90 0	0 0

Dip of The Horizon.

Height of the Eye.	Dip of the Horizon.	Height of the Eye.	Dip of the
ft.	′ ″	ft.	′
1	0 59	19	4 1
2	1 24	20	4 2
3	1 42	21	4 3
4	1 58	22	4 3
5	2 12	23	4 4
6	2 25	24	4 4
7	2 36	25	4 5
8	2 47	26	5
9	2 57	27	5
10	3 7	28	5 1
11	3 16	29	5 1
12	3 25	30	5 2
13	3 33	31	5 2
14	3 41	32	5 3
15	3 49	33	5 3
16	3 56	34	5 4
17	4 4	35	5 4
18	4 11	38	6 4

Dip at Different Distances.

Miles.	Height of the Eye in Feet.					
	5	10	15	20	25	30
	′	′	′	′	′	′
¼	11	23	34	45	57	68
½	6	12	17	23	28	34
¾	4	8	12	15	19	23
1	3	6	9	12	15	17
1¼	3	5	7	10	12	14
1½	3	4	6	8	10	12
2	2	4	5	7	8	9
2½	2	3	4	6	7	8
3	2	3	4	5	6	7
3½	2	3	4	5	6	6
4	2	3	4	5	5	6
5	2	3	4	4	5	6
6	2	3	4	4	5	5

Table Of Corrections

To be applied to the Rising and Setting of the Sun, Moon, and Planets, when viewed from elevations above the sea level—Subtract from Rising, add to Setting.

ft	s.	ft.	m.s.	ft.	m.s.
5	16	50	0 51	120	1 18
10	23	60	0 56	140	1 26
15	28	70	1 1	160	1 32
20	30	80	1 5	180	1 38
30	38	90	1 8	200	1 43
40	46	100	1 10	300	2 5

Right Ascensions, and Declinations, and Semi-diurnal Arcs,

FOR LATITUDE 54° 10′,

Of the Principal Fixed Stars

NAMES.	Magnitude.	Right Ascension. H. M. S.	Annual Variations ″	Declination. ° ′ ″	Annual Variations ″	Semi-diurnal Arcs. H. M.
α Andromedæ	2	0 1 6	+ 3·08	N 28 18 43	+19·90	9 19
γ Pegasi (Algenib)	3·2	0 5 59	+ 3·08	14 23 58	+20·03	7 27
α Cassiopeæ	Var.	0 32 32	+ 3·35	55 45 48	+19·82	sets not
β Ceti	2	0 36 31	+ 3·01	S 18 45 41	+19·82	4 12
α Ursæ Minor. (Polaris)	2	1 7 44	+18·34	N 88 33 28	+19·21	sets not
α Eridani (Achernar)	1	1 32 27	+ 2·24	S 57 57 14	+18·44	rises not
α Arietes	2	1 59 14	+ 3·36	N 22 47 37	+17·26	8 27
α Ceti	2·3	2 54 55	+ 3·13	3 32 2	+14·39	6 23
α Persei	2	3 14 16	+ 4·24	49 21 20	+13·23	sets not
γ Tauri	3	3 39 6	+ 3·55	23 39 57	+11·52	8 34
α Tauri (Aldebaran)	1	4 27 50	+ 3·43	16 13 20	+ 7·69	7 39
α Aurigæ (Capella)	1	5 6 17	+ 4·42	45 50 58	+ 4·24	sets not
β Orionis (Rigel)	1	5 7 46	+ 2·88	S 8 22 4	+ 4·52	5 17
β Tauri	2	5 17 23	+ 3·79	N 28 29 2	+ 3·52	9 21
δ Orionis	2	5 24 48	+ 3·06	S 0 24 26	+ 3·04	6 1
α Leporis	3	5 26 31	+ 2·65	17 55 34	+ 2·93	4 10
ε Orionis	2	5 29 4	+ 3·04	1 17 44	+ 2·70	5 57
α Columbæ	2	5 34 33	+ 2·18	34 9 4	+ 2·23	sets not
α Orionis	Var.	5 47 32	+ 3·25	N 7 22 37	+ 1·10	6 45
α Argus (Canopus)	1	6 20 49	+ 1·33	S 52 37 12	− 1·81	rises not
α Canis Majoris (Sirius)	1	6 38 56	+ 2·65	16 31 34	− 4·61	4 27
α Geminorum (Castor)	2·1	7 25 36	+ 3·84	N 32 11 37	− 7·38	10 13
α Canis Minoris (Proc.)	1	7 31 55	+ 3·14	5 35 0	− 8·85	6 35
β Geminorum (Pollux)	1·2	7 36 41	+ 3·68	28 21 47	− 8·26	9 20
α Hydræ	2	9 20 39	+ 2·95	S 8 2 58	−15·36	6 49
α Leonis (Regulus)	1·2	10 0 52	+ 3·20	N 12 39 17	−17·39	7 17
α Ursæ Majoris	2	10 55 0	+ 3·78	62 30 40	−19·34	sets not
δ Leonis	2·3	11 6 36	+ 3·20	21 18 44	−19·66	8 16
β Leonis	2	11 41 52	+ 3·07	15 21 36	−20·09	7 34
γ Ursæ Majoris	2·3	11 46 24	+ 3·20	54 28 43	−20·02	sets not
α1 Crucis	1	12 18 47	+ 3·26	S 62 18 59	−19·94	rises not
β Corvi	2·3	12 26 59	+ 3·13	22 37 0	−19·99	3 44
α Virginis (Spica)	2	13 17 46	+ 3·15	10 25 27	−18·95	5 5
β Centauri	1	13 53 55	+ 4·15	59 41 25	−17·71	rises not
α Bootis (Arcturus)	1	14 9 14	+ 2·73	N 19 55 5	−18·93	8 5
α2 Centauri	1	14 30 4	+ 4·02	S 60 14 54	−15·08	rises not
ε Bootis	2·3	14 38 50	+ 2·62	N 27 40 14	−15·43	9 13
α2 Libræ	2·3	14 43 5	+ 3·31	S 15 27 12	−15·26	4 34
β Ursæ Minoris	2	14 51 10	− 0·26	N 74 43 54	−14·75	sets not
β Libræ	2	15 9 25	+ 3·22	S 8 51 36	−13·61	5 14
α Coronæ Borealis	2	15 28 43	+ 2·54	N 27 11 30	−12·38	9 8
α Serpentis	2·3	15 37 19	+ 2·95	6 52 19	−11·65	6 42
α Scorpii (Antares)	1·2	16 20 46	+ 3·67	S 26 6 55	− 8·46	3 15
α Trianguli Australis	2	16 33 47	+ 6·27	68 45 43	− 7·47	rises not
α Herculis	Var.	17 8 13	+ 2·73	N 14 33 15	− 4·46	7 29
β Draconis	3·2	17 27 15	+ 1·35	52 24 26	− 2·86	sets not
α Lyræ (Vega)	1	18 32 10	+ 2·03	38 39 17	+ 3·08	sets not
β Lyræ	Var.	18 44 52	+ 2·21	33 12 4	+ 3·87	10 31
γ Aquilæ	3	19 39 33	+ 2·85	10 16 21	+ 8·43	7 2
α Aquilæ (Altair)	1·2	19 43 54	+ 2·93	8 29 56	+ 9·16	6 51
β Aquilæ	4	19 48 23	+ 2·95	6 3 26	+ 8·65	6 37
α Pavonis	2	20 14 28	+ 4·80	S 57 10 56	+11·06	rises not
α Cygni	2·1	20 36 37	+ 2·04	N 44 46 42	+12·66	sets not
α Cephei	3·	21 15 13	+ 1·44	61 59 20	+15·09	sets not
β Aquarii	3	21 24 8	+ 3·16	S 6 11 22	+15·59	5 29
β Cephei	3	21 26 50	+ 0·80	N 69 56 32	+15·70	sets not
α Aquarii	3	21 58 32	+ 3·08	S 1 0 12	+17·29	5 58
α Gruis	2	21 59 20	+ 3·82	47 38 29	+17·15	rises not
α Piscium Australis	1·2	22 49 51	+ 3·33	30 22 7	+18·95	2 29
α Pegasi (Markab)	2	22 57 44	+ 2·98	N 14 26 51	+19·30	7 27

General Tide Table,

By which the times of High Water may be CORRECTLY FOUND *on* ANY *Da*

N.B.—ADD to the time of High Water in the Tide Table in this Almanack, the
and Minutes in the Column opposite the Place required.

ENGLAND	H.	M.
Alderney Pier.	7	45
Alne River	3	45
Barnstaple Bar	6	30
Berwick	3	18
Blakeney	7	50
Blythe	3	45
Boston..	8	15
Bridgewater	7	45
Bridlington..	5	30
Bridport	7	0
Carlisle	1	0
Chatham	1	54
Christchurch . ..	9	50
Dartmouth..	7	5
Exmouth Bar	7	25
Falmouth	6	30
Flamboro' Head ..	5	30
Flatholm	7	28
Fowey	6	30
Gravesend	2	30
Guernsey (Eng.Chan)	7	30
Hartlepool	4	45
Hull	7	0
Humber River	6	30
Ilfracombe	6	30
Ipswich	1	0
Jersey (En. Ch.) ..	7	10
Land's End	5	30
London Bridge	3	7
Longships	5	30
Lyme Regis	7	30
Needles Point	10	45
Newcastle	5	0
Penzance	5	30
Plymouth Dock.. ..	6	30
Poole	10	0
Portsmouth Dock ..	0	40
Ramsgate	0	46
Robin Hood's Bay ..	4	45
Scarborough	5	25
Scilly Islands	5	10
Sheerness	1	39
Shields	4	0
Southampton	0	40
Spithead	10	30
St. Ives	5	30
Sunderland	4	0
Tees River	4	30
Torbay..	7	0
Tynemouth Bar ..	3	50
Weymouth..	7	30
Whitby	4	45
Wisbeach	8	30
Yarmouth Roads ..	9	40
Yarmouth, Isle Wight	10	30

WALES.	H.	M.
Aberdovey	8	30
Aberystwith	8	30
Barmouth	8	55
Bardsey Island	9	15
Burrey Harbour.. ..	7	0
Cardiff	7	0
Cardigan Bar	8	0
Caermarthen Bar ..	7	10
Carnarvon Bar . ..	10	0
Denbigh	3	15
Fisgard Bay	7	30
Holyhead	11	0
Milford Haven.. ..	6	45
Newport	7	45
Pembroke	7	4
Skerries	10	45
Smalls and Swansea..	6	50
Strumble Head	7	15

IRELAND.		
Arklow	10	15
Baltimore	4	45
Bantry Bay	4	46
Broadhaven .. .	7	0
Cork Harbour	5	30
Crookhaven	4	30
Donaghadee.	10	15
Donegal Bar	6	5
Downing Bay	6	20
Dungarvon..	5	30
Foyn's Island	6	0
Galway Bay	5	30
Kinsale..	5	30
Limerick	7	0
Lough Swilly	8	30
Londonderry . ..	7	0
Malbay	5	0
Newry	1	0
Port Rush	6	45
Saltees..	6	40
Shannon	4	45
Skerries	5	45
Sligo Bay	5	45
Tory Island..	7	0
Tralee Bay..	4	45
Valentia Harbour ..	4	30
Waterford	6	50
Wexford	8	30
Wicklow	10	0
Youghal	6	0

SCOTLAND.		
Aberdeen	2	12
Banff	0	30
Buchanness	1	0
Burnt Island	3	30
Cromarty		
Dee (River)		
Dunbar		
Dundee		
Eyemouth		
Leith Pier		
Montrose		
Tay Bar		
Wick		

SHETLANDS.
Balta .. ..
Brassa Sound .. ..
Lerwick Harbour ..
Westra . .. .

ORKNEYS.
Cairston .. .. ..
Fair Isle .. .. ..
Pomona . .. ..
Ronaldsha .. .. ..

FOREIGN PORTS
Amsterdam .. ..
Antwerp ....
Bahia, Brazil .. ..
Bilboa, Spain .. ..
Biscay, Spain .. ..
Bonny River, Africa..
Bordeaux .. .. ..
Bremen, Germany ..
Brest, France . ..
Cadiz, Spain . ..
Calabar, Africa .
Calcutta .. .. ..
Cartagena, S. Amer..
Charleston Bar, U.S.
Charante, France ..
Cape Coast, Africa ..
Cape Good Hope town
Fort St. John, N.A ..
Funchal, Madeira ..
Hamburg .. .. ..
Rio Janeiro, Brazil ..
St. John's, N.Foundl.
Lisbon .. ..
L'Orient, France .
New York E. River..
Oporto, Portugal ..
Panama, S. A. .. ..
Pernambuca, S. A ..
Philadelphia, U. S ..
Quebec, Canada ..
Rotterdam . ..
Santa Cruz, S.A. ..
Whampoa, China ..

The Tides at the following places are nearly the same as the Tide-Table:—

Ardglass,	Chester	Dublin	Hastings	Mull of Galloway	St. Helen
Arran Island	Conway	Dumfries	Kingstown	Newhaven	Strangford
Bangor	Cowes	Dundalk	Killough	Pargate	Stromness
Balbriggan	Copeland Island	Dundrum	Kirkcudbright	Preston	Troon
Belfast	Deal	Folkstone	Lancaster	Pentland Frith	Warren's Poin
Beaumaris	Dover	Glasgow	Liverpool	Ramsgate	Ulverston, and
Carlingford	Downs	Greenock	Maryport	Rothsay	Whitehaven.
Carrickfergus	Drogheda	Harwich	Margate	Roseness	

ISLE OF MAN INFORMATION.

Manx Legislature

: Hon. Charles Hope, Lieut.-Governor
: to his Excellency.... James Burman

COUNCIL.

m.&Rt.Rev.H.Powys,D.D.,Lord Bishop
harles R. Ogden .... Attorney-General
on.W. L. Drinkwater, South. Deemster
on. J. C. Stephen, Northern Deemster
m. W. Christian ..... Water-Bailiff
on. Mark H. Quayle, Clerk of the Rolls
en. Joseph C. Moore ..... Archdeacon
homas Arthur Corlett.... Vicar General
ames Burman ..... Clerk of Council

HOUSE OF KEYS.

lw. Moore Gawne, Speaker, Kentraugh
obert John Moore, Secretary ..... Peel
homas Moore ..... Crescent Cottage
ohn F. Crellin ..... Orrisdale
Evan Gell .... Whitehouse
rederick J. D. Lamothe ..... Ramsey
lexander Spittall .... Laureston
homas Clucas ..... Gart
ichard Quirk ..... .Rheaby, Patrick
rank Matthews ..... Glenmoore
lenry Murray..... Thornton
Villiam Callister ..... Thornhill
. G. Bennett ..... Willaston
Mark Goldie ..... Slegaby
Edward Curphey Farrant.. Ballakillingan
Patrick T. Cuningham..... .Ballanorris
leorge Goldie .. .. .Marown
ohn Gell ..... . .Kennaa
hilip Killey ..... .Douglas
ohn M. Jeffcott ..... Castletown
idgway Harrison..... Douglas
Villiam Harrison ..... German
. F. Moore .. .. Cronkbourne
Villiam Haslam ..... Ballaglass

Committee of the Legislature

OR REGULATING ALL MATTERS RELATIVE TO HIGHWAYS, BRIDGES, &c.

. J. D. Lamothe, Evan Gell, W. Callister, P. Cuninghame, and Ridgway Harrison
urveyor-General, R. Anderson, Douglas

Constituted Authorities

HIGH BAILIFFS.

ames Gell..... Castletown
enhouse Wilson ..... Douglas
Robert J. Moore ..... Peel
Frederick Tellett..... ..... Ramsey

Coroner-General for holding Inquests of Death.... W. W. Christian, Andreas
Registrar of Deeds .. S. Wilson, Douglas
Registrar General of Births and Marriages ...James Burman, Castletown
Deputy Registrars do.—R. Harrison, Douglas; James Gell, Castletown; Robert J. Moore, Peel; F. Tellett, Ramsey
Episcopal Registrar, Rev. J. Brown M.A.
Deputy Episc. Registrar / Archdeacon's Registrar } R. H. L. Brown
Archdeacon's Official ..... T. A. Corlett
Seneschal ..... L. Adamson, Douglas
Crown Solicitor .. A. W. Adams, Douglas
Visiting Magistrate for Gaol of Castle Rushen ..... James Gell, Castletown
Regulator of Weights and Measures .. F. L. Gelling, Castletown
Agent for Woods and Forests ...F. C. Skrimshire, Douglas
Tithe Agent.....S. Harris, Douglas
Southern Deemster's Clerk, R. Harrison
Northern Deem. do., ...F. B. Clucas

Magistrates

The Members of the Council....
The High Bailiff of Castletown..
The High Bailiff of Douglas ....
The High Bailiff of Ramsey ....
The High Bailiff of Peel ..... } For the time being.

Thomas Moore ..... Ballown
Samuel Pollock .....Strathallan Lodge
Evan Gell ..... Whitehouse
Richard Quirk .... Rheaby
Cesar Bacon ....Seafield
William Callister..... Thornhill
Ewan Cameron..... Ballatessen
Clarence Horatio Cary ....Beach House
John Frissell Crellin ....Orrisdale
Edward Moore Gawne.... ...Kentraugh
Alexander Taubman Goldie . ..Douglas
John Berkely Harrison ....Douglas
Richard Simpson ..... The Cliff
J. G. Bennett.. ..... Willaston
Thomas Clucas . ... Gart
P. T. Cunningham..... Ballanorris
William Farrant ....Ballamoar
John Gell..... ..... Kennaa
William Haslam .. . . Ballaglass
F. Matthews .... Glenmoore
W. F. Moore ..... Cronkbourne
G. H. Newton .... Westham

CLERKS—James Spittall..... Douglas
Henry C. Gill.... Castletown
F. J. D. Lamothe .. Ramsey
John Kelly ..... Peel

Members of Manx Bar

* Members of the House of Keys.

William Corlett ....Ballamona
Thomas Arthur Corlett ..... Ramsey
Frederick Tellett, H.B. ..... Ramsey
Evan Gell ....Ramsey
Frederick L. Gelling .. ..Castletown

James Quirk ....Douglas
William W. Christian .....Andreas
William Clague . .....Peel
Edmund G. Head .....Douglas
George Wm. Dumbell ... .Douglas
* Frederick J. D. Lamothe .. . .Ramsey
Henry B. Watts ....Douglas
Frederick B. Clucas ... .Ramsey
John D. Gelling .....Castletown
Edward Frizelle .. .. .Peel
Senhouse Wilson, H.B. .....Douglas
John George Moore .....Castletown
Robert J. Kelly .....Ramsey
* Robert J. Moore, H.B.. ... . . .Peel
Thomas Howard ..... .New Zealand
*John M. Jeffcott ....,Castletown
Edward C. Fleetwood .....Douglas
*Ridgway Harrison .. ..Douglas
Samuel Harris ....Douglas
Edward Callow ....
Chas. R. Ogden ....Clifton
John Kelly .....Peel
Thomas C. Callow .....Douglas
James Gell, H.B.....Castletown
Daniel F. Wilson ..... .Ramsey
J. G. M'Hutchin .. ..Australia
James Spittall .....Douglas
Alfred Walter Adams ..... .Douglas
Frederick Call .....Australia
James Burman ....Castletown
A. N. Laughton ....Douglas
Thomas A. Corlett, jun. .....Ramsey
Laurence Adamson .....Douglas
Laurence Craigie ....Douglas
Hugh C. Gill..... .....Castletown
J. C. Tobin Harrison .....Douglas
Richard Tuton ... .Peel
John Clucas .....Castletown
Arthur Bluett ..... .Douglas
Richard Sherwood .....Douglas
Alured Dumbell ....,Douglas

Notaries Public

DOUGLAS. — John Moore, Henry B. Watts, J.C.T. Harrison, Senhouse Wilson, James Spittall, Ridgway Harrison, T. C. Callow, A. N. Laughton

CASTLETOWN.—Frederick L. Gelling, J. G. Moore

RAMSEY.—Fred. B. Clucas, Robt. J. Kelly

PEEL.—J. Kelly

Commissioner

To take Affidavits for Courts of Queen's Bench, Exchequer, and Common Pleas, Ireland—R. J. Kelly, Ramsey

Coroners

Glenfaba.....Richard Cowley
Michael ... .Thomas Clarke
Garff ..... .John Kerruish
Ayre..... .John Stephen
Middle ....John Moore
Rushen ....James Thomson

Sumners

Sumner-General ....S. Ha
Kirk Maughold ..... Johr
—— Lonan . .....Jas
—— Onchan .... Joh
—— Braddan .....Joh
—— Marown .....T.
—— Santon.....Wm
—— Malew ....Wm
—— Arbory ..... .Robert
—— Christ Rushen.....John
—— Patrick I
—— German .....Robe
—— Michael ..... Edward
—— Andreas .....Matthias
—— Bride ....Joh
Ballaugh .....John
Jurby .....T. M
Lezayre I

Chief Constables

Robert Rhodes .... .Cas
John Sayle .....
James Coole .....
Claude Bennett ... .

Officers of Customs

PORT DOUGLAS.

Collector .....George Hay An
Collector's First Clerk .... N. W.
Collector's Second Clerk .... Geor
Comptroller and Landing Surveyor .. ... } Thomas S
Searcher, Landing-waiter & Coast-wtr. } James Be
Tide Surveyor..... ..John McC
Locker and Weigher .. Terence C
Tide Waiters and Boatmen.. Wm. bride, J. Quine, R. Quine, John R. Gelling, and G. Wainman.

PORT RAMSEY.

Collector .....Robert H
Comptroller, Landing-waiter, Searcher, Coast waiter, & Tide Surveyor } .. R. C. M
Tide Waiters and Boatmen.. Thos. Co S. Farrington, and J. Quayle

CREEK OF DERBYHAVEN.

Principal Coast Officer ....R. Q. Cr
Tide Waiters and Boatmen, W. Archer Watterson, W. Bell, and Jas. Laws

CREEK OF PEEL.

Principal Coast Officer .. Leslie Lockh
Tide Waiters and Boatmen .. J. Cow and J. J. Corlett

Harbour Masters

...letown .....J. Mylchreest
...glas..... {.... ..... John Clague
Deputy, Robert Gelling
.... R. Kerruish
...t St. Mary .....Thomas Qualtrough
...nsey..... ....Charles Teare

Customs Brokers

...Johnson, Deputy-Collector of Light ...ses ....Custom House, Douglas ...Barey ..... North Quay, Douglas

Vice Consuls

...ish..... W. F. Moore
...ttish and Norwegian ....H. B. Noble

...ceiver of Droits of Admiralty

...H. Anderson ... .Douglas

Agents for Lloyd's

...uthern District, R. Boardman, Douglas, *Also for the Underwriters of Glasgow and Liverpool*
...rthern District .. Hugh Brown, Ramsey

Commissioners of Harbours

R. Quirk, Receiver General

...Hay Anderson	William F. Moore
...omas S. Todd	Henry Graves
...William Callister	James Gell
...mes Corlett	Robert J. Moore
...mes Bertram	R. J. T. Quayle

Bankers

...nk of Mona, Douglas—(Draw on Prescott, Grote, & Co., London) — J. S. Jackson, Manager
...uglas and Isle of Man Bank—(Draw on Carr, Glynn, & Co., London)—Dumbell, Son, & Howard.
...nk for Savings, Atholl-street, Douglas —J. Spittall, Secretary

Isle of Man Post-Office

Atholl Street, Douglas....Miss Macadam

SUB-POST-OFFICES & RECEIVING HOUSES.

Duke Street, Douglas ....James Cowin
Shore Road, near Douglas..W. Christian
Ballaughton, near Douglas....S. Barker
Crescent, near Douglas ..Geo. M. Jones
Ballasalla .....H. Caugherty
CASTLETOWN .... .George Duck
The Green, Castletown .....T. Cretney
Port St. Mary .....Miss Harley
Union Mills .... .W. Dalrymple
Crosby .....R. Kelly
St. John's .....Mary Quayle
PEEL.....John Morrison
Onchan .....J. Lewin
Laxey .....J. Kinley
RAMSEY .... John Hampton
Kirk Andreas..... ..Fred. Radcliffe
Sulby .....Daniel Caley
Ballaugh .....J. C. Bishop
Michael..... .....J. Cannan
Jurby ....A. Joughin
St. Mark's..... ..... .P. Mylrea

Law Courts

COMMON LAW.—*Castletown*, Feb. 8.—May 10—July 5—October 11—*Ramsey*, Feb. 15—May 17—July 12—October 18.

CHANCERY AND EXCHEQUER.—At Castle Rushen, on the first THURSDAY in each month; the months of Jan., August, and Sept. excepted; besides which, SPECIAL COURTS are held as occasion may require.

ADMIRALTY, OR WATER-BAILIFF'S.—At Castletown, weekly.

DEEMSTERS' SUMMARY.—At Castle-Rushen, Douglas, Ramsey, and Peel, every fortnight.

VICAR'S GENERAL.—At Douglas, Castletown, Peel, and Ramsey once monthly.

CHAPTER.—Half-yearly, in Spring and Autumn.

HIGH BAILIFFS'.—At Castletown, Douglas, Peel, and Ramsey, weekly.

BARON.—Held in April and October.

MAGISTRATES'.—Fortnightly.

LIVERPOOL INFORMATION.

Pilot Boat Stations

...RVICE.—From the Liverpool Pilot Boats ...n shown, horizontally, a White Light ...on the Bow, and a Green Light in the Waist, the two not being less than ten feet apart.

The boat having the turn to board displays a red and white flag at the mast-head by day; by night, a white light, and exhibits a flare-up light every 15 minutes; the other boats a green light.

The TWO western boats cruise off Point Lynas, and as far to the westward as the Middle Mouse, and to the eastward until Priestholm Island bears S.S.W.

The THIRD western boat cruises from Point Lynas to S.S.W. of West end of Great Ormshead, to board any vessels that may pass the first and second boats.

The FOURTH western boat cruises from eastern limit of third boat's station, and eastward to N.N.E. from west end of Bar Land.

The FIFTH, or first Hoylake boat, cruises to the westward so as to keep sight of the Northwest Light-Ship from the deck.

The SIXTH, or second Hoylake boat, to board vessels after they pass the line of the Northwest Light-Ship and Point of Air, when the first boat is not within a reasonable distance, and after high water to take pilots from vessels outward-bound.

Rates of Pilotage

For British Vessels trading Foreign.

INWARD. PER FOOT.	s.	d.
From the length of the west end of the Great Ormshead, bearing S. by W., or before Penman Bachan be shut in with the Great Ormshead, at the rate of.....	9	0
From the eastward of the Great Ormshead, as above	8	0
From the only House now on Great Hilbre Island, bearing S. S. W. by the compass, or shall be piloted from the Road of Hoylake only, or from the Buoy of the Fairway in Formby Channel	4	0

OUTWARD.	s.	d.
Whether through the Rock or Formby Channel	4	0

No British vessel, trading to Foreign Parts, inward or outward bound, is to refuse a Pilot; but if such vessel has passed the Brazil Buoy in the Rock Channel, or the Middle Patch Buoy in Formby Channel, or if a Pilot-boat falls in with a vessel in the narrows of the Channels in stormy weather, that she cannot board her without eminent danger, the pilot shall then lead the way, and in either case be entitled to such Pilotage as shall be awarded by the Committee at their next meeting.

For Alien Ships and Vessels.

INWARD.	s.	d.
From the length of the Great Ormshead, as above, at the rate of....	12	0
From the eastward of the Great Ormshead, as above	11	0
From the only House now on Great Hilbre Island, &c. as above	5	6

OUTWARD.	s.	d.
Whether through the Rock or Formby Channel..	7	0

An Alien vessel, inward or outward bound, is not to refuse a Pilot, as circumstances are described for English-Foreign vessels as above.

For coasting Vessels, and those trading to and from Ireland, the Islands of Faro or Ferro, Jersey, Guernsey, Alderney, Sark, and Man.

INWARDS.	s.	d.
From the length of the Great Ormshead, as above, at the rate of	4	6
From the Eastward of the Great Ormshead, as above..	4	0
From the only house now on Great Hilbre Island, &c. as above.. ...	2	0

OUTWARD. PER	
Whether through the Rock or Formby Channel	

No coasting vessel to pay for less eight feet of water, nor any vessel t for odd inches under half a foot. coasting vessel, inward or outward b of the burthen of one hundred tons o wards, (unless she be in ballast,) is t fuse a Pilot, as the master or owner must pay the full Pilotage, if one is ed. No vessel to be deemed a coa unless she has been six months in trade.

EXTRA PAY. PER	
For every day of attendance whilst in the River, except the day of going to sea with such ships or vessels as shall be outward bound, and the day of returning from sea and the day of docking for such as shall be inward-bound.	
And if the attendance of a Pilotboat be requested.....	4

Though the Pilot or Boat be not ployed a whole day, to be paid for a

CHARGES ON THE MERSEY.—For tak a vessel from one dock to another, from Liverpool to Birkenhead, £1 1 from Liverpool to Garston, £2, and versa.

Pilots' Rules and Regulatio

Any person acting as Pilot withou license, to forfeit £20.

Pilots refusing to conduct or assist sh in distress, to forfeit £10, and licens

Masters of vessels forcibly taking Pi beyond the limits of port, to forfeit more than £20, nor less than £5.

Pilots misbehaving to have their lice recalled, and if they act afterwards same penalties as if they were not Pil

Vessels liable to pay pilotage comi into port, to display signal for a Pilot, der a penalty of £5.

Reward for Pilots assisting ships distress to be settled by the Committee

Compensation to be made to Pilots taking vessels out of port which have be forced back, to be fixed by the Committ

When, in stormy weather, a vessel c not be boarded with Pilots' small bo the vessel should be steered with the wi on the quarter, the yards braced bye, wh the large boat sheers under the lee quart and the Pilot jumps on board.

Pilot Boats, Masters, &c.

No.	NAMES.	FIRST AND SECOND MASTERS.
1,	Queen (schooner)..	Wm. Hughes, Fairfield-crescent, Fairfield; R. Taggert, 8, Eagle-terrace, Upper Hill-street
2,	Leader (schooner)..	Joseph Powell, 50, Great Newton-street; John Currin, 173, Duke-street
3,	The Duke (schooner)	J. Williams, 6, Bridge-st., Woodside; Thomas Parry, Field-st.
4,	Auspicious (cutter) .	J. Shepherd, 40, Wesley-st.; C. Christie, Upper Warwick-st.
5,	Victoria and Albert .	Isaac Williams, 29, Roscommon-street; Hugh Jones, 66, Everton-brow
6,	Pioneer (schooner)..	T. Parry, 18, Stafford-st.; T. Davies, 133, Field-st.
7,	George Canning ..	W. Rowlands, Gt. Mersey-st. North; T. Thompson.
8,	Albert Edward, Prince of Wales	John Bark, Stanley-crescent, North-shore; John Blackley, Sidney-road, Tranmere
9,	Liver (cutter)....	T. Crane, 3, Gt. Oxford-st.; W. Lancaster, Rock View, Bootle
10,	Criterion (sch.) ..	J. Wilson, 146, Falkner-st.; H. Williams, 54, St. James'-pl.
11,	Mersey (cutter)..	Richard Parry, Cazneau-st.; R. Williams, 102, Field-st.
12,	Perseverance (cut)	H. Woodward, Egremont; G. Bark, 37, Bevington Hill

Superintendent of Pilots, Capt. Joseph Cooke, 2, Old Church-yard.

The Pilot Committee meet for the transaction of business, every Monday, at 12 o'clock, at the Committee Room, 2, Old Church-yard.

Life-Boats

All masters and others, entering or quitting the port, and requiring the assistance of the Life Boats are requested to hoist the Distress Signal, in order that they may be dispatched to their assistance as soon as possible. Vessels aground on the Banks, and not hoisting the Distress Signal, will be supposed not to require the assistance of the Life Boats.

Life-Boat Stations

At Liverpool, Waterloo Pierhead, two boats; the key kept at the Marine Surveyor's Office, New Custom-house. Hoylake, two boats; the key kept at the Lower Hoylake Lighthouse. Magazines, two boats; the key kept by Mr. Leay, at the Magazines' Gunpowder Office. Point of Ayr, two boats; the key kept at Mr. Robert Beck's, the Master's house. Formby, two boats; the key kept at Joseph Formby's, the Master's house. Southport, two boats; the key kept at Mr. William Rawcliff's, the Master's house, and Mr. Cæsar Lawson's, Assistant Receiver of Droits.

Bidston Hill Signals

SIGNALS OF DISTRESS.—For vessels in distress or on shore in the Rock Channel, or about Hoyle—Coming in: On the oblique pole to the southward of the lighthouse—for every ship, a ball with a flag half mast; for every snow, a cone broad end up and a flag half-mast; for every brig or small vessel a cone small end up and a flag half-mast.—Going out: the same as above, but a broad pendant instead of flag.

N.B. For vessels in distress to the southward, when on shore on the main, the ball or cone to be put on the outside of the flag or pendant; but if on shore on Hoyle Bank, then the ball or cone to be put on the inside of the flag or pendant.

In Formby Channel.—The same signals to the Northward of the Lighthouse.

Mersey Dock and Harbour Board.

OFFICERS.

Mr. John North, Solicitor.—Office, Dock Office.

Mr. Jesse Hartley and Mr. John Bernard Hartley, Engineers of the Docks, &c.—Office, south side of Coburg Dock.

Mr. Daniel Mason, Secretary.

Mr. G. J. Jefferson, Dock Treasurer.

Lieut. M. T. Parks, R.N., Marine Surveyor.—Office, Dock Office.

Mr. Wm. Marrow, Receiver of Duties on Tonnage.

Mr. John Evans, Receiver of Duties on Goods Inwards.

Mr. Joseph F. Owen, Receiver of Duties on Goods Outwards.

Mr. Richard Jones, Receiver of the Duties at Runcorn.

Mr. R. Cowan, Superintendent of Albert and Wapping Dock Warehouses.

Mr. W. D. Turner, Superintendent of Stanley Dock Warehouses.

OFFICERS CONTINUED.

Thomas Hodgson, Harbour Master.—Office, George's Dock Passage.

John Garniss, Assistant Harbour Master.

——— ditto ditto

James Hookey, ditto, and Master of Birkenhead Docks.

Dock Masters

Canada and Huskisson.. J. H. Henrichson
Sandon..... .....Shadrach Williams
Wellington and Half-tide ..John Corley
Nelson and Bramley-Moore.. Wm. Foyl
Salisbury, Collingwood, and
Stanley .... John Ashton
Clarence Half-tide, Clarence, and
Trafalgar ....Thomas Stirzaker
Waterloo and Victoria .....Henry Rae
Prince's .. ..William Asbridge
George's.....Charles Purnell
Canning and Half-tide....Thos. Prenton
Albert and Salthouse Docks, and
Wapping Basin .....Thomas Herbert
King's and Wapping .....Joseph Curry
Queen's and Half-tide ....Thomas King
Cobourg and Union .....Joseph Wood
Brunswick.....Thomas Chamley
Toxteth and Harrington ....John Curry

The Dock Masters' Offices are at the entrance of the respective Docks.

Dock and Basin Signals

All vessels are allowed to enter the docks, when signals are not hoisted at the respective pierheads. All owners, masters, and consignees are, however, recommended to register their vessels as expeditionsly as possible, in order the better to secure their right of turn to accommodation at the dock quays.

DOCK SIGNALS.

HUSKISSON—Flag on N. pier of Sandon Basin entrance

SANDON—Flag on N. side of gateway

WELLINGTON AND HALF-TIDE—Flag on S. pier of Sandon Basin entrance

NELSON AND BRAMLEY-MOORE—Flag on N. pier of Salisbury Dock entrance

SALISBURY, COLLINGWOOD, AND STANLEY—Flag on S. pier of Salisbury Dock entrance

CLARENCE AND HALF-TIDE—Flag on N. pier of Clarence Half-tide entrance

TRAFALGAR.—Flag on S. pier of Clarence Half-tide Dock entrance

WATERLOO AND VICTORIA—Flag on N. pier of Prince's Basin entrance

PRINCE'S, NORTH ENTRANCE—Flag on S. pier of Prince's Basin entrance

PRINCE'S, SOUTH ENTRANCE—Flag on N. pier of George's Basin entrance

GEORGE'S—Flag on S. pier of George's Basin entrance

CANNING AND HALF-TIDE—Flag on N. pier of Canning Half-tide entrance

ALBERT AND SALTHOUSE—Flag on S pier of Canning Half-tide entrance

KING'S—Flag on N. pier of King's an Queen's Basin entrance

WAPPING—Flag on N. end of th King's Parade

QUEEN'S—Flag on S. pier of King' and Queen's Basin entrance

COBOURG—Flag on S. pier of Cobour entrance

BRUNSWICK—Flag on S.side of entranc

TOXTETH—Flag on N. side of entranc

HARRINGTON—Flag on S. side of en trance

BASIN SIGNALS.

SANDON—Ball on the north side

PRINCE'S—Ball on S. pier of entranc

GEORGE'S—Ball on S. pier of entranc

Abstract of Dock Laws

Goods causing obstruction on the Dock quays, may be removed by the Trustees at expense of owners.

Such a quantity of cargo or ballast to be kept on board each vessel as to enable it to be safely removed; penalty £50.

Harbour and Dock Masters may remove vessels in dock, or from one dock to another, at owners' expense; penalty for obstructing them, disobeying their orders, or using abusive or offensive language to them, £10.

Vessels on which dues, &c., are owing, may be detained until such are paid.

Shipowners have a lien for freight and all other lawful claims on goods discharged into dock warehouses.

Manifests of all goods imported or exported to be delivered at the Dock Office within 14 days after the discharge inwards or clearance outwards; penalty £20.

Collector, &c. not to receive entry of any vessel until the dock and light duties are paid; penalty £20.

No ballast to be thrown into the docks; penalty £2

After ballast is discharged, to be carted away as the trustees of the docks shall appoint; penalty £2.

Vessels not to come into dock under sail; penalty £5.

Persons wilfully & maliciously damaging docks, &c. adjudged guilty of felony.

Water-bailiff empowered to remove vessels lying in the river; penalty for obstructing him £10.

Persons firing cannon, &c, within the port, (except signal guns of distress) to forfeit £10 for every offence.

Width of the various Dock Entrances at Liverpool and Birkenhead, with the Depth of Water at their respective Sills below the Old Dock Sill.

Names of Docks, &c.		Width of Entrance. ft.	in.	pts.	Sill below Old Dk. Sill ft.	in.	pts.
Canada Dock Gates (500 feet Lock)		100	0	0	7	9	0
Ditto, South Entrance	East Gates	50	0	0	6	6	0
Ditto ditto	West Gates	80	0	0	6	6	0
Huskisson Dock	East Lock Gates	80	0	0	6	6	0
Ditto	West Lock Gates	45	0	0	6	0	0
Sandon Dock Gates		70	0	0	6	6	0
Wellington half-tide Dock	East Gates	70	0	0	6	9	0
Ditto	West Gates	50	0	0	6	6	0
Wellington Dock Gates		70	0	0	6	0	0
Bramley Moore Dock	North and South Gates	60	0	0	6	0	0
Nelson Dock	South Gates	60	0	0	6	6	0
Stanley Dock Gates		51	0	0	5	8	0
Collingwood Dock Gates		60	0	0	6	9	0
Salisbury Dock	North Gates	60	0	0	6	1	0
Ditto	South Gates	50	0	0	6	11	0
Clarence Graving Dk. Basin	North Gates	45	0	0	4	19	0
Ditto	South Gates	45	0	0	4	6	0
Ditto half-tide Dock	West Gates	50	0	0	5	6	0
Ditto Dock Gates		47	0	0	3	2	0
Trafalgar Lock	North and South Gates	45	0	0	6	7	0
Ditto Dock	South Gates	45	0	0	4	1	0
Victoria Dock	South Gates	40	0	0	4	11	0
Waterloo Lock	North Gates	45	0	0	6	15	0
Ditto	South Gates	45	0	0	6	8	0
Prince's Dock	North Gates	45	0	0	5	1	0
Ditto	South Gates	44	1	0	5	11	0
George's Dock	North Gates	41	11	0	4	16	0
Ditto	South Gates	40	11	0	4	6	0
Canning Dock	West Gates	45	0	0	6	3	0
Ditto half-tide Dock	North and South Gates	45	0	0	6	4	0
Albert Dock	North Gates	45	0	0	6	4	0
Ditto	East Gates	45	0	0	6	0	0
Salthouse Dock	North Gates	45	0	0	6	0	0
Ditto	South Gates	50	0	0	6	0	0
Wapping Basin	West Gates	40	0	0	6	0	0
Ditto Dock	North and South Gates	50	0	0	6	0	0
King's Dock	East Gates	50	0	0	6	0	0
Ditto	South Gates	42	0	0	5	0	0
Queen's half-tide Dock	North Gates	70	0	0	6	9	0
Ditto	South Gates	50	0	0	6	9	0
Queen's Dock	West Gates	50	0	0	6	0	0
Ditto	South Gates	60	0	0	6	6	0
Cobourg Dock	West Gates	70	1	0	6	0	0
Brunswick Dock	North Gates	60	0	0	6	6	0
Ditto	West Gates	42	0	0	5	6	0
Ditto half-tide	West Gates	45	0	0	6	0	0
Toxteth Dock Gates		40	0	0	5	0	0
Harrington Dock Gates		29	9	0	1	2	0
BIRKENHEAD DOCKS.							
Morpeth Dock	East Gates	50	0	0	5	0	0
Ditto	West Gates	70	0	0	5	0	0
Egerton Dock	West Gates	70	0	0	5	6	0

GRAVING DOCKS.	Width of Entrance. ft.	in.	Sill below Old Dock ft.	in.
Canada (500 feet Lock)	100	0	7	9
Huskisson Lock	80	0	6	6
Sandon, No. 1, East	60	0	3	6
Ditto No. 2,	70	0	3	6
Ditto No. 3,	60	0	3	6
Ditto No. 4,	70	0	3	6
Ditto No. 5,	45	0	3	6
Ditto No. 6,	45	0	3	6
Brunswick, Nos. 1 and 2	42	0	2	6

GRAVING DOCKS.	Width of Entrance. ft.	in.	Sill below Old Dock ft.	in.	pts.
Queen's, No. 1,	42	0	1	8	0
Ditto No. 2, Bottom	42	0	1	8	0
Ditto No. 2, Top	70	1	1	8	0
Canning, No. 1,	35	9			
Ditto No. 2,	35	9	0	0	7
Clarence, No. 1, Old Part	45	0	3	0	0
Ditto No. 1, New Part	45	0	0	6	0
Ditto No. 2, Old Part	45	0	3	0	0
Ditto No. 2, New Part	32	10	0	6	0

The Sill of Canning Graving Dock, No. 1, is 1ft. 8in. 8pts. *above* the Old Dock Sill.

Extent of the Liverpool Docks

Total Water Area of the Liverpool Docks and Basins ..... 225 Acres, 4274 yards
Total Quay Space .... 16 miles, 1732 yards

Graving Dock Rates

FOR	Vessels under 50 tons. £	s.	50 and under 100. £	s.	For every progressive 50 tons. £	s.
2 Tides, the tide in & next tide out	1	16	2	2	0	6
3 ——, includ. going in & coming out	2	2	2	9	0	7
4 ——	2	8	2	16	0	8
5 ——	2	14	3	3	0	9
6 ——	3	0	3	10	0	10
7 ——	3	6	3	17	0	11
8 ——	3	12	4	4	0	12
9 ——	3	18				
10 ——	4	4				
11 ——	4	10				
12 ——	4	16				
2 Neaps	12	0	16	0	2	0
3 ——	18	0	24	0	3	0
4 ——	24	0	32	0	4	0
5 ——	30	0	40	0	5	0
6 ——	36	0	48	0	6	0
7 ——	42	0	56	0	7	0
8 ——	48	0	64	0	8	0

Latitude and Longitude of Liverpool

N. Lat. of Observatory .... 53°24′ 47″·8
W. Lon. ditto .... 0h 12m 0s·11

A Tide-Guage Table for ... Entrance of the Mersey,

Adapted to shew the *Height of W* above low-water level of ordinary Sp Tides, at any required period.

When it is High Water at or near either of the following times.	H. W.	Last ½ h. flood, or first ½ h. ebb.	5 hours' flood, or 1 hour's ebb.	¾ flood, or ¼ ebb.	4 hours' flood, or 2 hours' ebb.	3½ hours' flood, or 2½ hs.' ebb	Half-Tide.	2½ hours' flood, or 3½ hs ' ebb.	2 hours' flood, or 4 hours' ebb.	¼ flood, or 3¼ ebb.	1 hours' flood, or 5 hours' ebb	
hour.	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*f*
12 o'clo	30	29	27	25	22	19	16	13	10	8	5	
11 or 1	29	28	27	25	22	19	16	13	10	8	6	
10 or 2	27	26	25	24	21	19	16	13	11	9	7	
9 or 3	26	25	24	23	21	18	16	13	11	9	8	
8 or 6	25	24	23	22	20	18	16	14	12	10	9	
7 or 5	24	23	22	21	20	18	16	14	12	11	10	
6	23	22	21	20	19	18	16	14	13	12	11	1

Computed Distances from George's Dock Pier-head to several parts of the River,

	Miles.	Yds.		Miles.	Yds.		M
Magazines	2	1050	Woodside.....	0	1500	Egremont	
Rock Perch..	3	150	Hoylake	9	0	Eastham	
Northwest Buoy ..	14	0	Tranmere	1	900	Weston Point	
Floating Light	15¼	0	New Ferry	3	0	Runcorn	

CUMBERLAND INFORMATION.

Members of Parliament, &c.

WHITEHAVEN.—George Lyall, Esq., 17, Park Crescent, Regent's Park, London.

COCKERMOUTH.—John Steel, Esq., Derwent Bank, Cockermouth. Lord Naas, 79, Eccleston Square, London.

EASTERN DIVISION.—Hon. Chas. W. G. Howard, Naworth Castle; 56, Park-street, Grosvenor Square, London. W. Marshall, Esq., Patterdale Hall; 55, Lowndes Square London.

WESTERN DIVISION.—General Wyndham, Cockermouth Castle. H. Lowther, Esq., 31, Bruton-street, London.

CARLISLE.—Sir James R. G. Graham, Netherby. Wm. N. Hodgson, Esq., Carlisle.

Lord Lieutenant... .... Earl of Lonsdale.
Clerk of the Peace .. T. H. Hodgson, Esq.
County Treasurer, Mr. Dobinson, Carlisle.
Gov. of Gaol.. Mr. T. H. Redin, Carlisle.
County Coroners.. { Wm. Carrick, Esq. / W. Lumb, jun., Esq.

Quarterly Sessions

Easter, in the first week after 31st Mar
Midsummer, first week after 24th Jun
Michaelmas, first week after 11th Oct
Christmas, first week after 28th Dec

The Easter Sessions for Cumberla are held at Whitehaven, Midsummer a Christmas Sessions at Carlisle, and t Michaelmas Sessions at Cockermouth.

Post Office, Whitehaven

JOHN GIBSON, POSTMASTER.

November, 185

ARRIVALS.—*Week days.*— London a all parts, 9h. 15m. a.m., 9h. 30m. p.m *Sundays.*—London and all parts, 11 a.m.

DESPATCHES.—*Week days.*— Local part 10h. a.m.; London and all parts, 3 35m. and 6h. 40m. p.m. *Sundays.*- Local parts, noon; London and a parts, 8h. 20m. a.m., and 4h. 50m. p.m

The deliveries by letter-carriers commence, during the week, at 7h. 30m., and 10h. 15m., a.m.; and on Sundays at 12h. 45m., p.m.

For ten minutes after the box is closed for the despatch of the Mails, letters bearing one additional stamp will be forwarded. No postage or fee in money can then be taken.

POST OFFICES IN CONNECTION WITH THE WHITEHAVEN POST OFFICE.

* Empowered to grant and pay Money Orders.

Beckermont	J. Gilliot,	Receiver
Bootle	William Smith,	ditto
Calderbridge.....	Mary Moore,	ditto
Cleator	Jos. Harkness,	ditto
Distington.....	John Bell,	ditto
* Egremont ..	Grayson Selkirk,	ditto
Eskdale	William Russell,	ditto
Gosforth.....	Peter Leech,	ditto
* St. Bees ..	William Finlinson,	ditto
Hensingham	Jos. Sumpton,	ditto
Holm Rook	J. Birkett,	ditto
Parton.....	E. Lightfoot,	ditto
Ravenglass	Henry Jackson,	ditto
Sandwith..... ..	J. Fisher,	ditto
Waberthwaite.....	J. Woodall,	ditto
Wasdale.....	O. Pharoah,	ditto

Bankers

WHITEHAVEN.—The Whitehaven Joint Stock Banking Company, Peter Cameron, Manager.—London Joint Stock Bank, 5, Prince's Street.

Bank of Whitehaven, G. W. Brown, Manager.—Price, Marryat, & Co., 54, King William Street, City.

J. M. Head & Co.'s (of Carlisle) Branch Bank, W. Miller, Manager.—Masterman & Co., 35, Nicholas Lane, London.

Savings Bank.—Open Saturdays from 6 to 8, p.m.—F. J. Lowes, Sec.

WORKINGTON. — Cumberland Union Banking Company, W. B. Gordon, Manager.—Barclay, Bevan, & Co., 54, Lombard Street.

MARYPORT. — Branch of the Cumberland Union Banking Company, William Ostle, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

COCKERMOUTH.—Branch of the Cumberland Union Banking Company, Jonathan Cooper, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

WHITEHAVEN AND WEST CUMBERLAND BENEFIT LAND AND BUILDING SOCIETY. —Public-office, Lowther-street; open on Saturdays from six to eight, p.m.—S. Armstrong, Secretary.

The Whitehaven and Furness Junction Railway

Trains leave Bransty Station four times daily (Sundays excepted) for Ravenglass, Broughton, Fleetwood, Preston, Manchester, Liverpool, &c. This is the nearest route to Preston, Manchester, Liverpool, &c. — *(See West Cumberland Railway Guide.)*

The Whitehaven and Maryport Junction Railway

Trains leave Bransty Station four times daily (Sundays excepted) for Workington, Maryport, Wigton, Carlisle, and Cockermouth; three times daily for Edinburgh, London, Birmingham, Liverpool, Manchester, Preston, Newcastle, York, and Darlington. — *(See West Cumberland Railway Guide.)*

The Whitehaven, Cleator, and Egremont Railway

Trains leave Whitehaven three times daily (Sundays excepted,) for Cleator Moor, Frizington, Woodend, and Egremont.—*(See West Cumberland Railway Guide.)*

Steamers and Traders

LIVERPOOL. —The Whitehaven Steam Navigation Company's powerful and commodious first-class steam vessels sail regularly with goods and passengers.—Fares: Cabin, 8s., Deck, 4s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Liverpool, at a through fare. Those from Carlisle, &c., arrive at Whitehaven by the last train before the steamer's sailing, and those from Liverpool being forwarded by first train after the vessel's arrival in Whitehaven. — Fares: Cabin and Second class, 10s.; Deck and Third class, 4s. Agents — Carlisle, Edward Jobling; Liverpool, W. Dowson & Son; Whitehaven, Fisher and Steward.

BELFAST. — The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers.—Fares: Cabin, 10s., Deck, 3s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Belfast, at a through

fare. Those from Carlisle, &c., arriving in Whitehaven by the last train before the steamer's sailing, and those from Belfast being forwarded by first train after the vessel's arrival in Whitehaven. — Fares: Cabin and Second-class, 12s., Deck and Third-class, 5s. Agents—Belfast, R. Henderson, Donegal Quay; Carlisle, Edward Jobling; Whitehaven, Fisher & Steward.

DUBLIN.—The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers. Fares: cabin, 15s.; deck, 6s. Passengers and goods are conveyed between Carlisle, Dalston, and Wigton, to Dublin, at a through fare, arriving in Whitehaven by the last train before the steamer's sailing, and those from Dublin being forwarded by first train after the steamer's arrival in Whitehaven. Agents—Allen Nicholl, Dublin; Fisher and Steward, Whitehaven.

DOUGLAS.—The Whitehaven Steam Navigation Company's steamers sail regularly during the summer months to Dublin, calling at Douglas, Isle of Man, to land and receive passengers (weather permitting). Fares: cabin, 6s.; deck, 3s. Agents:—William Berey, Douglas; Fisher and Steward, Whitehaven.

LONDON. — The Whitehaven Steam Navigation Company, in connection with the Belfast Screw Steam Company, sail a vessel once a week. Agents—Belfast, Robert Henderson; London, Ogilbey and Moore, Ingram Court, Fenchurch Street; Whitehaven, Fisher and Steward.

DUNDRUM. — The "Annsbro'," screw steamer, sails once a week between Dundrum and Whitehaven. Agents—Chas. Fisher & Co., 36, King St., Whitehaven.

WHITEHAVEN AND GLASGOW. — The splendid screw steamer, "Deva," will sail from Glasgow every Tuesday, calling at Wigton and Kirkcudbright; and will leave Whitehaven on return every Saturday, with passengers and goods.—Agents—John Jackson and Son, West Strand, Whitehaven; and Steam Packet Company's Office, 20, Dixon Street, Glasgow.

WHITEHAVEN AND DOUGLAS. — The smack "Black Diamond," Capt. Joseph Skelly, sails regularly once a week with goods between Whitehaven and Douglas.

Carriers

Leave Whitehaven for Harrington, Workington, Cockermouth, Keswick, and Egremont, every Tuesday, Thursday and Saturday; for Wigton, every Wednesday; and for Gosforth, every Tuesday, Thursday, and Saturday.

Rates for the Steam Tu "Prince Albert"

Vessels employed in the Coal or C ing Trade, shall pay every voyag clearing for sea, one half-penny per Register. Vessels arriving from a Fo Port or from a Discharging Port, penny per ton register.

Vessels engaged in the Coal or C ing Trade, pay an additional half-p per ton when they require the use o Steam Tug, Outward, and the same wards.

Foreign Vessels as above, one p per ton.

That the limits for towing vessels i and out of the harbour for one half-p and one penny per ton respectively as follows, viz. :—say a line drawn f St. Bee's Head to Mickleham Pit, on Hill north of Parton, and two lines in secting the above, from Redness P and Tom Hurd Rock, bearing N.W. b and S.E. by S. by compass.

If the vessel first in turn be not afl or not ready for the Tug-Boat, then is to take the first that is.

Vessels wanting the use of the St Tug, are to hoist the Union Jack on Main Top Gallant Mast Head.

Harbour Boat Rates

A boat is stationed at the Old Qu Watch-House to attend on vessels ent ing the Port, and also to give assistan to those outward bound, charges are follows, viz. :—

	s.
Vessels of 100 waggons and upwards..	5
Vessels from 90 to 100	4
Vessels from 50 to 90	3
Vessels from 30 to 50	3
Vessels from 20 to 30	2
Vessels from 15 to 20	2
All vessels less than 15	1
FOREIGN LADEN VESSELS,	
Under 120 tons	5
Above 120 tons	7

The Harbour Boat to be paid as abov by all vessels entering the Port; but not employed by those leaving it, n charge to be demanded.

Rates for the Gridiron

Every vessel, previous to going on must be entered at the Harbour Office and payment made according to the es tablished rates, for which she may re main on four tides, counting the tide going on and the tide coming off.

		On Entry s	On Entry d	Every Tide above four s	Every Tide above four d
Vessels not exc. 100 tons		5	0	1	0
Above 100 & not exc. 150		7	6	2	0
..	150 ... 200	10	0	2	6
..	200 ... 250	15	0	3	9
..	250 300	20	0	5	0
..	300 ...	26	0	7	0

MISCELLANEOUS INFORMATION.

Royal Family of England

Queen VICTORIA I. born 24 May, 1819
Prince Albert . . . . August 26, 1819
Princess Royal . . . November 21, 1840
Prince of Wales ..... November 9, 1841
Princess AliceMaude Mary, April 25, 1843
Prince Alfred Ernest Albert, Aug. 6, 1844
Princess Helena Augusta V. May 25, 1846
Princess Louisa Caroline A. March 18, 1848
Prince Arthur Wm. Patrick, May 1, 1850
Prince Leopold Geo. Albert, April 7, 1853
Princess Beatrice Mary.. . April 14, 1857
Geo. Fred. King of Hanover, May 27, 1819
Duke of Cambridge ..... March 26, 1819
Duchess of Mecklenburgh, July 19, 1822
Princess Mary of Cambridge, Nov. 27, 1833
Victoria, Duchess of Kent.. Aug. 17, 1786
Duchess of Cambridge..... July 25, 1797

Census of 1851

England and	Persons.	Males.	Females
Wales	17922768	8762588	9160180
Scotland	2870784	1363622	1507162
Ireland	6515794	3176727	3339067
Islands	142916	66511	76405

Sovereigns of Europe

KINGDOMS.	TO WHOM SUBJECT.	WHEN BORN.	BEGAN REIGN
England, &c.	Victoria I. ..	1819	1837
France.....	Napoleon III	1808	1852
Russia	Alexander II.	1818	1855
Spain	Isabella II...	1830	1833
Portugal	Don Pedro V	1837	1855
Prussia.....	Fred. W. IV ..	1795	1840
Netherlands	William III	1817	1849
Denmark . .	Frederick VII	1808	1848
Sweden.	Oscar II	1799	1844
Austria	Franc. Joseph	1830	1848
Belgium	Leopold . .	1790	1831
Popedom ...	Pius IX ...	1792	1846
Greece	Otho I	1815	1833
Naples	Ferdinand II.	1810	1830
Ottoman Em.	Abdul Medjid	1823	1839
Hanover	George V. ..	1819	1851

Receipts

	s.	d.
For sums above £2	0	1
Draft, or Order	0	1
Letters of Credit	0	1

Cheques on Bankers exempt.

The Revolutions, Distances, &c., of the Planets

Names.	Periodical Revolution.					Mean distance from Sun.	Diameter.	Time of Rotation upon their Axis.				Inclination of Axis to Ecliptic.			Hourly motion in their Orbits.
	Yrs	d	h	m	s	English miles.	Eng. miles	d	h	m	s	°	′	″	Miles.
Sun.....	.....					.....	887,076	25	7	48	0	.....			.....
Mercury..	0	87	23	15	44	36,890,000	2,950	1	0	5	28	.....			111,256
Venus ..	0	224	16	49	8	68,770,000	7,900	0	23	21	8	.....			81,398
Earth....	1	0	5	48	48	95,298,260	7,912	0	23	56	4	23	28	0	75,222
Moon....	0	27	7	43	5	95,268,260	2,160	27	7	43	5	1	43	0	2,335
Mars	1	321	22	18	27	145,205,000	4,500	1	0	37	20	28	42	0	56,121
Jupiter ..	11	315	14	39	2	495,917,000	88,780	0	9	55	21	3	22	0	30,358
Saturn ..	29	164	7	21	50	909,026,000	77,230	0	10	16	1	30	0	0	22,351
Uranus ..	83	294	8	39	0	1,828,071,000	35,000	.....				.....			15,846

Eclipses, 1859

During this year there will be four Eclipses of the Sun, and two of the Moon; none of which will be visible in this Kingdom.

First—A partial and very small Eclipse of the Sun, on Thursday, 3rd February, at 1 in the morning; visible only in a small portion of the Southern Ocean.

Second—A total Eclipse of the Moon, on Thursday, 17th February, at 11 in the morning; the Moon below our horizon.

Third—A partial Eclipse of the Sun, on Friday, 4th March, at 7 in the evening; visible chiefly in Russian America, and the North Pacific Ocean.

Fourth—A partial Eclipse of the Sun, on Friday, 29th July, at 10 at night; visible in the northern parts of Europe, Asia, America, and the Polar Seas.

Fifth—A total Eclipse of the Moon, on Saturday, 13th August, at 4 in the evening; the Moon below our horizon.

Sixth—A partial Eclipse of the Sun, on Sunday, 28th August, at 5 in the morning; visible only in the great Southern Ocean.

Chronological Notes

Lunar Cycle or Golden Number ..	17	Septuagesima Sunday	February 20
Epact.....	26	Lent begins	March 9
Solar Cycle	20	Easter Day	April 24
Dominical Letter	B	Ascension Day....	June 2
Roman Indiction	2	Trinity Sunday.....	June 19
Julian Period.....	6572	Advent Sunday..	November 27

Isle of Man Fairs

JANUARY.—5. St. Mark's, Malew.
FEBRUARY.—2. Greeba—12. Kirk Bride.—27. Baldwin.
MARCH.—17. St. John's.—25. Ramsey. 28. Peel.
APRIL.—5. Jurby.
MAY.—1. St. John's.—3 Sulby Claddagh.—10. Laxey.—12. St. Mark's.—15 Ballaugh.—26. Kirk Santon.
JUNE.—4. Sulby.—16, Kirk Michael.
JULY.—5. St. John's.—23. Sulby.
AUGUST.—5. Laxey.—12. Ballasalla.—26. Ballaugh.
SEPTEMBER.—29. Ballasalla.
OCTOBER.—10. Michael.—28. Arbory.
NOVEMBER.—1. St. John's.—8. Ramsey.—12. Douglas.—18. St. John's.
DECEMBER.—6. Colby, Kirk Arbory.—11. Kirk Andreas.
Those falling on Sunday, to be held on the following day.

Cumberland— Abbey-Holme, Tuesday before Whitsunday, Oct. 29.—Alston Moor, last Thursday in May, Friday before 27th Sep., 1st Thur. in Nov.—Arclecdon Ap. 24, 1st Fri. in June, 17th Sep.—Bootle, April 5, 26, Aug. 3, Sept. 24.—Brampton, April 22, 2nd Wed. after Whit. 2nd Wed. after 15th Sep.—Carlisle, Sat. next Whit., Aug. 26, Sept. 19, Sat. nearest 11th Nov.—Cockermouth, Feb. 18, Mon. before Easter, 1st & 3rd Wed. in May, Oct. 10.—Egremont, Feb. 18, 3rd Fri. in May, Sept. 18.—Ennerdale, 2nd Tues. in Sep.—Eskdale, 2d Mon. in Sep. Garrigill, 3rd Fri. in May, 1st Fri. in Sep.—Gosforth, April 25, Oct. 18.—Hesket Newmarket, every alternate Fri. from May till Whit., last Thur. in Aug., 2nd Thur. in Oct.—Ireby, Feb. 21, Oct. 18.—Keswick, 3rd Thur. after 1st May, Oct. 11, Sat. after 29th Oct.—Kirkoswald Thur. before Whit. Sun., Aug. 5.—Longtown, Thur. before Whit. Sun., Thur. before Sep. 30.—Nether Wasdale, 1st Mon. in Sep.—Newlands, 1st Fri. in Sep.—Penrith, March 1, April 24, 25, 3rd Tues. in Oct., Tues. after Nov. 11.—Ravenglass, May 6, June 8, Aug. 5.—Rosley Hill, Whit. Mon., and every alter. Mon. till Michael.—Skinburnness, June 24.—Threldkeld, 1st Thur. in Sep.—Uldale, Aug. 22.—Ulpha, Mon. before Easter, July 5.—Whitehaven, Aug. 12.—Wigton, Feb. 20, April 5.—Workington, Wed. before Holy Thursday, Oct. 18.

Cheshire —Altringham, Ap. 29, Aug. 5, Nov. 22.—Budworth, Feb. 13, Ap. 5, Oc. 2.—Congletown, May 12. July 5, Nov 22. Chester, Feb. 23, April 27, July 5, Oct. 2, Nov. 24.—Knutsford, Whit. Tues. July 10, Novem. 8.—Macclesfield, May 6, June 22, July 11, Oct. 4, Nov. 11.—Malpas, Ap. 5, July 25, Dec. 8.—Middlewich, Holy Th., Aug. 6.—Nantwich, Feb. 4, Mar. 15, Sept. 4, Dec. 11.—Northwich, August 2, 6.—Over, May 16, Sept. 25.—Sand East. Tues., Tues. after Sept. 10.—S port, March 4, 25, May 1, Oct 23.—porley, May 1, last Monday in Aug., 11.—Winsford, May 8, Nov. 25.

Lancashire — Blackburn, Es Mon., May 12, Oct. 17, every fortnig Wed. from Feb. till Oc.—Bolton-le-m 1st Mon. after Jan. 5, and every Mon. night till May 12; July 30, 31, Oct. 1 —Burnley, March 6, East. Eve, May July 10, Oct. 11.—Broughton-in-F., 1.—Bury, March 5, May 3, 2d Thur aft. Whit S., Sept. 18.—Cartmell, Ma Whit Mon, Oct. 24, Nov. 5.—Chorley 26, May 5, Aug. 20.—Clithero, Marc 25, Aug. 1, 2, the 5th Thurs. and Fri. St. Michael's Day.—Conistone, 3d Sa Sept.—Darwen, Holy Thurs., 1st Th in Oc.—Dalton, Ap 28, June 6, Oc. 23.—Harwood, March 3, Aug. 21.—Hasling May 8, July, 1, Oct. 10.—Hawkshead M before Holy Thurs., Whit. Mon. Oct. Inglewhile, Oct. 5.—Kirkham, June 2 Lancaster, May 1, July 5, Aug. 11, Oc Liverpool, July 25, Nov. 11; Horse every alternate Wednesday.—Longri May 13, Nov. 6.—Manchester, Whit M Oct. 1, Nov. 6.—Middleton, Thursday March 11, Thurs. after April 15, 2d Th after Sep. 29.—Newburgh, June 21.—N bury, June 21.—Newchurch, April 29, 30.—Newton, May 17, July 15, and ev Mon. fortnight, Aug. 12.—Oldham, Ma —Ormskirk, Whit Mon., Sep 8.—Poult Feb. 6. April 13, Nov. 3.—Prescot, June Aug. 24, 25, Nov. 1.—Preston, 1st. Sa after Jan. 6, March 27, Aug. 25, lasts days. Nov. 7.—Rufford, May 19.—Radc Bridge, April 29, 30, Sept. 28, 2.—Ro dale, May 14, Whit Tues, Nov. 7.—Ulv stone, March 22, Oct. 27.—Warringt July 18, Nov. 30, each lasts 10 days; ev Wed. fortnight.—Wigan, Holy Thursd June 27, Oct. 28.

Irish Fairs—Antrim

Ahoghill, June 4, Aug. 26, Dec. 5. A trim, Jan. 1, May 12, Aug. 1, Nov. Armoy, Jan. 25, Feb. 25, Mar. 29, May Aug, 16, Nov. 12, Dec. 25. Ballinagob July 26. Ballinderry, second Mond in Feb. May, Aug. and Nov. Ballint June 3, Sept. 4, Oct. 14. Ballacarry, 2 Mon. in Jan., 3rd Mon. in April, Augu and Nov, Ballycastle, Easter Tues., l Tues. in May, Aug., Oct. and Nov., Ju 26. Ballyclare, last Tues. in Jan., 2 Tues. in May, July and Nov. *o. s.* Ball mena, July 26, Oct. 21. Ballamoney, M 5, July 10, Oct. 6. Ballanabernice, 1 Tues. after 12th Jan. and Feb. Ballynur May 15, Sept. 4, 2nd Tues. in Oct. *o.* Belfast, 1st Wed. in each month, Aug. 1 Nov. 8. Broughshane, June 17, Sept. Bushsmills, March 28, June 28, Aug. 2 Oct 21, Dec 12. Cairnlough, Feb. 10, Eas

Mon., June 12, Aug. 10, Oct. 12, Dec. 12. Carnmoney, 1st Tues. May and Nov. *o. s.* Carrickfergus, May 12, Nov. 1. Clough, May 5, July 5, Sep 5, Nov 22, Frid. before Christmas. Connor, Feb 1, May 1, Aug 2. Craigbilly, June 26, Aug. 21. Crumlin, 1st Mon. in month. Cushendall, Feb 14, Mar. 17, May 14, June 29, Aug 14, Sept 29, Nov. 14, Dec 22. Cushendun, first Wednesday of February, April, June, Aug, Oct & Dec. Dervock, Jan 12. Feb. 23, May 16, June 28, Aug 12, Oct 27. Drimbar, May 21. Drumadoon, June 9, Nov 26. Dunloy, 15th Feb, May, Aug, and Nov. Dunluce, Nov 12. Giant's Causeway, Aug 13.—Glenarm, Jan. 26, May 26, Aug. 30, Oct. 29. Glenavy, 3rd Mon. Feb. May, Aug. & Nov. Kells, Jan 8, March 1, June 10, Sept 12. Larne, July 31, Dec. 1. Lisburn, July 21, Oct. 5. Loughgill, 19th of Feb., June, Aug. and Nov. Mosside, Feb. 13, May 21, Nov. 21. Mounthill, July 1, Oct. 1. Newtoncrumlin, Feb 5, May 11, Aug 9, Nov 5. Oldstone, June 13, Oct 22. Partgate, Feb. 7, May 7, second Monday in June, Aug 7, Nov 4. Portglenone, 1st Tues. in each month and 2nd Tues. in May, *o. s.* Randalstown, July 16, Nov 1. Rasharkan, Nov 16. Roughfort, 3rd Tues. in May and Nov., *o. s.* Straid, Sep 4, Oct 23. Stranocum, Feb. 10, March 10, April 20, June 16, July 14, Aug 8, Sep 23, Nov 6, Dec 29. Tallaght, July 7, Nov 9. Templepatrick, May 11, July 10, last Tues. in Oct. Toome, Easter Monday, Dec 4. Tullamore. Nov. 17.

Down

Annadoyne, May 14, Nov 8. Ardmillan 1st of Jan, April, July, Oct. Balloo, first Wednesday in Jan, April, July, & October. Ballynahinch, 3rd Thurs. in each month. Ballywalter, June 22, Nov 8. Banbridge, Jan 12, 1st Monday in Feb, March, April, May, July, Sept, October, November and Dec, June 9, Aug 26. Bangor, Jan 12, May 1, Aug 1, Nov 22. Carrodore, 7th of Feb, May, Aug and Nov. Castlereagh, July 5, Oct 26, Nov 20. Castlewellan, 2nd Mon. in Jan, Mar, April, July, Aug, Oct; 1st Feb, May, June, Sep; Nov 13, and Tuesday before Christmas. Clough, May 27, July 5, Nov 22, 3rd Friday in October, and Friday before Christmas. Comber, Janaury 5, April 5, June 28, Oct 19. Crossgar, second Wed. in each month. Donaghadee, last Wednes in May, *o. s.*, Aug 16, Oct. 10, last Wednesday in Nov, *o. s.* Donaghmore, 22d of June and Oct Downpatrick, 1st Sat. in each month. Dromara, 1st Friday in Feb, May, Aug & Nov, and 1st Friday after 15th March, June, Sep and Nov. Dromore, 1st Sat. in March and Aug, May 12, Oct 10, and Sat. but one before Christmas. Dundrum, Jan 5, Thurs. before Candlemas day, *o.s.*, May 12, Thursday before Aug 12, Oct 10, Dec 10. Gilford, 2nd Tues. each month, and 21st of June and Nov. Greencastle, 12th of Jan and Aug. Greyabbey, March 28, June 22, Oct 29, Dec 4. Hillsborough, 3rd Wed. in each month. Hilltown, 2nd Tuesday in each month. Holywood, 1st Monday in Feb, May, Aug and November. Kilkeel, 1st Wed. in each month. Killileagh, April 10, June 3 and 15, October 11, Dec 11. Killinchy, 1st Wednesday in Feb, May, Aug and Nov. Killough, Feb 15, June 5, Aug 15, Nov 15. Kilmore, Feb 4, March 14, May 1, June 3, Aug 5, Sep 29, Nov 5, Dec 16. Kircubbin, 1st Monday in each month, and 28th of April, May, Aug and Nov. Loughbrickland, Nov 12, and 3rd Tues. of remaining months.

Dublin

Ballbrigan, 29th of April and September. Carrickmines, Dec 6. April 14, June 24, Oct 14. Donnybrook, Aug 26. Fieldstown, Whit Monday. Garristown, May 15, Aug 15, Nov 1. Kilsallaghan, Ascension day, Sep 8. Lusk, Easter Monday, May 4, June 24, July 13, Nov 25. Naul. March 16, April 26, May 21, Sep 8, Oct 2. Palmerstown, August 21. Rathfarnham, July 10. Rush, May 1, Sept 29. Saggard, June 15, Oct 10, Nov 8. Skerries, April 28, Aug 10. St. Margarets, July 30 and 31. Swords, March 17, May 9.

Fish Table

The following Table shows the months in which the undermentioned Fish is IN or OUT of Season.

KINDS OF FISH.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
Brit	in	in	in	in	in	in	in	in	o	o	in	in
Bret	in	in	in	in	in	o	o	o	o	in	in	in
Cod	in	in	in	in	in	in	o	o	o	in	in	in
Cole Fish.	in	in	in	in	in	in	o	o	o	in	in	in
Cockles	in	in	in	in	o	o	o	o	in	in	in	in
Crabs	in	in	in	in	in	in	in	o	o	in	in	in
Dabs	in	in	in	in	in	in	in	in	o	o	o	o
Flounders	o	in	in	in	in	in	in	in	o	o	o	o
Haddock	in	in	o	o	o	o	o	o	o	in	in	in
Herrings	o	o	o	in	in	in	in	in	in	o	o	o
Lobsters	in	in	in	in	in	in	in	o	o	in	in	in
Ling	in	in	in	in	in	in	in	o	o	o	in	in
Mackerel	o	o	o	o	in	in	in	in	o	o	o	o
Oysters	in	in	in	in	o	o	o	o	in	in	in	in
Plaice	in	in	in	in	in	in	in	in	in	o	o	in
Salmon	in	in	in	in	in	in	in	in	o	o	in	in
Soles	o	o	o	in	in	in	in	in	in	o	o	o
Shrimps	in	in	in	in	in	o	o	o	in	in	o	in
Sprats	in	in	o	o	o	o	o	o	o	o	o	in
Skate	in	in	in	in	in	in	in	o	o	o	in	in
Turbot	o	o	in	in	in	in	in	in	o	o	o	o
Whiting	in	in	in	o	o	o	o	o	o	in	in	in
Cong. Eel.	o	o	in	in	in	in	in	in	in	in	o	o

Table of Wages and Expences

TO WHICH A WITNESS ATTENDING THE MANX COURTS, AS UNDER, IS ENTITLED.

PARISHES.		Patrick.	German.	Michael.	Ballaugh.	Jurby.	Andreas.	Bride.	Lezayre.	Maughold.	Lonan.	Onchan.	Braddan.	Marown.	St. Ann.	Arbory.	Malew.	
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s d	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s.
Castletown	Gentleman	3 6	5 3	7 0	8 9	10 6	10 6	12 3	10 6	10 6	8 9	7 0	5 3	7 0	3 6	3 6	2 4	5
	Tradesman	2 11	3 6	4 1	4 8	5 3	5 3	5 10	5 3	5 3	4 8	4 1	3 6	4 1	2 11	2 11	1 9	3
	Tradeswoman	2 4	2 11	3 6	4 1	4 8	4 8	5 3	4 8	4 8	4 1	3 6	2 11	3 6	2 4	2 4	1 9	3
	Labourer	1 10	2 2	2 6	2 10	3 2	3 2	3 6	3 2	3 2	2 10	2 6	2 2	2 6	1 10	1 10	1 6	2
Douglas	Gentleman	8 9	7 0	8 9	10 6	12 3	8 9	8 9	7 0	5 3	3 6	2 4	3 6	5 3	5 3	8 9	7 0	1
	Tradesman	4 8	4 1	4 8	5 3	5 10	4 8	4 8	4 1	3 6	2 11	2 4	2 11	3 6	3 6	4 8	4 1	5
	Tradeswoman	4 1	3 6	4 1	4 8	5 3	4 1	4 1	3 6	2 11	2 4	1 9	2 4	2 11	2 11	4 1	3 6	4
	Labourer	2 10	6 6	2 10	3 2	3 6	2 10	2 10	2 6	2 2	1 10	1 6	1 10	2 2	2 2	2 10	2 6	3
Ramsey	Gentleman	10 6	8 9	7 0	5 3	7 0	5 3	5 3	3 6	2 4	3 6	5 3	7 0	8 9	10 6	11 0	12 2	1
	Tradesman	5 3	4 8	4 1	3 6	4 1	3 6	3 6	2 11	1 9	2 11	3 6	4 1	4 8	5 3	6 5	5 10	7
	Tradeswoman	4 8	4 1	3 6	2 11	3 6	2 11	2 11	2 4	1 9	2 4	3 11	3 6	4 1	4 8	5 10	5 3	6
	Labourer	3 2	2 10	2 6	2 2	2 6	2 2	2 1	1 10	1 6	1 10	2 2	2 6	2 10	3 2	3 10	3 6	4

A Tradesman attending to give evidence respecting matters connected with his trade, to be allowe at the discretion of the Court, any sum not exceeding 12s. 3d.; a professional Gentleman any sum n exceeding 24s. 6d.

General Marketing Table.

N	2d.	2½d	3d	3½d	4d	4½d	5d	5½d	6½d	7d	7½d	8d	8½d	9d	9½d	10d	10½	11d	11½
	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s d	s
2	0 4	0 5	0 6	0 7	0 8	0 9	0 10	0 11	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	1 10	1 1
4	0 8	0 10	1 0	1 2	1 4	1 6	1 8	1 10	2 2	2 4	2 6	2 8	2 10	3 0	3 2	3 4	3 6	3 8	3 1
6	1 0	1 3	1 6	1 9	2 0	2 3	2 6	2 9	3 3	3 6	3 9	4 0	4 3	4 6	4 9	5 0	5 3	5 6	5
8	1 4	1 8	2 0	2 4	2 8	3 0	3 4	3 8	4 4	4 8	5 0	5 4	5 8	6 0	6 4	6 8	7 0	7 4	7
10	1 8	2 1	2 6	2 11	3 4	3 9	4 2	4 7	5 5	5 10	6 3	6 8	7 1	7 6	7 11	8 4	8 9	9 2	9
12	2 0	2 6	3 0	3 6	4 0	4 6	5 0	5 6	6 6	7 0	7 6	8 0	8 6	9 0	9 6	10 0	10 6	11 0	11
14	2 4	2 11	3 6	4 1	4 8	5 3	5 10	6 5	7 7	8 2	8 9	9 4	9 11	10 6	11 1	11 8	12 3	12 10	13
16	2 8	3 4	4 0	4 8	5 4	6 0	6 8	7 4	8 8	9 4	10 0	10 8	11 4	12 0	12 8	13 4	14 0	14 8	15
18	3 0	3 9	4 6	5 3	6 0	6 9	7 6	8 3	9 9	10 6	11 3	12 0	12 9	13 6	14 3	15 0	15 9	16 6	17
20	3 4	4 2	5 0	5 0	6 8	7 6	8 4	9 2	10 10	11 8	12 6	13 4	14 2	15 0	15 10	16 8	17 6	18 4	19
22	3 8	4 7	5 6	6 5	7 4	8 3	9 2	10 1	11 11	12 10	13 9	14 8	15 7	16 6	17 5	18 4	19 3	20 2	21
24	4 0	5 0	6 0	7 0	8 0	9 0	10 0	11 0	13 0	14 0	15 0	16 0	17 0	18 0	19 0	20 0	21 0	22 0	23
26	4 4	5 5	6 6	7 7	8 8	9 9	10 10	11 11	14 1	15 2	16 3	17 4	18 5	19 6	20 7	21 8	22 9	23 10	24 1
28	4 8	5 10	7 0	8 2	9 4	10 6	11 8	12 10	15 2	16 4	17 6	18 8	19 10	21 0	22 2	23 4	24 6	25 8	26 1
30	5 0	6 3	7 6	8 9	10 0	11 3	12 6	13 9	16 3	17 6	18 9	20 0	21 3	22 6	23 9	25 0	26 3	27 6	28
32	5 4	6 8	8 0	9 4	10 8	12 0	13 4	14 8	17 4	18 8	20 0	21 4	22 8	24 0	25 4	26 8	28 0	29 4	30
34	5 8	7 1	8 6	9 11	11 4	12 9	14 2	15 7	18 5	19 10	21 3	22 8	24 1	25 6	26 11	28 4	29 9	31 2	32
36	6 0	7 6	9 0	10 6	12 0	13 6	15 0	16 6	19 6	21 0	22 6	24 0	25 6	27 0	28 6	30 0	31 6	33 0	34
38	6 4	7 11	9 6	11 1	12 8	14 3	15 10	17 5	20 7	22 2	23 9	25 4	26 11	28 6	30 1	31 8	33 3	34 10	36
40	6 8	8 4	10 0	11 8	13 4	15 0	16 8	18 4	21 8	23 4	25 0	6 8	28 4	30 0	31 8	33 4	35 0	36 8	38
42	7 0	8 9	10 6	12 3	14 0	15 9	17 6	19 3	22 9	24 6	26 3	28 0	29 9	31 6	33 3	35 0	36 9	38 6	40
44	7 4	9 2	11 0	12 10	14 8	16 6	18 4	20 2	23 10	25 8	27 6	29 4	31 2	33 0	34 10	36 8	38 6	40 4	42
46	7 8	9 7	11 6	13 5	15 4	17 3	19 2	21 1	24 11	26 10	28 9	30 8	32 7	34 6	36 5	38 4	40 3	42 2	44
48	8 0	10 0	12 0	14 0	16 0	18 0	20 0	22 0	26 0	28 2	30 0	32 0	34 0	36 0	38 0	40 0	42 0	44 0	46
50	8 4	10 5	12 6	14 7	16 8	18 9	20 10	22 11	27 1	29 4	31 3	33 4	35 5	37 6	39 7	41 8	43 9	45 10	47 11

Even numbers only are given in the above Table to make it more comprehensive.—For example, required the value of 17 yards of calico, at 8d. per yard. By referring to the Table, you will find 16 yards to be 10s. 8d., and by adding the price of the odd yards will give you the correct amount.

Table to calculate Wages, &c.

Year	Per M.	P.W.	P.D.	Year	P. M.	P. W.	P. D.
£	£ s d	s d	d	£	£ s d	£ s d	s d
1	0 1 8	0 4½	0¾	15	1 5 0	0 5 9	0 9¾
2	0 3 4	0 9	1½	16	1 6 8	0 6 1½	0 10½
3	0 5 0	1 1½	2	17	1 8 4	0 6 6¼	0 11¼
4	0 6 8	1 6	2¾	18	1 10 0	0 6 10½	0 11¾
5	0 8 4	1 11	3	19	1 11 8	0 7 3½	1 0½
6	0 10 0	2 3	4	20	1 13 4	0 7 8	1 1¼
7	0 11 8	2 8	4¾	30	2 10 0	0 11 6	1 7½
8	0 13 4	3 0½	5¼	40	3 6 8	0 15 4	2 2¼
9	0 15 0	3 5½	6	50	4 3 4	0 17 2½	2 9
10	0 16 8	3 10	6¾	60	5 0 0	1 3 0½	3 3¼
11	0 18 4	4 2½	7¼	70	5 16 8	1 6 10½	3 10
12	1 0 0	4 7	8	80	6 13 4	1 10 8½	4 4½
13	1 1 8	4 11½	8¾	90	7 10 0	1 14 6½	4 11½
14	1 3 4	5 4½	9½	100	8 6 8	1 18 4½	5 5½

If the Wages be Guineas instead of Pounds, for each Guinea add One Penny to each Month, or One Farthing to each Week.

RULE FOR CALCULATING INTEREST, at 5 per cent.—Multiply the Pounds by the Days, and divide the Product by 365. The Quotient gives the interest at 5 per cent. in Shillings.

Weights

BY WHICH GRAIN, ETC., ARE SOLD.

ISLE OF MAN.

	lbs.	lbs.
WHEAT, per bushel of 64, or boll of		256
BARLEY, per bushel of 50, or boll of		300
OATS, per bushel of....40, or boll of		240
BEANS or PEAS, per bushel of....60, or boll of		240
POTATOES, per stone of 14, or boll of		448

LIVERPOOL.

WHEAT, per bushel	70
BARLEY ....do.	60
OATS....do.	45
BEANS, per 480 lbs. and	504
INDIAN CORN	480
FLOUR, per sack	280
FLOUR, per barrel	196
OATMEAL, per load	240
POTATOES, per measure	90

Descriptive List of Principal Lights—Scotch Coast

Name of Light.	Situation.	No. Light	Appearance.	distance visible.	Points of Compass within which visible.	North latitude	West longitu.
INCHKEITH	Summit of Island, Fifeshire	One	Revolving once every minute	—21—	All round the Compass	56° 2′	3° 8′
ISLE OF MAY	Isle of May, in Fifeshire	Two	Fixed. Bear from each other N. N.E. ¾ E. & S.S.W. ¾ W., 250 yds.	22 & 16	All round Compass. The low light only towards the Carr	56 11	2 33
BELL ROCK	A sunk reef, 11¾ miles S.by E. ½E.off Arbroath, Forfarshire	One	Revolving, shewing alternately a bright & red light every 2 min.	—15—	All round the Compass	56 26	2 23
GIRDLENESS	Girdleness, Kincardineshire.	Two	Fixed Lights, one above the other	20 & 16	NNE to WSW ½W. by E'ward	57 8	2 3
BUCHANNESS	Buchanness, Aberdeenshire.	One	Flashing once every 5 seconds	—16—	N.b E. to SW. b W. by E'ward	57 28	1 46
KINNAIRDHEAD	Kinnairdhead, Aberdeenshire	One	Fixed	—15—	WNW. to SSE ¾E. N'ly & E'ly	57 42	2 1
TARBETNESS	Tarbetness, Cromartyshire	One	Visible 2½ min., then eclipsed ½ a min. To W. of the Ness Fixed	—20—	All round the Compass	57 51	3 48
DUNNETHEAD	On the Head, Caithnesshire	One	Fixed	—23—	From SE ½E to W. by N'ward	58 40	3 22
PENTLAND SKERRIES	On the Island	Two	Fixed. N.N.E. & S.S.W., 99 feet	18 & 16	All round the Compass	58 41	2 55
START POINT	East point of Sanda Island	One	Fixed	—15—	All round the Compass	59 17	2 22
SUMBURGHHEAD	On S.W. point of Shetlands.	One	Fixed	—21—	NE by E ¼E to NW by N ¼N by S	59 51	1 16
NORTH RONALDSHA	On North point	One	Flashing once every ten seconds	—18—	All round the Compass	59 23	2 24
CAPE WRATH	On the Cape, N.W. point of Scotland	One	Revolving, shewing alternately a bright & red light every 2 min.	—27—	From S. ½ E. to SW. by W. Northerly	58 37	5 0
ISLAND GLASS	NE. point of Island, Harris Isle	One	Fixed	—17—	W. by S. to E.N.E. ½E. by S.	57 52	6 33
BARRAHEAD	Highest land on Bernera Isle, Southern point of Hebrides	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—33—	From N. by E. to E. N. E. Westerly and Southerly.	56 48	7 38
ARDNAMURCHAN	Ardnamurchan Point, Argyleshire	One	Fixed	—18—	From N.E. by E. ¾ E. to S. W. by S. N'ly and W'ly	56 44	6 13
LISMORE	Mousdale Island	One	Fixed, dark 2¾ point over land	—15—	From E. to N.E. by E.	56 27	5 36
SKERRYVORE	Rock, 12 miles W. S. W. from Tyree Island	One	Revolving every minute	—18—	All round the Compass	56 19	7 7
RHINS OF ISLAY	Oversay Island, off SW. point of Islay, Argyleshire	One	Flashing once every five seconds; disappears ½ a mile off Cul Point	—17—	From NNE. to SE. Westerly	55 41	6 29
MULL OF CANTYRE	South western headland of Argyleshire	One	Fixed	—22—	From NNE. ½E. to S by W. ¼ W. Westerly	55 19	5 49
SANDA ISLAND	Ship Rock	One	Fixed, red light	—15—	NW ½W to SE by E ½E by SW'ly	54 16	5 35
DEVAR ISLAND	Eastern part	One	Revolves every ½ minute	—17—	N. ¼ W. to E. by S. by N.	55 26	5 32
PLADDA	Pladda Isle, off south east of Arran, county of Bute	Two	Fixed, vertical, 25 feet apart	17 & 14	From NW. by W. Southerly to NE. by E.	55 26	5 7
CORSEWALL	W. side of entrance to Loch Ryan, in Wigtonshire	One	Revolving, shewing alternately a bright & red light every 2 min.	—15—	From N.E. by E. Northerly to S. W.	55 0	5 9
MULL OF GALLOWAY	Southern extremity of mainland of Scotland, Wigtonsh.	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—23—	From N. E. to N. W. ¼ W.	54 38	4 51

Descriptive List of Lights—Isle of Man

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
POINT OF AYR	A quarter of a mile S.W. of the Point	54 25	4 22	One	R	—15—	Shewing alternately a Bright and Red Light every 2 min. Visible from S. by W. to W. by N., N. E'ly.
Peel Harbour	East side of entrance	54 13	4 42	One	F	— 8—	
CALF OF MAN	West side of Calf Island	54 3	4 50	Two	R	24&22	Revolving every 2 min. When in one they lead [on the Chicken Rocks.
Port St. Mary	South side of entrance	54 4	4 44	One	F	— 9—	
Castletown Harbour	South side of entrance	54 5	4 39	One	F	— 8—	Red. To be kept on the port hand in entering.
Derbyhaven	Entrance of the Harbour	54 5	4 36	One	F	—11—	Only lighted during the Herring Fishery.
DOUGLAS	Douglas Head	54 9	4 28	One	F	—14—	Not visible from Langness Point, but with three miles offing it will be seen N.E.¼E.; and the Calf Light, at the same time, N.W. by W. ¼ W.
Douglas Harbour	North Pier-head	54 10	4 28	One	F	—10—	
Ramsey Harbour	South side of entrance	54 20	4 23	One	F	—10—	Red Light.
Bahama Bank Light Vessel	A third of a mile off the S.E. tail of the Shoal. Moored in 11 fathoms.	54 20	4 12	Two	F	—10—	A Gong is sounded during foggy weather. "Bahama Bank" is painted on her sides. King William Bank Buoy, E.N.E. eight miles.

Principal Lights—West Coast of England

Lee Scar	On the Rocks	54 52	3 25	One	F	— 6—	On Piles. Base dries 6 feet at low water.
Solway Light Vessel	Robin Rigg Channel	54 48	3 32	One	F	— 6—	Red Light. Moored in 4½ fms. A Black Ball by day; tolls a Bell in foggy weather.
ST. BEES	St. Bees Head	54 31	3 38	One	F	—23—	
WALNEY.	S. Point of Walney Island	54 3	3 11	Two	1 R 1 F	—13—	Every minute. The Fixed Light is Red. N.W. by W. ¾ W. and S.E. by E. ¾ E. 340 yards.
River Wyre	N.E. elbow of N. Wharf Bank	53 57	3 2	One	F	—10—	On Piles. A Bell is tolled in foggy weather.
Fleetwood	High Light in the Town, Low Light on Esplanade	53 56	3 1	Two	F	13 & 9	N. & S. 850 feet. Shown while 9 feet water in the Channel.
River Ribble	On Stanner Point, N. side of entrance	53 45	3 1	Two	F	12 & 9	The Upper Light Bright: the Lower Red. The Lighthouse stands about 70 feet high, and bears by compass S.E. by E. ½ E. from Buoy Nelson, 7 miles.
FORMBY	On the Point	53 32	3 4	One	F	—12—	The Light from this tower has been discontinued.
Formby Light Vessel	In the New Channel	53 32	3 11	Two	F	— 8—	Painted Red; carries Red Ball. In 25 feet at low water. Crosby Lightship S. E. ½ S., 2½ miles. N. W. Mark, E. by N. ¼ N., 3⅞ miles.
Crosby Light Vessel	N.E. elbow of great Burbo	53 31	3 7	One	F		

Principal Lights—West Coast of England, continued

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
Black Rock	Rock Point, West side of the entrance of the Mersey	53 27	3 3	One	R	—14—	Making a revolution every three minutes, showing two Bright Lights and one Red Light in due succession. A Bell is tolled during foggy weather.
Leasowe	On the shore, between the Mersey and the Dee Rivers	53 25	3 7	One	F	—15—	Yellow Light. Disappears when inward bound, bearing S. W. ½ S.
BIDSTON	Bidston Hill	53 24	3 4	One	F	—23—	Obscured when inward bound, bearing S.b.W.½W.
Hoylake	Near Hoylake Church	53 24	3 11	Two	F	13&11	When in one, S. W. by S., you may haul up the Rock Channel.
Liverpool N.W. Light Ship	Off the Horse and Helbre Channels	53 27	3 17	Three	F	—10—	Moored in 7½ fathoms; exhibits a Black Ball during the day.
AIR	Air Point, at low water mark	53 22	3 19	One	F	—10—	On Piles. A Bell is sounded in foggy weather.
LYNUS	Point Lynus	53 25	4 17	One	Fl.	—16—	Flashing once every ten seconds.
SKERRIES	Highest Island	53 25	4 36	One	F	—15—	
STACK	South Stack Rock, off N.W. Point of Holyhead I...	53 18	4 42	One	R	—19—	Revolving every minute. During foggy weather a smaller Bright Light is occasionally shown, about 40 feet above the sea, and 30 yards North [of the main Lighthouse.
BARDSEY	Bardsey Island	52 45	4 48	One	F	—17—	
SOUTH BISHOP	South Bishop Rock	51 51	5 25	One	R	—17—	Revolving every twenty seconds.
SMALLS	Smalls Rock	51 43	5 40	One	F	—13—	Erected upon pillars, 40 feet high.
ST. ANN'S	St. Ann's Point, Milford Haven	51 41	5 10	Two	F	19&17	High Light N.byW.¼W., 609 feet, from Low Light. When in one they lead clear of the Crow and Toes Rocks.
CALDY	Caldy Island, Southern part	51 38	4 41	One	F	—19—	
MUMBLES	Mumbles Head	51 34	3 58	One	F	—15—	
NASH	Nash Point	51 24	3 33	Two	F	18&16	High Light, S. E. by E. ¼ E. and N. W. by W. ¼ W., 1000 feet from Low Light. The Lights in one lead a cable's length Southward of the Nash Sand.
Cardiff	On the Pier	51 28	3 10	One	F	——	Building.
USK	W. side of entrance of River	51 32	3 0	Two	F	—10—	Red. A Red Light is also shown up the river.
FLATHOLM	Flatholm Island, South point	51 23	3 7	One	F	—17—	
LUNDY	On the ridge of Lundy Island	51 10	4 40	Two	1 R 1 F	—30—	The Low Light (fixed) is only visible from the Westward, between N. N. W. and W. S. W. The Revolving Light flashes every two minutes. [one.
TREVOSE HEAD	On north-western part	50 33	5 1	Two	F	—19—	The Lower Light is 50 feet in advance of the high

Descriptive List of Principal Lights—South and East Coasts of Ireland

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather	Remarks.
FASTNET	Summit of Rock	51 23	9 36	One	R	—18—	Attaining its greatest brilliancy every two min.
KINSALE	South Point of Old Head	51 36	8 32	One	F	—21—	Red Light is shown in a line to the Horse Rock in Courtmacsherry Bay, Bright to Seaward.
CORK HARBOUR or Queenstown	Roche Point, E. side of entrance	51 48	8 15	One	F	—14—	Red towards the sea. To the harbour Bright.
	East elbow of Spit Bank, in 9 feet	51 51	8 16	One	F	— 8—	Red. From N.N.E.½E to S.E. by E.½E round by E.
BALLYCOTTIN	Outer Island, West side of Bay	51 49	7 59	One	Fl.	—18—	Every 10 secs. From E. ½ N. round S. to W. ½ N.
MINEHEAD	South side of Head	52 0	7 35	One	Int.	—21—	Bright 50 sec., obscured 10 sec. From E.N.E.½N. [to W.¾S.
HOOK TOWER	East side entrance Waterford	52 7	6 56	One	F	—16—	
SALTEE'S LIGHT VESSEL	Off Coningbeg Rock, the Southernmost of the Saltee Islands	52 2	6 40	Two	F	—10—	Carries a Ball. Moored in 32 fathoms. During foggy weather a Gong is sounded.
TUSKAR	Tuskar Rock	52 12	6 12	One	Int.	—15—	Every two minutes. Two sides Bright, one Red. During foggy weather a Bell is tolled every half-minute. Red Light seen 10 miles. [weather.
ARKLOW LT.-VESSL.	S. end of Arklow Bank, in 22 fath.	52 42	6 0	One	F	—10—	Carries a Ball. A Gong is sounded in foggy
WICKLOW	Wicklow Head	52 58	6 0	Two	F	21 &16	The Lights bear from one another N.W. by W. ¾ W. and S.E. by E. ¾ E., 540 feet. When in one they lead between the India and Arklow Banks.
DUBLIN BAY. KISH LIGHT VESSEL	Off N. Point of Kish Bank. Moored in 10 fathoms	53 19	5 56	Three	F	—10—	The Lights are triangular. Carries a Ball. A Gong is sounded during foggy weather.
Kingstown	Centre of East Pierhead of Kingston Harbour	53 18	6 8	One	R	— 9—	Revolving every half-minute, shewing a Bright and Red light alternately. During foggy weather
	West Pierhead			One	F	— 2—	A small Red Light. [a Bell is tolled.
POOLBEG	End of S. Wall, at the entrance to the river Liffey	53 20	6 9	Two	F	—12—	The Lower Light, which is much fainter than the Upper, is exhibited from half-flood to half-ebb. A Ball is hoisted, at the same period, during day-time.
	End of N. Wall, or N. Quay, Dublin	53 21	6 14	One	F	—10—	
BAILEY	S.E. Point of Howth Peninsula	53 22	6 3	One	F	—15—	During foggy weather a Bell is tolled.
ROCKABILL	On the Rock	53 36	6 0	One	—	———	Building.
CARLINGFORD	Haulbowline Rock	54 1	6 5	Two	F	—15—	The Lower from half-flood to half-ebb. A Ball is hoisted during the same period by day; and in foggy weather a Bell is tolled every half-minute.
DUNDRUM BAY	St. John's Point						
SOUTH ROCK	On the Rock	54 13	5 40	One	R	—12—	

MARINERS' GUIDE

TO THE

Principal Ports and Harbours

IN THE

BRISTOL AND ST. GEORGE'S CHANNELS,

THE IRISH SEA,

AND THE NORTH CHANNEL;

CONTAINING A SERIES OF CLEAR AND CONCISE

SAILING DIRECTIONS

FOR THE

WEST COASTS OF ENGLAND, WALES, AND SCOTLAND, THE ISLE OF MAN,

AND THE

EAST, SOUTH-EAST, NORTH-EAST, AND NORTH-WEST COASTS OF IRELAND;

WITH

Tables of the Magnetic Bearings and Distances

OF DIFFERENT

HEADLANDS, HARBOURS, AND LIGHTS

ON THOSE COASTS.

*** The Bearings and Courses in these Directions are those by compass, and the Distances are nautical miles, of 60 to a degree.

MARINERS' GUIDE.

ISLE OF MAN.

The **ISLE OF MAN** lies in a N.E. by E. and S. W. by W. direction, and is about 30 miles in length and 11 in breadth. The Northernmost Point of Ayre is in lat. 54 deg. 27 min. N., and long. 4 deg. 20 min. W. The

Calf Island,

At the S.W., is in lat. 54 deg. 3 min. N. and lon. 4 deg. 50 min. W. On this Island are TWO Lighthouses, 187 yards distant from each other, bearing N.E. ½ E. and S. W. ½ W. The *higher* Light bears from the dangerous sunken rocks called the *Chickens* N.E. ½ E., distant about a mile and a quarter: when the Lights are in one they lead on the Chickens. These Lights are DOUBLY revolving, without color, making their revolution in 2 minutes, and becoming gradually fainter during that time, until, at a distance, they appear totally obscured. At their brightest period they may be seen seven leagues off, resembling a planet. Between the Chickens and Calf is a passage about a mile broad, through which the tide sets from the W. round the Calf Point *very strong* outside of the EYE Rock, and also through the passage between the Island and S.W. Point of Man. 2½ miles to the E. is PORT ST. MARY, where there is good anchorage behind the Pier, which has been lately very much improved, but a dangerous rock called Carrick, lies about ¾ of a mile S.S.E.½E. from the Village. This harbour has about 9 or 10 feet water at neap tides, and 14, 15, 18, &c. at spring tides. In running for it, keep Scarlet Head to the S. of Castletown, a good sail's breadth open, to avoid the Carrick Rock. On entering, take the quay as close as circumstances will admit. A LIGHT is exhibited throughout the year, on the larboard hand on entering the harbour. Five miles E. from the Chickens and 2¼ from Port St. Mary, is Scarlet Head, the westernmost point of

Castletown Bay,

Which is full of rocks, and fit only for coasters well acquainted to enter. A RED stationary light, to be kept on the larboard hand on entering, is erected on the new pierhead, which lies 80 yards outside the old pierhead, in a S.S.E. direction therefrom. A large Black Buoy is moored near to the E. end of the Lheeahrio Rock, which is covered at spring-tides at two hours' flood. The Buoy is placed in five fathoms at low water, having Langness Point, by compass b ing S. ¾ E., and the lighthouse on pierhead, N. ¾ E. On entering the be careful to leave the Buoy on the *board* hand, and in working into the from the Westward, you must not b the Buoy to the Southward of E.S.E.; open Spanish Head to the Northwar the Stack of Scarlet until Eastward of Buoy, or until the lighthouse on the p head bears N. ½ E., then steer for the h bour. The anchorage is sheltered f N.W. round by N. to S.S.E., the marks which are, Spanish Head just open to Southward of the Stack of Scarlet; Steeple of Castletown Chapel in line w the Eastern part of a Gap in the Mount bearing N. by W., and King William's C lege N.E. by N., where there are 9 thoms at low water, spring tides, and s anchorage.

Langness Point,

An isthmus running out from the m land, 2 miles to the S.W., has a tur on the point to identify its situati There are SUNKEN rocks all about it, a the tide sets like a race upon the Po from the Chickens, at the rate (spri tides) of 6 miles an hour, and runs E.N. from 2 to 5 or 6 miles from the land, dimi ishing in strength to Maughold Head. avoid the inset between the Chickens a Langness Point, it is advisable for stra gers on no account to come within 3 4 miles of the land. On the E. side is

Derbyhaven,

Affording anchorage for large mercha ships, and sheltered from all winds exce E. to S.E. The best ANCHORAGE is the N. side of St. Michael's Island, in 3 4 fathoms, the castle (or fort) on it bearin S.E. by S. Small vessels may run furth up. There is a LIGHT at the entrance the harbour which is lighted only durin the herring fishing season. The strea or rather eddy, along the E. side of Lan ness runs 10 hours S., from 2 hours of floo to the last of ebb on the shore. Abou 3 miles to the E. of Derbyhaven is S Ann's Head, from which to

Douglas Head,

E. is about 2 miles, upon which a LIGHT HOUSE has been erected, the light fro which is STATIONARY, and appears like star of the first magnitude at the distanc of 14 miles. The Bearings of the light ar

as follows:—From CLAY HEAD, W. by S. ½ S., 4 miles; from LANGNESS POINT, E. by N., 7½ miles. The light will not be visible from Langness Point; but with an offing of 3 miles from that Point, the light will be seen bearing N.E. ¼ E., and the Calf Lights at the same time bearing N. W. by W. ¼ W. Vessels running for Douglas, between E. by N. ½ N. to W. by S. ½ S., will see the light at 5 miles' distance. Blowing fresh from the W. and bound for the bay, a vessel should keep pretty close to Douglas Head, or she will be thrown to leeward of St. Mary's Rock, by the strong and variable gusts off the high land to the S.W., where she will be exposed and in bad anchorage. On this rock a TOWER has been erected, the appearance of which in the night is like a square-rigged sloop under sail. Anchor in the bay between St. Mary's and the S. shore, 3 or 4 cables East of the pierhead, where there is a LIGHT exhibited throughout the year, to shew ships into the Harbour; to enter which keep close to the pierhead. Four miles E.N.E. from Douglas Head is

Clay Head,

Round which is Laxey Bay, where there is good anchorage in 6 fathoms depth. From Clay Head to Maughold Head the course is N.E. ½ E. 7 miles, and round the latter to

Ramsey,

N.W. N'ly. 2½ miles. To the E.S.E. of the town is Port Lewagne. There is excellent anchorage and shelter from 1 to 1½ miles opposite the town, as the bottom is good stiff clay; but there is generally a heavy sea and hard riding in it with winds from S. to E.N.E., to all of which it is open. The harbour will admit vessels drawing 17 or 18 feet water at spring tides, and 11 or 12 feet at neap tides. There is a lighthouse on the quay, and the light, which is stationary and of a RED colour, is exhibited throughout the year. In the bay the stream runs nine hours N. and three hours S., beginning at 2 hours' flood. There are three banks off this bay that deserve notice. The BAHAMA BANK, or RIG, bears N.E. 2 leagues from Ramsey town, and is about 6 miles in length from S.S.E. to N.N.W., with only 6 feet depth of water at the S. end, differing in other parts from 9 to 12 feet, and is rather more than ½ a mile broad. The BAHAMA FLOATING LIGHT, exhibiting TWO BRIGHT FIXED lights, is moored a third of a mile off the S.E. tail of the shoal, in eleven fathoms, low water, spring tides, and with the following compass bearings:—King William's Bank Buoy, E.N.E. eight miles; Point of Ayre lighthouse, N. by W. ¾ W.; Maughold Head, W. by S.; Clay Head, S. W. by W. ¼ W. WHITESTONES BANK, so called from its composition, lies S.S.E. 1½ miles from the extreme Point of Ayre, with a good passage between them; it bears N.N.E. from Maughold Head, and is ½ a mile in length N. and S. and a ¼ in breadth E. and W., with 6 feet at low water spring tides. POINT OF AYRE BANK is a ridge extending ½ a mile from the Point to the distance of 1 mile E., and thence circularly to the S. and E., always with a considerable ripple, nearly in a line with the BAHAMA BANK. KING WILLIAM'S BANK is 8 miles in length from S.E. to N.W., and ½ a mile broad: the N. W. end is E. 6½ miles from the Point of Ayre, and N.E. 11 miles from Maughold Head, from which the S.E. end bears E. N.E. ½ E. 13½ miles, and from the Point of Ayre, E. S.E. 12 miles distant. The least depth of water on it is 18 feet. The

Point of Ayre Lighthouse

Bears N.N.E. ½ E. from Maughold Head, distant 8 miles, and the lantern is 106 feet above the sea. It is REVOLVING, showing alternately a BRIGHT and RED coloured light, becoming from a star-like appearance gradually stronger, until the attainment of the utmost brilliancy every TWO MINUTES. The light of the common colour is to be seen 4 or 5 leagues off; but the RED one is not distinct at so great a distance. Maughold Head prevents the light being seen by a navigator S. of it, as does Rue Point when he is W. of it. N. by W. ½ W. 1½ miles from the Point of Ayre is STRUNAKILI BANK, bearing from Jurby Point E. by N. 5 miles; it is 1½ miles long E.S.E. and W.N.W., and nearly ½ a mile broad. There are 3 fathoms on the shoalest end, but the sea breaks and the tide sets strong upon it; keeping WITHIN 1¼ miles of the land will clear the whole.—From the Point of Ayre to Jurby is 7 miles to the W., and hence to the Peel Light, S.W. ½ W. 11 miles; 4 miles from Jurby W. ½ N. and about 3 miles from the land abreast, is a BLIND ROCK, and from

Peel Light,

N.E. by E., 9 miles. This light is stationary, is exhibited throughout the night, and is visible at a distance of eight miles in clear weather. Between Jurby and Peel, off Ballabui, lies a shoal 1½ miles from the land, and 3½ miles N.E. ½ E. from the light. A vessel may ride in the bay with the Castle bearing from S.S.W. to S.W. in 6 or 7 fathoms' depth of water. On entering the Harbour, keep the point of the Jetty close on board on the starboard hand and run in, keeping the light on the pierhead on the larboard hand. The Mull of Galloway light adds considerably to the importance of this Harbour, being visible from the Castle, and only distant N. by E. 26 miles. The Peel Light is about 300 yards S.S.W. from the N.E.

point of the Castle. The streams of flood that come to the E. from along the S. coast, and along the N. coast of Ireland, meet about a mile W. of Contrary Head, so called from this circumstance, and there divide into two branches, one of which runs N.E. to the Point of Ayre, and on to Maughold Head, the other S.W. to the Calf; one proceeding round the Calf at 6, the other round the Point of Ayre at 4 miles an hour, meeting off Maughold Head. From Contrary Head to abreast the Calf Lights the course is S.W. 10 miles; and 4½ miles from the W. end of that Isle is

Port Iron,

a good little Harbour, easy of access, and affording shelter against all E. winds. In the Sound of the Calf the stream runs W. 2 hours before high water on the shore, and continues 6, i.e., two hours before it ebbs on shore. Keep the Calf Lights well open when passing Langness Point.

TIDES.—On the full and change days, it is high water on the shore at Peel at 10h. 48m.; in the Calf Sound, 10h. 57m.; at Douglas, 10h. 48m.; at Ramsey, 10h.; and at the Point of Ayre, 10h. In the Isle of Man, spring tides rise 18 or 20 feet perpendicular; neap tides 9 or 10.

Magnetic Bearings & Distances,

FROM THE HEADLANDS OR HARBOURS IN THIS ISLAND, TO OTHER HEADLANDS OR HARBOURS IN THE CHANNEL.

FROM DOUGLAS HEAD TO		MILES.
St. Bees Light	E. by N.	42
Ravenglass	E. by S.	40
Lancaster Channel	S.E. ¾ E.	54
Liverpool Floating Light,	S. by E. ½ E.	59
Chester Bar	S. by E.	60
Great Ormshead	S. ¼ W.	54
Skerries Light	S.W. by S.	46
Point Lynas	S. by W. ½ W.	45
Langness Point	S.W by W.	8

FROM THE POINT OF AYRE TO		
Maughold Head	S.S.W. ½ W.	8
St. Bees Light	E.S.E. ¼ E.	26
Whitehaven	E.S.E. ¾ E.	28
Maryport	E. ¼ N.	37
Ross Light, Kirkcudbright	N.E. ½ E.	24
Burrow Head	N.N.E.	16
Mull of Galloway	N.W. by N. ¾ N.	21
Copeland Light, Belfast	N.W. ½ N.	44
Walney Light	S.E by S.	47
Liverpool Floating Light	S. ¼ E.	70

FROM MAUGHOLD HEAD TO		
Skerries Light	S.W. ½ S.	56
Great Ormshead	S. by W.	60
Liverpool Floating Light	S. ¾ E.	63
Lancaster Channel	S.E. ½ S.	50
St Bees Head	E.	27
Ravenglass	E.S.E.	32
Whitehaven	E. ½ N.	31
Workington	E.N.E.	36
Maryport	E.N.E. ¼ N.	40

FROM THE CALF OF MAN TO		MILES
Langness	E.S.E. ½ S.	
Mull of Galloway	N.N.E.	3
Copeland Light	N. ¼ W.	4
South Rock Light	N. by W. ¾ W.	3
Strangford Lough	N.N.W. ½ W.	3
Carlingford Lough	W.N.W.	4
Drogheda	W. ¾ N.	5
Howth Head	W.S.W. ¾ W.	6
Kish L'ship, Dublin Bay	W.S.W. ¼ W.	6
Holyhead	S.S.W.	4
Great Ormshead	S. by E.	5
Liverpool Floating Light	S.S.E. ⅝ E.	6
Skerries Light	S. by W. ¼ W.	3
Point Lynas	S. ¼ E.	4

FROM PEEL TO		
Mull of Galloway Light	N. by E.	26
Copeland Light	N.N.W. ¼ N.	4
Strangford Lough	N.W. ½ W.	29
Maidens Light	N. by W. ¼ W.	57

Free Harbours

No tolls are exigible on vessels entering any of the Harbours in the Isle of Man.

Abstract of the Bye-Laws for regulating the Harbours.

1. Any vessel, through mismanagement, injuring the quays, &c., such injury to be repaired, under penalty of double the value of the damage.

2. No chain cables to be used for mooring vessels, under penalty of £2.

3. No ballast to be discharged without a port sail, under penalty of £2.

4. Vessels heaving ballast or stones into the harbours, penalty £2 per ton.

5. That no person heave stones, dung, &c., into the harbours, under the penalty of £2; and if not removed when ordered, a further penalty of £2.

6. Masters of vessels not obeying Harbour Masters in mooring vessels, penalty £2: all expenses incurred by the Harbour Master in mooring vessels to be paid by master or owners of said vessel. Any person obstructing Harbour Master in executing his duty, penalty £5.

7. No person to make a fire on the quays without permission, penalty £3.

8. No clog fenders to be used, under penalty of £1, unless hung lengthways.

9. Any person throwing off ends or cutting hawsers, besides paying the damage to the owners, to forfeit £5.

10. That all gunpowder be landed immediately after arrival, under penalty of £10 for every 24 hours it remains on board; and no fire or light to be kept on board while such gunpowder remains in the vessel, further penalty £20.

11. Any dock made for repairing vessels in harbour to be filled up in 24 hours after removal of the vessel, under penalty of £5 for every 24 hours it lies open.

12. No vessel to unload ballast at night under penalty of £10.

13. That no timber, iron, &c. (unless for repairing vessels) be left on the quays longer than two days, on penalty, for every day longer than the said two days, after notice given by the Pier Master, of £1.

14. That no vessel be allowed to take ballast from another, penalty £1, unless by leave of the Harbour Commissioners.

15. Ballast not to lie on the quay longer than 24 hours, under penalty of 5s. per day.

16. All vessels unloading merchandize to have preference of berth in turn.

17. Vessels taking in goods to have any unoccupied berth, but to give it up on the arrival of a loaded vessel.

18. & 19. One person at least to be on board every vessel when afloat, in harbour or bay, under penalty of £2.

20. & 21. No person to act as pilot without commission, under penalty of £10. No vessel compelled to take a pilot.

22. Proprietors of lime-kilns to screen their lights, if liable to be mistaken for harbour lights, under penalty of £5.

23. Persons firing on pier, &c., (except on days of public rejoicing,) penalty 10s.

24. Boats plying for passengers without licence, penalty £2; and owners to be accountable for breach of harbour laws by any of the crew.

25. No person to erect stalls on the quays to cure fish, or deface the quays, &c. under penalty of £2 for every offence.

26. No person to enforce higher rates for pilotage than as follows, which include attendance of boat and four men:

Vessels of 40 Tons	£0	5	0
Vessels above 40 and under 60	0	7	0
Vessels above 60 and under 100	0	13	0
Vessels 100 Tons and larger	1	0	0

27. Vessels must allow ropes or warps of other vessels to be made fast to them, under penalty of £2.

28. All vessels in harbour must keep in their jib and mizen booms, under penalty of £2.

29. No lumber to remain on the quays or steps, under penalty of £1.

30. No conveyance having wheels shod with iron, allowed on Douglas pier, under penalty of £2.

WEST COAST OF ENGLAND.

RIVER RIBBLE TO SOLWAY FRITH.

The **River Ribble.**—PRESTON and LYTHAM.—About 5 miles northward of the Formby Channel is the entrance to the River Ribble, leading to Preston. The shore on the starboard side is lined with an extensive sandbank, which runs out full 2 miles from the land, drying at 4 hours' ebb; while on the port hand is the Butler's Wharf, a large shoal, contracting the passage, rendering its navigation almost impracticable without a pilot. There is also a smaller bank to the northward of the Butler, which also dries at half-ebb. Outside the bar is a large buoy called the *Nelson*, which vessels should endeavour to pick up when bound for the river. It is a large round black buoy, with a cage ball at the top, stands about 26 feet out of water, and may be seen in clear weather ten miles; its name, *Nelson of Preston*, is painted upon it. The bearings and distances from the Buoy Nelson, of Preston, to the undernamed places are as follows:—Blackpool, E. by N., 8 miles; Calf of Man, N.W., 57 miles; Liverpool N.W. Lightship, S.W. by S., 17 miles; Pile of Foudry Light, N.E. by N., 18 miles; St. Bees Head, N. by E., 50 miles; Point Lynas Light, W., 41 miles; Douglas Head, N.N.W. ¾ W., 50 miles; Maughold Head, N. by W., ¾ W., 51 miles. The entrance to the River Ribble is by two Channels, called the North Channel and the Gut. The compass course is on Nelson Buoy; that leads to the different outer buoys at the entrance of each Channel. There are buoys placed in the deepest parts of the Channels, which in some places are narrow. There are 11 buoys placed in the North Channel, numbered from 1 to 11, and marked with the letter N. In the Gut are 5 buoys, with cages on the top of each: these lead to No. 8 in the North Channel, where the two Channels meet. The outer buoys of the two Channels lie in 3 fathoms, low water spring tides: from them the other buoys can be seen. No vessel drawing more than 10 feet water should enter the Ribble later than one hour after high water. There are two tug boats at Lytham to tow vessels up to the Preston quays, if required. Vessels drawing 12 feet water can go up to Preston at spring tides. The quays are connected by a branch with all the railways in the district.—On the northern side of Preston Bay is the village of LYTHAM, where coasting vessels resort, before which is a small tide-light. Here is a dock where vessels can lie in safety, and also a branch railway to Preston. The Lytham Lighthouse, exhibiting two fixed lights, one being Red, stands on the Gravel Point

near where the two Channels meet, and bears S. E. by E. ½ E., 7 miles from Nelson Buoy. Both lights are visible all round from the Blackpool to the Southport shores.—Masters of vessels not acquainted with the navigation of the Ribble, are advised to put into some safe harbour inside the line in the South Channel, from St. David's Head, on the Welsh Coast, to the Tuskar Rock, on the Irish Coast, and inside the line in the North Channel, from the Mull of Cantyre, in Scotland, and Fair Head, in Ireland, and to address a letter to the Harbour Master at Lytham, who will immediately send a Pilot well acquainted with the river to conduct the vessel to Lytham, at the following rates:—From inside the above lines—foreign bottoms, 10s. per foot, English bottoms, 8s. per foot; from outside the Nelson Buoy—foreign bottoms, 5s. per foot, English bottoms, 4s. per foot; from Nelson Buoy—foreign bottoms, 4s. per foot, English bottoms, 3s. per foot; from No. 1 Buoy—foreign bottoms, 3s. per foot, English bottoms, 2s. per foot; and from outside the two lines above mentioned, 2s. per foot extra.

Morecambe Bay.—In sailing towards this bay, which is about 8 leagues from Formby Point, keep full 4 miles from the shore, on account of the flat shoal water, known by the name of the Oyster Grounds; these begin nearly abreast of Blackpool, and extend to Rossall, the north bank of the Wyre River, which they now join. The western edge of these grounds is steep-to, and there are on some parts of the Oyster Grounds not more than 6 and 9 feet at low water. The entrance to Morecambe Bay is known by the name of Lune Channel, and is 2½ miles wide. On the southern side is the Point of Rossall, and on the northern side is the Island of Walney; on the former is a conspicuous beacon or landmark, and on the latter is a lighthouse, which bear from each other nearly north and south, distant 8 miles. The Point of Rossall is low land, and the beacon, when seen at the distance of about 5 miles, has the appearance of a vessel under sail. Morecambe Bay is encumbered with numerous large sandbanks, many of which dry at low water, and some at half-ebb. The general direction for the mariner, if bound to Lancaster, will be to attend particularly to his soundings, taking care to get into the deep water of the Lune Channel, and to remain there until he obtains a pilot. When in 24 and 25 fathoms, you will perceive the ends of the rock weeds floating, and the water of a darker blue than when you are over any of the banks.

The **River Wyre.**—The following are the directions for entering the Port of Fleetwood:—On coming from sea, l the westernmost part of Walney Islan the eastward of Blackcombe until Ros Landmark bears S.E.: here you are tering the deep water of Lune, where will have 28 fathoms at low water. shoals to be avoided on approaching W are, Shell Wharf, North Wharf, and Kir Scar Ridge. A large red buoy is laid dc nearly on the point of the Ridge, to wh a good berth should be given; it s marks the southern side of the Lune de A black perch is placed on North Wh about three-quarters of a mile S.E. by from the King's Scar Buoy. On the no side of Lune deep a black buoy, with gl on the top, and marked "Danger Patc is placed a few fathoms westward o shoal patch bearing that name. Betwe these buoys is the Lune deep or chann Rossall Landmark is a large wooden str ture (of a conical shape) built on the sh of Rossall point, and denotes the southe limit of Lancaster or Morecambe B Walney Island, on which is a revolvi light, is the northern limit. Shell Wh extends to the westward of Rossall Lar mark and North Wharf. If in ha weather you fall in with low land, a not knowing whether it is Walney Rossall land, your lead, which shou never be neglected, will at once infor you; for 4 or 5 miles off Walney, y will have 8 or 10 fathoms, but at t same distance off Rossall only 4 or 5 f thoms. After passing the Danger Pat and King's Scar Buoys, you will obser the Fairway Buoy to Fleetwood chann It is a vertically striped black and whi buoy, and lies half-a-mile N.N.W. fro the Screw Pile Lighthouse. Enter th channel between the Fairway Buoy ar the lighthouse, leaving the lighthouse c the starboard hand, and running up f the chequered buoy on the Little For leaving that buoy on the port hand. Yo will now have come up with the red buo on the Big Ford; leave that on the sta board hand; then leaving all the blac buoys, which mark the eastern side c the channel, on the port hand, and th red buoys and perches (the latter havin red globes on the top) on the starboar hand, round close-to the Steep Breas on the edge of which stands the Lowe Shore Lighthouse, and where the tide run very strong: you then enter th Harbour. There are large red buoys fo mooring ships to. Sail between the buoy and the shore, letting go your anchor when you reach the upper part of th Canshe Hole; but be careful not to fou the moorings of the buoys, as they run in various directions across the harbour Strangers visiting this port should alway hoist signal for a pilot, several of whom are constantly on the look-out. There are two pilot cutters (numbered 1 and 2

with pilots for any ports in the bay; the former is stationed at Fleetwood, the latter at Piel, and both are generally cruising off the bay. The Screw Pile Light is a Fixed Bright Light, seen 8 or 10 miles in clear weather. There are also two Fixed Shore Lights, lighted from half-flood to half-ebb. By day, a black ball hoisted on a pole at the Screw Pile Light and Lower Shore Lighthouses, denotes the same interval of tide. A bell, tolling three strokes per minute in foggy weather, is sounded from the Screw Pile Lighthouse, and may be heard at the distance of two miles. There is good anchorage off North Wharf, anywhere between the King's Scar Buoy and the Lighthouse, in such water as the state of the tides and a vessel may require. A green buoy is placed near a wreck on the Bernard Sand, about half-a-mile N.E. of the Screw Pile Lighthouse; but your vessel should never be that far to the eastward, as the tides generally run across there, and will set you ashore.

The **River Lune.**—SUNDERLAND, GLASSON, and LANCASTER.—Sunderland harbour is at the mouth of the River Lune, and is dry. Large vessels may go in after half-flood, and lie on clean ground below the houses, and with neap tides, ships of 12 feet water may ride afloat in the pool, off the westernmost houses in the village. It is not safe riding in the pool with spring tides, because of the rapidity of the stream, which runs there about 4½ miles an hour when strongest. The channel leading into Sunderland is buoyed, and there is a Lighthouse on the south side, over against the point of Sunderland. Bernard's Wharf, the westernmost bank, begins to dry at half-ebb. At the easternmost buoy there is a patch of sand that dries with spring tides only. To come up with the outer or westernmost buoy of the channel of Lune River, take half-flood, and stand no nearer the North Wharf Bank than 8 fathoms water; or keep Lancaster Church Steeple a small sail's breadth open to the southward of the Bluff End of Highfield—a long hill under the same high land, which terminates in a remarkable Bluff Point, a little to the northward of the Church Steeple. This mark will bring you up to the Outermost Buoy, clear of North Wharf and Bernard's Wharf; or, when this mark cannot be seen, keep the westernmost part of Walney Island to the eastward of Blackcombe, until the Landmark bears about S.E. In this situation you are entering the deep water of the Lune, where you will have 28 fathoms at low water, and the Outermost Buoy bearing about east from you; and should you be forced in by strong gales, or night coming on with a flood-tide, that you cannot keep an offing, you may bring your vessel safely to an anchor to the southward of the buoy.—If in dark hazy weather you should fall in with low land, bearing E.N.E., &c., and not know whether it is Walney or Rossall land, your lead will at once inform you; for at the distance of 4 or 5 miles from Walney, in that direction you will have 8 or 10 fathoms water, but at that bearing and distance from Rossall, only 4 or 5 fathoms.—*To avoid the Shoals on the north side of the Bay:*—Near low water come no further in, with a vessel of considerable draft of water, than where Walney Lighthouse is open to the eastward of the highest part of Blackcombe, when the Landmark bears S.E., as you are here to the westward of the Stony Patches on the north side of the Lune, where you may safely stand off and on for a pilot.—*To avoid the Shoals on the south side of the Bay:*—Shell Wharf extends W. by N. to W. by S. from the Landmark, therefore you must take care about low water to keep the Landmark to the southward of E.S.E., and when you steer for the buoy at the proper time of the tide, and having fallen into the deep water of the Lune, you must allow for North Scar and North Wharf, a high bank, which runs out 2 miles northward of the Landmark, and covers about half-flood. About high water, you may venture in the day time to stand over any part of the bay from Pile of Foudry to the Outermost Buoy in the Lune; but in the night or thick weather, keep further out to the westward, taking care to keep the lead constantly going, and watch every opportunity to take the bearings of the marks before mentioned, until you obtain a pilot.—The *First*, or Outermost Buoy, lies in 6½ fathoms at low water, neap tides, with Pile Castle bearing N.N.W. ½ N.; Lighthouse on Walney, N.W. by N. ½ N.; North End of North Wharf, W. by S.; Landmark on Rossall Point, S.W.; Foot of Wyre Lighthouse, S.W. by W.; Lancaster Church Steeple, a little open with Highfield, E. by N.; Second Buoy, E.S.E. The First Buoy must be passed on the south side. If too early of the tide, or too late in the evening to proceed up the river, you have good anchorage one cable's length to the eastward of the Second Buoy, under Bernard's Wharf, where you will have 3 fathoms at low water, and little current; but you must not proceed up the river with a vessel of considerable water draft until after half-flood. The *Second* Buoy lies in 3 fathoms, with Outermost Buoy bearing W.N.W.; Third Buoy, S.E. by S. The *Third* Buoy lies in 12 feet, with Second Buoy bearing N.W. by N.; Fourth Buoy, E. by S. ½ S. The *Fourth* Buoy lies in 5 feet, with Third Buoy bearing W. by N. ½ N.; Fifth Buoy, E. The *Fifth*,

or Innermost Buoy, lies in 5 feet, with Fourth Buoy bearing W.; Lighthouse on Abbey Scar, E. ½ S. Keep the Upper and Lower Lighthouses in a line, and guard against the flood-tide setting strong to the southward, up Cocker. Soon after you have passed the Lower Lighthouse, keep Basil Barn a little open to the southward of Overton Chapel, which will take you clear of Thornbush Fishery and Town's Skear, to Sunderland, where you may obtain a pilot. The deepest water is on the south side of all the Buoys, and the River Buoys are placed on the north side of the channel.—GLASSON is about 5 miles before you reach Lancaster. Upon the pier is a harbour light, shown at tide time. The tide flows at the dock gates the same time as at Liverpool; adding two inches to every foot of water at Liverpool, will give the height at Glasson. Every vessel going into the dock must clew up her sails, and (if the wind be any way to the northward) let go an anchor before coming into the Dock Gut, to prevent her anchor bills running through her bows and destroying the works. If the wind be from the westward, and a flowing tide, she may safely touch on the west side, and be veered alongside the pier-head, by a line from the westward; but on no pretence whatever is any vessel to attempt going in under ever so easy sail, as several serious losses have already been sustained thereby; and no steam-vessel is to use her paddle wheels either in going in or out of dock, but to let off steam before doing so. Masters of vessels offending in these particulars are liable to a penalty of £5, besides having to repair the damage.—From Glasson to LANCASTER the Channel is irregular, variable, and shallow; the shallowest part of it having no more than 7 feet water at high water with neap tides, and 12 or 14 at high water with spring tides. Pilots, legally appointed to conduct vessels to and from the quays at Lancaster, may be obtained at Snatchems, near Sunderland.

Morecambe Harbour.—This harbour is situate at the terminus of the North Western Railway, and is connected with the Midland, and Lancaster and Carlisle Railways. A new stone pier has recently been constructed, and superior accommodation provided for the transhipment of passengers and merchandise between the railway trains and steamboats. The dues levied on vessels in respect of lights and buoys are 2d. per ton on vessels from ports in the United Kingdom, and 3d. per ton on vessels from ports beyond, but when such dues have been paid three times in one year by any vessel, they are then reduced to 1d. per ton on the same vessel for the remainder of the year. There are no other dues or port charges on vessels.—**The sai** directions for Fleetwood or **Lanca** must be adhered to until the Screw **l** Light at the foot of Wyre bears so**u** then, if flood tide, haul up N.E. by and if ebb, N.E., which course lead**s** the New Screw Pile Light at the entra of the Channel to Morecambe Harbo This Lighthouse is upon the same pl and is similar in appearance to the F of Wyre Lighthouse, but exhibits a *Light*, visible at a distance of 6 mi and with the following compass be ings:—Walney Light, N.W. ¾ W., 6¼ mil Wyre Light, S.W. ½ S., 4⅝ miles; Mo cambe Harbour Pier Head Light, E. ½ 5⅛ miles. The Light is masked to extent of one-fourth of the circle fac Heysham Lake and Lune Estuary. A l by day, and a small *Green Light* by nig on the west side of the house, indic when not less than 8 feet water in Channel up to the Harbour. A Bell tolled during foggy weather or snow Seven Buoys define the Channel leadi to Morecambe Harbour, namely:—No *Red* Buoy, on the Western Point Clark's Wharf Spit, with the followi compass bearings:—Screw Pile Light Wyre Foot, S.W.; Morecambe Harbo Pier Head Light, N.E. ½ E.; Waln Light, N.W. ½ N.; No. 2 Red Buoy, E N.; No. 2 Black Buoy, E. by N. ¼ No. 1 *Black* Buoy, on the Western Poi of Yeoman's Wharf Spit, with the follo ing compass bearings:—Screw Pile Lig at Wyre Foot, S.W. ½ S.; Morecam Harbour Pier Head Light, E. ¼ S.; W ney Light, N.W. ¼ N.; No. 2 Red Bu E. by S. ¼ S.; No. 2 Black Buoy, E. ¼ These two buoys define the mouth of t channel; they are about three-quarte of a sea mile apart, and have a depth about 9 feet between them at dead l water. No. 2 *Red* Buoy, on the nor side of Clark's Wharf, the compass bea ings being—No. 2 Black Buoy, N.E. W.; No. 3 Red Perch Buoy, E.N.E. N 2 *Black* Buoy, on the south side Yeoman's Wharf, the compass bearin being—No. 3 Red Perch Buoy, E. ½ No. 3 *Red* Perch Buoy is placed on t western point of Low Scare, and may passed on either hand. The compa bearings from this buoy are—No. 4 R and No. 4 Black Buoys, E. ¼ S. No. 4 *B* Buoy is on the end of the Old Scare, a No. 4 *Black* Buoy is on the end of Sto Scare. It is larger than the others, a has a circular cage on the top; *it rol* very heavily during the strong curre of flood or ebb tide. Vessels approac ing the Harbour at low water shou anchor below this buoy, where there excellent holding ground in a depth not less than 5 fathoms at dead low wate spring tides, and remain there until Black Ball by day is exhibited at the en

of the Pier, and at night until half-flood, when there will be a depth of 8 feet in a clear course between the No. 4 Buoy up to the harbour. A Beacon on Stone Scare must be left on the starboard hand coming in. A Lighthouse is erected on the New Pier, which exhibits a *White Light* from sunset to sunrise; in day time a Black Ball is hoisted when there is 8 feet water between the No. 4 Red and Black Buoys.

Pile of Foudry.—Pile of Foudry is a harbour near the south end of Walney Island, where large merchant ships may ride in good shelter near the west or south-west side of Roe Island, in from 3 to 5 fathoms water. Small vessels commonly lie aground in the bight, on the east side of Pile of Foudry Island, about a cable's length from high water mark, when the house bears S. by W. In the anchorage near Roe Island the streams of flood meet; one from the north, the other from the south, and make it troublesome to keep the anchor clear. The stream here runs abont 3 miles an hour when strongest. On the south end of Walney Island is a stone lighthouse, exhibiting a revolving light 70 feet above high water, flashing every minute, visible in clear weather 3 or 4 leagues; there is also a small fixed light of a red colour. On the north side of this channel is Walney Island, which is low land, and on the south side are several sandbanks or stony ledges; the most dangerous of these is the Stony Patch, which lies to the westward of all the others, distant from the lighthouse on Haw's Point about four miles; to clear it to the westward, bring the Old Castle on Pile Island just open to the eastward of the lighthouse. The lead should be kept constantly going, and if coming from the southward, bring Blackcombe Hill on with the north end of Walney Island, and keep them so until Walney Lighthouse comes E.N.E., and the ruin upon Foula Island touches Haw's Point. The Helpsford Sand is on the S.E. side of Walney, within a mile of the shore, to clear which, you must bring the dwelling-house near the lighthouse a sail's breadth open of the southernmost sandhills, or the lighthouse just clear of the eastern chimney of the same house, bearing N.E. by E.; then, as you advance, bring the ruin of the house on Foula, before mentioned, on with Haw's Point, and these marks will lead you in. Upon the bar is 15 feet water at 2 hours' flood, and the rise of tide is sometimes 29½ feet. The strength of the flood tide is 2½ knots an hour, and the ebb nearly the same. In leading to the anchorage with a flood tide, and the wind scant, you may stand along the southern part of Walney about a mile from the shore, and have regular soundings. In dark weather, should you fall in with land bearing E.N.E., and uncertain whether it is Walney Island or the land adjacent to Rossall Point, then you must be guided by your lead, for at the distance of 5 miles from the former are 7 and 8 fathoms, but at the same distance from Rossall there are only 4 or 5 fathoms; allowance must be made for the rise and fall of the tides, making high water full and change at 11 o'clock. In running for the Pile of Foudry anchorage at half-flood, give Haw's Point a berth of half a cable's length, and keep off Pile Castle Point a similar distance, then, should your vessel draw 10 feet water, anchor in the bight below the house on Pile Island, or near to Roe Island, in 5 fathoms, with the lighthouse open to the starboard of Pile Castle. The breadth of the anchorage above Roe Island is nearly 2 cables. Here the ground holds well; as the tide ebbs you become quite land-locked, and may shorten your cable, to enable you to swing clear of either side at low water in 3 fathoms.

Ravenglass is a dry harbour, where three rivulets, the Esk, Mite, and Orte, unite about 12 miles to the southward of St. Bee's Head. There is a buoy placed a little within the mouth of the channel, in the middle, near the Fish Wear, which marks the entry. At this buoy, and in most parts of the channel, the depth is 3 fathoms at high water, with neap tides. The best part for vessels to lie aground on is, half a cable's length from the west end of the town of Ravenglass, on the south side of a perch which stands on the point of a sand there. At this anchorage, in the mouth of the river Esk, and also at the meeting of the other rivers, there are 3 fathoms at high water with spring tides, and 10 feet with neaps. To sail into Ravenglass Harbour, take 4 hours of flood, keep above a mile from the coast to avoid Selker and Drig Rocks (till Ravenglass town bears E.N.E.); steer in that course till you see the buoy bearing east, and then steer right for it, keeping within a ship's length of it on either hand; when you are just past the buoy, steer E.N.E., or keep Ravenglass a sail's breadth open to the north of your stern, till you are about half a mile from the east end of the sandy hillocks; hook the small bay, which begins there; keep near a cable's length from the point at the end of the small bay, and anchor half a cable's length from the west end of the town, or off the perch, in the meeting of the three rivers. When the buoy in the entrance bears E., it is also in a line with the south shoulder of Newton Knot Hill, which is a small hill half a mile south of Ravenglass. The tide flows here, full and change, at 11 o'clock; and off the Bar runs as follows:

the last half-flood and the first half-ebb set Northward, at the rate of 2 miles per hour, spring-tides; and the last half-ebb and first half-flood Southward at the same rate. There is a foot of water more on the Bar than shown by this Tide Table.

St. Bees Head.—To the Northward of Ravenglass Harbour, distant 13 miles, is St. Bees Head. On its summit is a LIGHT-HOUSE, the light from which is *stationary*, appearing like a bright star at the distance of 6 or 7 leagues in clear weather. From the entrance of Formby Channel to this Head, the course and distance are N. by E. 20 leagues. In sailing along from Walney Island to St. Bees Head, keep 2 or 3 miles from the shore, and you will clear every danger. Vessels in moderate weather, may stop a tide any where along the coast, for the stream seldom runs more than a mile an hour.

Whitehaven.—About 3 miles E.N.E. from St. Bees Head is the town of Whitehaven: the harbour is dry, and divided into basins by strong quays, which break off the sea. Within the second basin is the best place for vessels drawing above 10 feet water. Here you will find 20 to 22 feet water spring-tides, and 12 to 14 neap. The HARBOUR LIGHTS are upon the outer and inner Pierheads. The inner Light is *stationary*, of a RED colour, and is lighted while there are 9 ft. water between the Pierheads. The outer Light *revolves*, is lighted all night, and is seen at a distance of 3 or 4 leagues in clear weather. The light appears in its brightest state once every 2 min., and gradually becomes less luminous, till eclipsed. In the day a *Flag* is hoisted on a pole at the top of the old Lighthouse, while there are 9 feet water in the harbour, on entering which, keep both lights on the starboard hand.—A Blue Light is shown from a lighthouse on the end of the north pier, which has been extended 352 yards.

Harrington Harbour is 4 miles Northward of Whitehaven. A *Lantern* is hoisted upon a pole on the starboard side of the entrance, while there are 8 feet of water in the harbour, and in the day a Red Ball, at the inner end of the pier, during the same interval of tide.

Workington is 2 or 3 miles north-eastward of Port Harrington. A red ball is hoisted upon a pole on St. John's pier when there are 8 feet water in the harbour; and at night a light is exhibited on the pier-head, which answers a like purpose, and can be seen in clear weather at about 3 leagues from any point seaward. The channel into this port is along the south shore, its entrance bearing from St. John's pier nearly E. by S. by compass. It is formed by red buoys on the south side, and black buoys and perches on th north side, the deepest water being mi way between. The outer perch has a cas upon it, painted red, which must be ke on the port side in entering. Steer i between the perches and red buoy giving St. John's pier-head a berth about 100 feet on the starboard side After passing St. John's pier a perch wit a white board upon it is the leading mar for the channel by day; and, by night, th northernmost of the blast furnaces o the north side kept right a-head, until a inner light which is on a wooden pie bears about S. E. ¼ S.; then steer S.E. ½ E for the entrance to the harbour, keepin the light upon the wooden pier on th starboard side, and passing a perch wit a small red cask upon it by about 10 fee on the larboard side, when the harbou boat will be in attendance.

Maryport, situate about 5 miles N.E of Workington, is easy of access, free from sand banks, and has a capacious dock, in which vessels are kept constantly afloat, as well as its original tidal harbour and basin. Depth of water in ordinary spring tides, 21 ft. 6 in., neap tides, 13 ft. 6 in.; or by adding 3 ft. to the water shewn in Holden's Liverpool, and the Manx tide tables, a near approximation for each tide will be obtained. A fixed bright light is exhibited on the outer pierhead all night, and another on the inner stone pier whilst there are 8 feet in the harbour; both lights are on the starboard side in entering, and are visible at sea from E.N.E. to W.S.W., the former at a distance of 15 miles, and the latter 10 miles. A Red Ball near the inner lighthouse denotes 8 feet in the day time. The jetty on the south side is distinguished by a Red light, and the north tongue by a Green one. Steam tugs are in readiness every tide, and when required by vessels at night, two lights must be shown one above the other; or by day a union jack at the main. There is good anchorage in stiff clay, about 1½ miles off shore, the outer lighthouse bearing S.E.

Magnetic Bearings & Distances

FOR THE WEST COAST OF ENGLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

BUOY NELSON, OFF PRESTON (Lat. 53 43 N., Long. 3 11 14 W.) MILES.

To Beaumaris entrance....W. by S. 39
Point Lynas .....W. Northerly 45
Drogheda Bar..N.W. by W. ½ W. 109
Dundalk Bar..... .N.W. by W. 112
Douglas Head Light N.N.W. ¾ W. 50
Ross Light, Kirkcudbright....N. 71

WYRE LIGHT, FLEETWOOD (Lat. 53 57 14 N., Long. 3 1 46 W.)

To Great Orms Head..S.W. by W. ¾ W. 45
Dundalk Bar....N.W. by W. ¾ W. 112

WYRE LIGHT, FLEETWOOD — MILES.
To Wicklow Head Light .... W. ¼ S. 118
Calf of Man L'ts. N.W. by W. ½ W. 65
Burrow Head..... N. by W. ¾ W. 62
Walney Light .... N. by W. ¼ W. 8

WALNEY LIGHT (Lat. 54 2 56 N., Long. 3 10 32.)
To Wyre Light ..... S. by E. ½ E. 8
N.W. L'tship, L'pool. . S.W. by S. 35
Kish Lightship ..... W. ¼ N. 104
Calf of Man .... N.W. by W. ¾ W. 57
Point of Ayre Light .. N.W. by N. 47

ST. BEES' HEAD (Lat. 54 30 50 N., Long. 3 18 W.) — MILES.
To N.W. L'tship, L'pool S. by W. ½ W. 65
Tuskar Rock Light S.W. by W. ¼ W 162
Douglas Head Light .. . W. by S. 42
Mull of Galloway Light N.W. ¾ W. 43

WHITEHAVEN (Lat. 54 33 N., Long. 3 26 2 W.)
To Beaumaris entrance .. S.W. ¾ S. 76
Skerries Light .. . ... S.W. ¾ W. 65
Wicklow Head Light .... W.S.W. 125
Bahama Lightship ..... W. by S. 24½

WEST COAST OF SCOTLAND.

SOLWAY FRITH TO THE MULL OF CANTYRE.

Solway Frith. — The entrance to Solway Frith may be considered to commence abreast of Workington, on the English, and at Abbey Head on the Scottish shore, the distance between which is 5 leagues. On the eastern side of the Frith of Solway, about 10 miles north-eastward from Maryport, is

Port Silloth.—This place is daily increasing in importance, being connected by railway with Carlisle, Newcastle, and Edinburgh, the rails of which are laid on the quays. It contains a wet dock, with entrance gates 60 feet wide, at present not quite finished, and a jetty from the dock entrance into 10 feet at low water. The dock sill is 3 feet 6 inches above low water mark; and by adding 5 feet to any tide in this tide table, the depth over the sill will be given for high water. Vessels, in the meantime, discharge and load along side the jetty, at the end of which there is a Green Light. In Silloth Bay (between Lee Scar Light and the jetty) there is excellent anchorage in from 4 to 6 fathoms at low water, clay bottom. It is high water here, full and change, 11h. 35m.; spring tides rise 26 feet and neaps 20 feet. The fairway course, from about a mile off Workington to the Light Vessel at the entrance of the channel, is N.E.¼N.; and to avoid the tail of Robin Spit, care should be taken not to bring the vessel to the eastward of E.N.E., on which bearing the bright Light on Lee Scar will be in one with it. This Light Vessel is in the middle of the channel, in 3¾ fathoms at low water, and exhibits a fixed Red Light at 25 feet above the the water, visible 6 miles. From it Maryport Outer Light bears S. by W.¼W., 4¼ miles; Southerness Light, N. ¼ E., 5½ miles; and Lee Scar Light, E. N. E., 6 miles. It has a black ball at the mast-head during the day, and in fogs a bell is tolled. Having passed the Light Vessel, continue to run on N.E. ¼ N. a mile and a quarter, which will lead you up mid-channel in 3½ to 4 fathoms at low water; and when the bright Light on Lee Scar comes in one with the Cott Red Light, bearing E. by N. ½ N., alter your course to that direction, which will carry you up the fairway as far as Lee Scar in a depth of 2¼ to 5 fathoms. Silloth Harbour is about half a mile above Lee Scar. When following the preceding instructions, it is necessary to bear in mind that, as far as Silloth Bay, the black nun buoys should be kept on the port, and the red can buoys on the starboard hand. The black and white striped buoy marked E in the fairway off Beckfoot is passable on either side. The shoalest part of the channel, on which there are 2¼ fathoms at low water, is about half a mile below this latter buoy; thence to Silloth the depth is from 3 to 5 fathoms. Branch Pilots for Silloth may be had off Maryport; charge, 1s. 9d. per foot.

Port Carlisle, a dry harbour, 10 or 11 miles up the Frith from Silloth Bay, is connected with Carlisle by railway, the rails of which run on the quays. It is high water here, full and change, at 12h. 10m.; springs rise 18 feet, and neaps 11 feet; the flood runs 3 hours. In this part of the Frith the sands so frequently change their position that detailed instructions for running up are useless; it is necessary, therefore, to keep a good look-out for the buoys, which are all placed in the deepest water, and numbered 1, 2, 3, &c. The harbour expenses, including light charges, are—coasting vessels, 4d., and foreign vessels, 9d. per register ton. Pilots may be had off Maryport; charge, 3s. 6d. per foot.—At Annan Foot there is a bright tide-light, and 2

perches on the western side of the entrance; the light is shown from half-flood to half-ebb. There is also a tide-light on the end of the jetty at Port Carlisle, 3 miles above Annan Foot, on the opposite or southern side of the channel; this light opens off Knockcross Point, on a S. E. by E. bearing. After passing Annan, soundings should be taken of the English side of the channel up to Port Carlisle.

Southerness Light, at the west side of Solway Frith, is chiefly useful as a direction to the harbour of Dumfries. It shows a fixed bright light, from N.E. seaward to W., which can be seen at the distance of 11 miles in clear weather.

Little Ross Island—A Lighthouse has been erected upon this Island, which lies off the entrance of Kirkcudbright bay and harbour. It bears a fixed and flashing light, producing 12 bright flashes in a minute, visible from N. by E. to N.W. by W. Southerly, at the distance of 6 leagues.

Kirkcudbright is formed by the Points Balmae and Torrs to the E., and the Island of Little Ross to the W. There are two Towers on Little Ross bearing S.W. from each other, which being kept in one lead over the Bar in the best water to the First Perch on the S E. shore; thence running N.E. about 300 yards, passing a Red Buoy on the point of the bank on the larboard hand; thence N.N.W. passing the Perch on the point of St. Mary's Isle on the starboard hand; thence direct to the lower Fish-house, where is a Pool a vessel can ride afloat at spring ebbs. Abreast and above the upper Fish-house there is excellent lying on soft mud, moored to rings on the rocks, and no stream of tide. On the bar of Kirkcudbright River there are from 10 to 12 feet at half flood. Vessels running for this place, and not having water over the Bar, will find good anchorage in the Ross Roads in from 2 to 3 fathoms at low water, in good clay ground. Should the wind be Southerly, blowing hard, a vessel should bring up on the W. side of the beach just as the sound begins to open, the closer to the beach the better, as it is very steep-to and quite out of the sea. At half-tide she can trip and run up the lake to the Lake or Fish-house, or waiting 4 hours' flood may run up for the Perch off St. Mary's, and proceed to Fish-house or the town. The coast from Kirkcudbright to Belcarey Bay and River Urr is a bold rocky shore, with neither beach nor harbour.

Belcarey Bay, about 8 miles to the E. of Abbey Head, is formed by the High Lands of Aairds to the W., and Heston Island to the E.; entrance ½ a mile wi The Heston Island is also high, and hi est in the middle: this is an excellent pl and too little known. Vessels runni for it should keep close past the Aair and keep close up till they come abo the first salmon weir opposite the lar house in the bight, when they may go far in as water will admit, as it is all cle ground, and quite landlocked from weathers. The tide sets strong E. and V past all these places, till a vessel com within the points mentioned.

Wigton Bay lies to the westward Kirkcudbright Bay, and has a spacio entrance. Here are several places whe vessels may stop in moderate weather, when the wind blows off the shore. Th channel to Wigton is shallow and intr cate, and will admit only small craf Vessels may stop with good anchorage i 7 or 8 fathoms water, about a mile to th northward of Stone Head, and half mile from the shore, where the bottom i clean sand.

Garlieston. — The entrance to thi harbour, situate in the Bay of Wigton is spacious and of easy access, no pilo being required. Here coasters will fin good shelter, with an easy loose for an part. When desired, a light is show from the pier-head, which has been re cently extended 250 feet, and where ar at springs, 18 to 20 feet, and 11 to 12 neaps. From the pier-head the Ros Light bears S.E. by E. In taking th harbour, keep the perch off the break water on the larboard hand. Port char ges, 1d. per ton; harbour boat, 3s. to 6s.

Whitehorn.—To the southward o Stone Head and near Burrow Head is Whitehorn Island, between which and the coast is Whitehorn harbour, in which vessels drawing 12 feet water cannot be neaped above twice a year at the quay. It is well sheltered from all winds. The only danger is the Screen's Reef, a rocky ledge extending from the west point, upon which the tide sets very strong. Going into the harbour from the W., if Stone Head be kept open of Kairn land it will clear the rocks on the W. side.

Glenluce Bay.—To the westward of Burrow Head is the bay of Glenluce, within which and near to the Mull of Galloway lie the Scar Rocks, always above water. There are no shoals near them; but off the Little Scar are two or three rocks, which the sea sometimes washes over. In moderate weather, with W. and S.W. winds, vessels may stop anywhere on the west side of the bay.

Mull of Galloway.—On the Southern point of the Mull of Galloway, a

Lighthouse has been erected, and bears, by compass, from the largest of the Scar Rocks, W. ½ N., 6 miles; from Burrow Head, W. by N. ¼ N., 18 miles. The light is intermittent, 2½ minutes bright, then eclipsed ½ a minute; is visible seaward 23 miles from N. E. to N. W. ¼ W.; but the high lands of Dramore shut the light from the view of the mariner in coasting along the Port Patrick shores. After rounding the Mull, which is a rocky shore, you will soon reach

Cromack Point, about 4 miles from which is

Port Nessic Harbour, fit only for small craft; but a vessel drawing not more than 6 or 7 feet, may find shelter from N. or N. W. winds, by running aground near the pier head. Seven and a half miles further is

Port Patrick, a small and dry harbour open to the westward. Small vessels must go in at high water, and run aground on the N. side of the creek, or within the pier, so as to be out of the reach of the sea, in case the wind should blow from the W. or South-westward.

Point Corsewall is about 14 miles to the northward of Port Patrick, and is the north-west point of entrance to Loch Ryan; between are some rocks, but they lie close in shore, and are mostly above water. On the rocks off Laggan Point, called Ebbstone Rocks, which dry at low water, is a red beacon consisting of a pyramid of iron pillars, 40 feet high, with a cylindrical open cage on the top. From it Corsewall Lighthouse bears N.E. by E.; the highest point of Ailsa Craig, N.E. ¾ N.; and Laggan Point, S.S.E. ½ E. On Corsewall stands a Lighthouse, exhibiting a white and red light alternately; these lights revolve, and attain their greatest brilliancy every 2 minutes. They may be seen, like a star of the first magnitude, at the distance of 5 or 6 leagues, and are visible from N.E. by E. northerly, to S.W.

Loch Ryan is capacious, of easy access, well sheltered, with good holding ground, and depth sufficient for large vessels. The only danger to be avoided is the Scar, a tongue of sand on the western side of the Loch, and about 3 miles up the harbour, which extends 1½ miles south-eastward from Kirkholm Point. There is a large Black Nun Buoy on the end of the Scar, which distinctly shews its position. The best anchorage is about ½ a mile to the southward of Cairn Point, in 6 and 7 fathoms. On this point is a tower, exhibiting a fixed light of the natural appearance, serving to lead to the anchorage. Fourteen miles N.N.E. from Loch Ryan is the

Craig of Ailsa, a rock 940 feet high, with deep water all round it, serving as a beacon to guide ships to the entrance of the Clyde.

The **Frith of Clyde** makes a fine open entry to several rivers, having no danger more than a quarter of a mile from the shore, excepting the Brist Rock, which lies three-quarters of a mile W. ½ S. from Turnberry Point; it dries at half-ebb, and is about half-a-mile from shore.

Ayr.—Ten miles from Turnberry Point is the Town of Ayr. Here is a commodious harbour, fit for vessels drawing 12 to 14 feet water. The bar, at low water, has from 4 to 6 feet water over it, and with spring-tides at high water there are from 13 to 15 feet, and with neap from 11 to 12 feet over it; with fresh southerly winds there will be a foot more; for S. and S.W. winds raise the tides in all the rivers of the Frith of Clyde, and N. and N. E. winds have a contrary effect. On the north side of the harbour is a light-house exhibiting two lights; the upper bright, having a star-like appearance, and the lower red. There is also a tide-light shown when there are 8 feet water on the bar. The distance between the lights is 850 feet; and they bear from one another S.E. by E. ¼ E., and N.W. by W. ¼ W., and are leading lights for entering the harbour, and when kept in one lead over the bar in the deepest water. The upper or bright light may be seen 12 miles off; the red 9 miles; and the tide light 4 miles off. Vessels drawing 7 feet water may make directly for the bar so soon as the tide-lamp is lighted. A flag is hoisted in day-time at half-flood, and continues to be so until half-ebb. About a cable's length S.W. of the south pier lies St. Nicholas Rock, which dries with spring tides only; you will avoid it by keeping the two red buoys on the starboard hand coming into the harbour, the breakwater being on the larboard hand. There is an iron steam tug for towing vessels in and out; and the bar and harbour are being further deepened by means of a powerful dredging machine.—On the 1st January, 1859, the colour of the tide-light will be changed from bright to *red.*

Troon Harbour has an extensive pier and breakwater, with 4000 feet of quayage room, and an average depth of 12 feet at low water; at the outer pier the rise and fall of the tide is from 8 to 11 feet. About 1 mile S.S.W. of Troon Pier is the Lady Isle, a large patch of rock with a large and small Beacon on it. These Beacons are not leading marks, and there is plenty of water inside the Isle. At the distance of half-a-mile N.E. from the pier, is a half-tide shoal, on which is a red

buoy. Here are exhibited two Lights: one, on the inner end of the Pier, intermittent, 40 seconds bright and 20 obscured; the other on the Pier-head, red. They bear from each other N.E. ½ N. and S.W. ½ S. 350 yards; and are visible, respectively, 9 and 6 miles. This harbour is perfectly safe, and may be run for in any weather by vessels of moderate draught of water, as there are no dangers but what are to be seen, and pilots are always in attendance. An extensive open wet dock or basin, 400 feet long by 300 wide, with 20 feet at low water tides, and capable of admitting the largest ships or steamboats, adds to the importance of this port. A branch of the Glasgow and Ayr Railway comes down to the harbour, as does also the Railway of the Duke of Portland from Kilmarnock. There is also an extensive ship-yard, with one of the finest graving docks in the west of Scotland, capable of receiving ships of the largest size. The magnetic bearings and nautic distances are as follows:—From Troon pier head to Ayr Harbour, S. by W., 5 miles; Dunure Point, S.W., 9 miles; Beacon on Lady Isle, W. by S., 2½ miles; Pladda Lighthouse, W. 16½ miles.

Irvine.—Four miles and a half from Troon are the town and harbour of Irvine; and nearly midway, is Lappock Rock, upon which was erected, in 1843, a beacon about 40 feet above the level of the sea, bearing S.W. Southerly, distant about 2 miles from Irvine bar. There are now from 12 to 13½ feet water on the bar at high water spring tides; ordinary tides, 12 feet; and at low water 4 feet. There is a red buoy placed in the *fairway* of the river, about two cables' length from the bar perch, which must be kept on the starboard hand on going in. There are also pawls all the way up the river on both sides. Vessels running in should keep the middle of the river, and run right up till they come to the end of the stone quay, where they can either beach or anchor.

Ardrossan.—At about a mile to the N.N.W. of Saltcoats is the new and capacious harbour of Ardrossan, in which more than 100 sail of coasters may lie alongside the quays; or they may ride safely without it, in good ground with any wind. The pier and breakwater completely protect the harbour from southerly and westerly winds: and Horse Isle, with the other rocks, shelter it from the N.W. In place of the two previously existing harbour lights, a new lighthouse, exhibiting a RED LIGHT, has been erected at the extremity of the Breakwater. This light illuminates an arc of from 15° to 20° in the direction of the open channel leading into the harbour, and bears from the middle of this channel E. and by N., on which bearing it is brightest. A ves sel running for Ardrossan Harbour sh steer the usual course from Pladda wards Cumbray Light, and when al 14 miles past the former, and 7 m from the latter light, the Ardrossan L will be seen, in favourable states of weather, on the starboard, at the dist of about 5 miles, and bearing E. by In running into the harbour the li should never be closed; but the ve must be kept within the illuminated sp in which there is nowhere less tha feet at low water. A red can buoy ma the north side of the channel by which is on the west Grinan Rock, a perch on the Grinan; both to be kep the larboard hand. The entrance loc the dock is 160 feet long between gates, and 40 feet wide, there bein depth of water on the sill of the loc 20 feet at average tides. The rail trains come alongside the ships. Th are a graving dock and a patent slip tached to the dock.

THE **River Clyde** is remarkable the ease and safety with which it may navigated. It is provided with numer well sheltered harbours, and spaci arms of the sea, of easy access, and ca ble of containing the largest fleets. In proaching it, there are neither rocks, shoals, nor rapid tides to be feared. A is a high mountainous rock in the mo of it, conspicuous at more than 10 leag distance, and serves as a remarkable l con to direct ships to it; there are 4 Li Houses to direct mariners farther up, to good shelter in the night; and ther hardly one opening to be seen but wh stranger, without draft or pilot, mi venture safely to run for in the day ti and find good anchorage within it coming up the SOUTH or St. Georg Channel, and having got up as far as Ai Rock, say passing it at 2 miles' distan the course by compass for Cumbray H is N.N.E. ½ E. nearly, and will carry clear of Holy Island, which forms the h bour of Lamlash. If at night, the LIG will be seen on Pladda, a small low land off the S.E. of Arran Isle. The d tance between Ailsa Rock and Pla Lights is about 15 miles, and from Pla Lights to the Light on Cumbray Island, It would, however, be advisable for str gers to keep between the Rock Ailsa a the Island of Arran, till day light. Wh coming in the NORTH Channel, partic larly during the winter months, with N.W. gale, ships should never run to le ward of Arran during the night, but soon as they pass the Island of Sanda, i side the Mull of Cantyre, they should all means haul by the wind, on the l board tack, with the ship under easy s standing 2 hours each way. By this y

keep in smooth water, and when daylight comes, can act according to circumstances. Should you run to the leeward of Arran, the wind, which was N.W. will be found at N.W. by N. and sometimes N.N.W. blowing heavy, with very heavy gusts, fit to tear every thing away. Keeping to windward, should the gale increase or continue long, you have Loch Ryan under your command; its entrance about S. ¼ W. from Ailsa; but once getting to leeward you can never regain your ground and you have a lee-shore to encounter. On approaching the Cumbray Islands, 3 entrances appear before you: the middle one is the main ship channel. In clear weather you cannot mistake the Cumbray Island, being distinguished by an old Light Tower on its highest part, a little to the southward of the present Light-house, which is low down by the side of the channel. There is a good ship channel to the southward of the Cumbray Island, but strangers never should attempt it without a pilot. The part of the Island of Cumbray on which the Light stands, is bold and steep close to. Opposite to it lies the Island of Bute, the nearest head or point of which is called Garroch Head, distant about 3 miles. Entering between these 2 head-lands, with the Cumbray Light on your starboard hand, when in mid-channel your course to the Light on the Point of Clough is N.E. ½ E., 12 or 13 miles. In proceeding on this course, a little more than half distance, you will fall in with a REVOLVING LIGHT on your larboard hand, situated on the Point of Toward, which forms the starboard side of the entrance of Rothsay Bay. In passing the Clough Light be careful to keep pretty close to, (say ½ a mile distant) as on the opposite shore, off the town of Dunoon, lies a ledge of half-tide rocks, called Gantocks; this precaution is the more necessary as the high lands on both sides might deceive you as to distance. The Clough light also stands on a bold shore. The river afterwards inclines a little to the eastward, until you get opposite to Gourock, situated in a small bay on your starboard side. Opposite the middle of this bay is good anchorage; and here it is advisable to anchor till a pilot comes on board. The mark, the centre of the bay with the Clough Light on with Kempuck.

Greenock, which is the chief port for large vessels in the Clyde, has three fine basins adjacent to each other. They are known as the west, the east, and the Victoria harbours. Between the pier-heads, at the entrance of the west harbour, there are about 20 feet at high water, spring tides, and from 10 to 12 feet at low water; alongside the quays is a depth of from 17 to 19 feet. The east harbour contains about the same depth of water, but is more spacious; on the quay is a crane capable of raising 50 tons. The custom-house stands between these two basins. On the eastern side of the east basin is the Victoria harbour, opened in 1851. It has an area of 6 acres, is 563 feet long, and 458 feet wide, with a uniform depth of 26 feet at high water, and 14 feet at low water, spring tides. On the quay is a large crane of 70 tons lift; there is also a steam crane of 15 tons lift, for loading coals. Connected with the east and west harbours are graving docks, the widths of their respective entrances being 34 and 38 feet. A small light is placed on the quay, in front of the custom-house, as a guide to the shipping, and lights of a red colour are exhibited at the several entrances of the port. In the roadstead are warping buoys. The best place for coasters is *Crawford's Dyke*, a little above the quays, where they will be out of the way, and have room to swing. About a mile N.N. W. of the custom-house are two fixed red lights, visible at the distance of 2 leagues: when in one, bearing W.S.W. ¾ W., they lead to the anchorage below the "Tail of the Bank."

COCKLE BANK reaches from the east end of the town of Greenock to the *Old Castle of Newark* at Port Glasgow.

Port Glasgow.—The channel from Greenock to Port Glasgow is narrow and intricate as far as *Garville Point*, and should not be attempted without a pilot; about a ¼ of a mile N. from Garville Point is a buoy on the south edge of the *Cockle Bank*. Keep that buoy on the larboard hand, and run about a cable's length from it. Near the E. side of Garville Point is a beacon, which pass on the starboard hand, keeping not less than 2 ships' length from it, nor more than half a cable, to avoid the Cockle Bank. Between this last-mentioned beacon and *Inch Green* is first a buoy and then a beacon; keep both on the starboard side, sailing at the distances before directed. There is also a beacon near the quay of Port Glasgow, which you must pass at 2 ships' length on the starboard side, and enter the harbour about high water. At the quay there is water for small craft only. At low water it is dry, and with spring tides is capable of containing vessels that draw 10 and 11 feet water; the ground is soft and easy to lie on, and a good place for graving ships' bottoms is made here. A light is exhibited on the pier to direct the steamers; and at the entrance of the harbour is a light of a red colour on the west quay. About four miles from Port Glasgow is

Dumbarton, a creek in the mouth of the river Leven. Vessels drawing not more than 8 or 9 feet may go in at high water. If pilots cannot be had, the follow-

ing directions may be useful. Weigh anchor and sail from Port Glasgow at half flood; keep a cable's length from shore at the Old Castle of Newark; from thence steer eastward between Audoch and Dumbarton Castle, about 2 miles, until you come abreast of Finlayston; then steer south-eastward for the western buoy off Dumbarton Castle; there anchor until it is high-water. Leave that buoy to the larboard, and the other on the starboard, and stand in for the entry, keeping that side close until you have passed the Castle.

Between Port Glasgow and Bowling Bay are three Lights: at Auchenleck, the Garmoyle Floating Light, and the third about a mile above Dumbarton: all to be left on the starboard hand in going up the river.

Glasgow.—On the lower or western extremity of Broomielaw Quay, and larboard hand going up the river, a light, of star-like appearance, is placed for the direction of shipping.

Isle of Bute.—To the westward of the Isles of Cumbray is the Isle of Bute, on the eastern side of which, directly opposite Great Cumbray, is Killichattan Bay, where vessels may anchor in from 11 to 16 fathoms. To the northward is the Bay of Rothsay, the ground good and clean, and well sheltered: you may anchor in any part on the E. side of the Bay: but the most convenient place is 2 cables' length N. of the pier-head.

Kyles of Bute.—The channels between Bute and the Main are termed the Kyles of Bute: their access is easy, and well sheltered, the bottom is extraordinarily good, and the depth sufficient for the largest ships. They are distinguished by the names of the East and West Kyles.

Island of Arran lies to the southward: at its S. E. extremity lies the ISLAND OF PLADDA, upon which a LIGHT HOUSE is erected, 3 miles north-easterly of which is the ISLAND OF LAMLASH. This island lies right in the front of the bay and forms a good and well-sheltered anchorage: the N. side of it is shallow about 2 cables' length from the shore, but the best parts to ride in are off the houses in Holy Island, in 9 or 10 fathoms, or about 2 cables' length E. by N. or E.N.E. from the pier at the town of Lamlash. A red buoy is placed on a rock, with 14 fathoms water in the south entrance to Lamlash. You can go either side; but the Island side is best. The lighthouse on Pladda exhibits two bright fixed lights, and may be seen from N.W. by W. southerly, to N.E. by E.; the upper at 17 and lower at 14 miles' distance.

Loch Fyne.—To the northward Arran is Loch Fyne, an extensive a good place for shipping, but is too d in the middle for anchorage. Betwe Ruinahoterach Bank and Ilan Yone th are from 20 to 30 fathoms, and fr thence to Inverary from 30 to 70 fathom near either side, therefore, about a cabl length or two from the shore, is the b anchorage for large ships, and the nor side is reckoned better than the south.

Campbeltown Harbour lies abo 11 miles south-westward of Point Ca radale; it is large, well sheltered, t ground good, and there is very little be feared in sailing into it. On comi from the S. or S.E., you will first see t Island of Devar and the *blind* sound to t south-west of it, through which is a vie of the town. On Otter Buoy, the nort east point of Devar Island, is a ligh house, from which is exhibited a brigh light every half minute; it is visible fro N. ¼ W. to E. by S. by the N., and ma be seen in clear weather about 15 miles This light is a good guide for clearin Paterson's Rock; if kept in sight, it wil lead about 3 miles to the eastward of it In standing in for Campbeltown at night be careful to keep to the eastward unti the light upon Devar Island is fairly open; then stand for it, keeping it *on th* port hand, and steering about one o two cables' length from the point of th Island, until you open the harbour; then haul up W. ½ N., or W. by N., still *keep*ing about the same distance from the shore. When abreast of the western end of Devar, a black buoy will be observed on Mullbeg Bank, about 60 fathoms *from* the island; this must be passed on the port hand. Steering half a point more northerly, you will next pass, on your starboard hand, a red buoy, placed nearly opposite a sandbank, which is always dry, except with spring tides. On this bank is a beacon, painted black. There is also another beacon, painted red, on Trench Flat. Hence the red light on the north pier will be seen, and soon after, on passing Trench Point, the green light shown from Dolintober Quay. Now steer W.N.W., or N.W. by W., and you may come to an anchor in any part of the loch—observing, however, to give the west shore a berth of two cables' length. In the loch inside the beacons, the deepest water is on the north side; a stranger should, however, keep the lead going if working in, and put about the first shoal cast, as the bank is steep on both sides. The harbour has a depth of water of from 5 to 10 fathoms.—Masters of vessels turning in with a west wind at night, must be careful not to shut the light on the Island when standing south, but tack as soon as it becomes obscured

by the high land of the Island, for in that case they are close to the South Bank, and the water shoalens at once; but by keeping the light E. by S. they will go clear. At night, however, it will be better to anchor at Black Rock, on the north side, about a quarter of a mile E.N.E. from the red buoy, or when Devar Light bears about S.E., in 4 or 5 fathoms water, good holding ground, and well sheltered, being within Macrinian's Point, which forms the north entrance to the harbour.

Sanda Island.—About 6 miles to the southward of Campbelton is Sanda Island, where is a kind of harbour fit only for small vessels in summer time, or in moderate weather, the anchorage is on the N. side to the westward of Ilanagurach. On the ship rock of Sanda, in lat. 54° 16′ 30″ N., and lon. 5° 34′ 55″ W., a lighthouse, exhibiting a fixed red light, has been erected. It is visible from N.W. ½ W. to S.E. by E. ½ E. by south-westerly, and may be seen at a distance of 5 leagues. It bears by compass from Pladda Light, W. by S. ¾ W., eighteen miles; from Ailsa Craig, N.W. by W. ⅛ W., sixteen miles; from Corsewall Light, N. by W. ¼ W., twenty-two miles; from the Maiden's Rocks Lights, N.E. ¼ N., twenty-one and a half miles; from N.most Point of Rathlin Island, S. E. by E. ⅛ E., twenty-one miles; and from southernmost Point of the Mull of Cantyre, S.E. ¾ E., six miles. From Sanda Light, E. by S., distant one and a half miles, is the Paterson's Rock Buoy, pointing out a dangerous rock, uncovered at low water. When the Mull Head of Cantyre is seen to the southward of Sanda, you are to the southward of this rock; when the Mull Head is to the northward of Sanda, you are to the northward of it. When Gluinmore Rock appears to the west end of Ilanagurach you are to the eastward: and when Gluinmore Rock appears to the east end of Ilanagurach, you will be to the westward of Paterson's Rock.

Tides.—The stream of flood within a mile of the Mull Head runs southward, and turns sooner than at a greater distance from the land, so that a vessel keeping near the W. coast of Cantyre, will have the benefit of the stream 2 hours before one above a mile from the land.

Magnetic Bearings & Distances

FOR THE WEST COAST OF SCOTLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

ROSS, OFF KIRKCUDBRIGHT (Lat. 45 46 N., Long. 4 5 1 W.)

		MILES.
To Maryport	SE by E	20
Workington Harbour	SE ¼ S	19
Harrington do.	SE by S	20

ROSS, OFF KIRKCUDBRIGHT

		MILES.
To Whitehaven Harbour	SE by S ½ S	21
St. Bees' Head Light	S by E ½ E	21½
Rossall Landmark	S ¾ E	61½
Buoy Nelson, off Preston	S	71
Zebra Channel, Liverpool	S ⅛ W	81
Bell Buoy, Liverpool	S ¼ W	82
NW Lightship, Liverpool	S ¾ W	83
Beaumaris entrance	SSW	85
Bahama Lightship, I. M.	SW by S	26

MULL OF GALLOWAY (Lat. 54 38 9 N., Long. 4 51 20 W.)

To Beggar Scar Rock	E ¾ S	6
Maryport Harbour	ESE	47
Workington do.	SE by E ¾ E	44
Harrington do.	SE by E ¼ E	44
Whitehaven do.	SE by E	44
St. Bees' Head Light	SE ¼ E	43
Ravenglass	SE	53
Walney Light	SE by S ¼ S	67
Point of Ayre, I. M.	SE by S ¾ S	21
Jurby Point	S ½ E	19
Peel Harbour	S by W	26
Calf of Man	SSW	38
Bardsey Island Light	SSW ¼ W	113
South Bishop Light	SW by S	174
Smalls Light	SW ¾ S	180
Tuskar Rock Light	SW	153
Arklow Lightship	SW Westerly	124

POINT OF CORSEWALL (Lat. 55 0 29 N., Long. 5 9 28 W.)

To Larne Loch Light	W ¼ N	24
Fair Head	NW ½ N	37
Mull of Cantyre	NNW	30
Sanda Light	N by W ½ W	26
Pladda Light	NE by N ¼ N	25
Ailsa Rock	NE by N	14½
Cumbray Light	NE ⅝ N	43
Ardrossan Harbour	NE	40

TROON (Lat. 55 33 N., Long. 4 41 W.)

To Heads of Ayr	SW ½ S	8
Corsewall Light	SW ¾ W	36
Copeland Light	SW by W	58
Ailsa Rock	SW ¾ W	22½
Larne Loch Light	WSW	56
Maidens Lights	W by S ¾ S	55
Pladda Light	W	16

ARDROSSAN (Lat. 55 38 27 N., Long. 4 49 28 W.

To Troon	S by E	7½
Ayr Harbour	S	11½
Heads of Ayr	S by W ½ W	13
Loch Ryan	SW ½ S	38
Corsewall Light	SW	40
Ailsa Rock	SW ½ W	26
Copeland Light	SW ½ W	61
Pladda Light	SW by W ¾ W	17

CUMBRAY LIGHT (Lat. 55 43 16 N., Long. 4 58 W.)

To Ardrossan	S ½ E	6
Ayr Harbour	S ¼ E	12
Heads of Ayr	S by W	18½
Turnbury Point	SSW	23
Loch Ryan entrance	SW by W	42
Corsewall Light	SW ⅝ S	43
Ailsa Rock	SW ⅓ S	29½
Copeland Light	SW	64

PLADDA ISLAND LIGHT (Lat. 55 26 N., Long. 5 7 9 W.)

To Cumbray Light, from 1 mile North of Pladda Light	MILES. NE	19
Irvine Harbour	E by N	18
Troon do.	E	16
Ayr do.	E by S ½ S	16
Turnbury Point	SE by S	11
Loch Ryan entrance	SSW	24½
Ailsa Rock	SW by S ½ S	11
Corsewall Light	SW by S ½ S	25
Copeland Light	SW	45
Belfast Loch entrance	SW ¾ W	43
Larne Loch Light	SW by W ½ W	42
Maidens Lights	SW by W ¾ W	36

MULL OF CANTYRE (Lat. 55 19 N., L 4 49 W.)

To Sanda Light	SE by E ½ E	MI
Ailsa Rock	SE ½ E	
Corsewall Light	SSE	
Calf of Man	S ½ W	
Copeland Light	S by W ½ W	
Maidens Lights	SSW	
To Fair Head	W ½ S	
Inisterhul Light	NW by W	
Mull of Kinho	N by W ¾ W	
Loch Ryan entrance	SE by S ½ S	
Larne Loch do.	SW by S ½ S	
Rathlin Island, N end	W by N ½ N	
Sound of Isla, E. en	N by E ½ E	

MULL OF CANTYRE TO THE NORTH END OF SCOTLAN

The **Mull of Cantyre** is a high rocky promontory, running to the southward, and approaching within 11 miles of the coast of Ireland. On its southwestern extremity is a lighthouse, which exhibits a fixed bright light, visible 22 miles in clear weather, from N. N. E. ½ E. to S. by W. ¼ W. by W. Off Dunimore Head, which is about 5 miles to the northward of the lighthouse, is a rock, lying about a cable's length from the shore, which dries at half-ebb. A rocky shoal, with 3 or 4 feet on it at low water, lies further north, about a quarter of a mile off Usid Point, at the Saltpans: on this shoal the sea always swells, and breaks in the calmest weather.

West Loch Tarbit, on the main of Cantyre; the bay of which is well sheltered, and the depth of water for a mile up sufficient for the largest ships; but the ground, being of soft mud, does not hold well with hard gales, except there is a full cable out. The common places of anchorage are, for large ships, off Ardfarik, in the mouth of the loch; and for small vessels, on the east side of Ilanagalligan. On the S. side of Ilan Trayn are several rocks above ½ a cable's length from the island, or ⅓ from it, and ⅔ from the starboard side of the entry. There is also a sand bank extending from the E. Point of Corran, nearly ⅓ over to the N. side of the loch; to avoid which, keep nearest to the N. side, or keep the easternmost extremity of Ilan Trayn in a line with the W. end of the highest hill in Gia Island. About 3 miles up the loch, off Duneturik, nearest to the N. shore, is a small blind rock, having 5 feet water over it. Keep the middle of the loch, and you will avoid it.

Loch Achastil is a fine harbour, and fit for ships of any size; the ground good, and only one rock, about midway, within it, covered only with spring-tides. Ships may anchor in any part of this loch ab Castle Swein. The danger to be avoi in sailing toward Achastil is a small r on the N. side of the two Mackcarm Islands, which dries with spring-tides a

Jura Island.—To the westward is Island of Jura; on the S.E. side of wh is Loch Daguall, with good anchora well sheltered, and water enough fo merchant ship. This anchorage is v convenient for vessels bound to the sou ward. You will anchor near the middle the bay, when Gia Island is just shut in the N. point of the entry, and the nor ernmost Pap of Jura bears N.W. ½ W. running either in or out, stand not too ne the sides, for on the N.N.E. and N.W. sid of the bay it shoals nearly 2 cables' leng from shore.

Sound of Islay is the common tra for shipping to and from the N. A tide o night is the longest any vessel should st here except in Macdougal's Bay, whe one cable may be made fast to a ring rock on the shore. In entering Islay Sou from the southward, you are to bring Gla hilan Island to bear N., or keep within cable's length or two from the Islay shor and you will clear the Skerchray Roc which lies on the starboard side, W. of th small Island of Frochilan.

Loch Tarbet is filled with sma rocks, especially on its southern sid it is therefore hazardous to enter. Th anchorage is ¼ of a mile above Guir more, but the best and safest place near the mouth of the Loch in Glenabe rig Bay. This is easy of access, and ha 3 and 4 fathoms water. Keep a cable' length from the point in passing, and an chor the same distance eastward of it About a mile eastward of this anchorag is a cluster of small rocks above water on the E. side of these a ship may rid

safe in 5 fathoms water, keeping ½ a cable's length from them in going up.

Loch Indaal.—Having rounded the Mull of Kinho, which is the south-western part of Islay, you will open Loch Indaal. This may be said to be the only place in Islay where vessels in winter time can ride in safety. Here small vessels drawing 9 and 10 feet water may ride, and be well sheltered; larger ships, drawing 15 feet, must ride with the mouth of the loch open, and will therefore not be so safe when the wind blows from the W. or S.W. But the best anchorage is at the further end of the loch called Kilirn Bay, when Bomore House bears S.S.E., lying somewhat nearer to the S. than to the N. side of the harbour, in 3 fathoms, sandy ground. Larger ships anchor more to the westward bringing Bomore House S.E. by E. in 4 fathoms. At the entrance to this harbour are 2 spits of sand; one on the S. side, which never dries, extending from Atturach Point northwards; the other running from the opposite side southward, which dries gradually. These two spits of sand almost enclose the harbour. In the channel between their two points are 2 and 2½ fathoms, low water, spring-tides.

Rhinns of Islay Light, on the northern side of the entrance to Loch Indaal, upon the small island of Oversa, bearing by compass from the Mull of Kinho, N. by W. ¾ W., distant 10 miles; and from the STATIONARY LIGHT of the Mull of Cantyre, N. by W. ¾ W., 33 miles. From the north eastern extremity of the Island of Rachlin, N. ¼ E. distant 25 miles. From the REVOLVING LIGHT of Innistrahul, E., distant 28 miles. From the Revolving Light, producing a bright flash once in every minute, on the Rock of Skerryvore, distant from Hynish Point, in Tyree, W.S.W. ½ W., 10⅓ miles, it bears S. ¼ W., distant 44 miles. From the Rocks of Dunheertach, lying 11 miles S.W. from Icolmkill, it bears S.S.W., distant 28 miles; and from Tanvore Head S.W. by S., distant 6½ miles. It will be known to mariners as a STATIONARY and a FLASHING LIGHT. To a distant observer it appears like a star of the first magnitude, producing a bright flash of light every 5 seconds, without those intervals of total darkness which characterise other Revolving Lights upon the coast. In clear weather it will be visible at the distance of 6 leagues, and is open from N.N.E. to S.E. (westerly); half-a-mile off Cull Point it disappears.

Oronsa and Colinsa Islands.—Oronsa is much the smaller island, and is nearly 4 miles to the northward of Ruinanishag Point, in Islay. Off its southern sides are several rocks, one of which extends W.S.W. from Gudimel, a small island on the S.E. part of Oronsa. This rock dries at half-ebb. There is a shoal also about ¼ of a mile to the southward of the middle of the rock, on which are 6 feet at low water. At the S.W. point of Oronsa is Ilana Roan, one mile S.W. of which are 2 or 3 rocks, which dry with spring-tides only, and some shoals, on which the sea always breaks. A leading mark to go to the southward of these dangers is Ruvaal Point in Isla, on with the S. end of Beninore Hill in Jura. Sail not nearer to Colinsa than till Ruvaal Point bears on the middle of the hill. To the W. of Colinsa are several rocks and shoals, lying a mile out from Ardskinish Point, some are above, some below, and others dry only at low water; you will avoid the whole of them by keeping about 2 miles from the shore, or one mile from those rocks you see above water. There is no anchorage on the W. side of Colinsa, and but indifferent on the E. side.

The **Gulf of Coryvreckan,** which is formed by the N. end of Jura, and the Island Scarba, is distinguished by a violent breaking sea with whirlpools, partly occasioned by an excessively rapid stream running over a steep rock, at the N. side of the Sound, near the W. Point of Scarba. On the Jura side of the Gulf the sea rages, and forms whirlpools, both with ebb and flood: but the waves do not rise so high as on the Scarba side of the Gulf.

The Sound of Mull Lighthouse is situated on a small rock called Runa Gall, on the south shore of the Sound of Mull, Argyllshire, about one mile northwards from Tobermory. The tower is about fifty yards within the high water mark of spring tides, and is connected with the shore by a bridge of two spans. The Light is an azimuthal condensing Light, and shows a FIXED RED LIGHT northwards out to sea; a FIXED GREEN LIGHT towards the New Rocks, the Red Rocks, and the Stirks Rocks, in the Sound of Mull; a FIXED WHITE LIGHT southwards into the Sound of Mull. The Light is exhibited from a tower of masonry about 55 feet above high water of spring tides, and may be seen in clear weather at the distance of about twelve nautic miles.

Ardnamurchan Point.—A Lighthouse, exhibiting a Fixed Light of the natural appearance, has been erected on this point; and bears by compass from Caillach Head, N.E. ¾ E., distant 7 miles; from the Cairns of Coll, E.S.E., 8 miles; from Kana Head, S. ¼ E., 30 miles; from Scour of Eigg, S.W. by S. ¾ W., 11 miles; from Bo Askadil Rock, W.S.W., 7 miles. It is visible 18 miles in clear weather.

Ushenish Lighthouse is situated on the most easterly headland on the eastern side of the Island of South Uist, one of the Hebrides, in the county of Inverness. The Light is a dioptric first-class FIXED RED LIGHT, and is exhibited from a tower of masonry erected on the headland. The Light is about 176 feet above high water of spring tides, and may be seen in clear weather at the distance of about eighteen nautic miles.

Island Glass Light, situate on the eastern side of Glass, and on the western side of the channel between Skye and the Long Island. This light is STATIONARY, appearing like a star of the first magnitude, at the distance of 5 or 6 leagues, from W. by S. to E.N.E. ½ E. by the S.

Skergriatick Rock.—A Beacon, painted Black, has been erected on this rock, situate in the Minsh. It consists of a Frame-work of iron, surmounted by a cylindric cage, and rising to about 30 feet above high water spring tides. There are steps leading from the rock to the cage, in which shipwrecked mariners may find a temporary shelter. This beacon bears by compass from Skernamule beacon N.N.W., distant 3 miles; from Dunvegan Head, in Skye, N.E. ¾ E., 18 miles; from Island Glass Lighthouse, S.E. by S. ⅜ S., 7½ miles; from the Greater Galtimore (one of the Shiant Islands), S.W. ¼ S., 8 miles. There is foul ground nearly all the way from Skergriatick Rock to Fladdahuan Island, from which the beacon lies 2½ miles to the N. by E.

Loch Terriden.—In entering Loch Terriden avoid Runawhagh Point, its southern entrance, a little way off which point is a rock under water, which dries at spring tides. Excepting this rock, there is no danger in sailing into or up this Loch; for Skerintram Rock, which lies on the N. side, is always above water, with deep water all round. Here therefore the access is easy, the ground good, and so well sheltered, that several hundreds of the largest ships may ride with safety in all weathers. Its entry is 2½ miles wide, the Loch running in S. by E. ½ E. to abreast of Loch Shieldag, then S.E. by E. to the furthest end. The best place for anchorage is in Loch Shieldag, between the two narrows, on the S. side of the basin, or any where above the second Narrow, which is what may properly be called Loch Terriden.

Loch Gerloch.—About 4 miles further N. is Loch Gerloch, a large and well sheltered harbour, the ground in all parts clean, holding well, and capable of containing a fleet of the largest ships; its entrance is between Coupachar Point and Longa Island; distant from each nearly two miles. There are no da either in or near it; and when it doe blow hard from the W. or S.W. ships ride in any part, particularly on t side of Island Longa. In winter the anchorages are between Flowerdal the Island of Horisdale, in from 9 to thoms water. Small vessels may ri the W. side of this island, S. E. of a above water.

Loch Yew.—From Longa Islan Ru Rhea the bearing and distance a E. ½ N., 3½ leagues. Five miles t eastward is Loch Yew, a place large well sheltered, forming a bay of eas cess, a moderate depth of water, and ing good holding anchorage, where w fleets may ride in the greatest safet all times. The entrance to Loch Yew mile wide, and nearly off its western p lies the small Island of Fura, with 2 islets to the eastward of it; there is a little rock off the northern point of F keep therefore at a distance in passin and the channel in is free from danger the middle of the bay is Yew Island, at northern point of which are some r above water. The best places to ride, on the E. side of the Island Yew, or on E. side of the bay off Tunag, and off veraspadale at the opposite side of Loch.

Loch More or Great Loch Bri —To the northward of Loch Beg, are veral islands, lying before Loch More, Great Loch Brim. Loch More is a gr and safe branch of the sea, capable of commodating the largest fleets, and h ing no rocks or dangers within it, exc a small ledge on the E. side of Ullap extending above a cable's length fr that shore, which is avoided by keepi ½ from the Ullapool side. You may chor in this bay in 14 and 15 fathoms w ter, above a cable's length from the sho or any where above Logie Point, in fr 13 to 24 fathoms. Should you, in enteri or sailing from this Loch, go between t larboard point, or Ru Handerrick, and t Carniskere Islands, remember to give t former a berth on account of a rock call Nuela, which lies nearly a cable's leng from the shore, and dries about half eb

Loch Kylescough is nearly 7 mil E.S.E. ¼ E. from Ru Stoir, and 3½ miles the same direction from Ouldenay Islan This is a large and well sheltered branc of the sea, the approach to which is saf and the anchorage good; but for som miles within the Loch the water is t deep for ordinary vessels, being from 5 to 50 fathoms, unless you carry an an chor on shore. Above the Island Ranic where the contracted channel commenc again to widen, ships may anchor an

where, the stream in the narrowest part running not more than 1 mile an hour.—The only rock necessary to notice, lies near the Island Calaway, off the larboard side of entrance; it bears W.S.W. from it and dries at low water; keep Runachusan Point in Ouldenay Island on with the extremity of Ru Stoir, and you will clear this rock to the southward. At the N. side of the entrance to Loch Kylescough is Loch Shark, and N. E. of Shark lies Loch Calaway.

Loch Inshard.—One league to the eastward of Lusford is Loch Inshard, the last bay before you round Cape Wrath. In sailing in great caution must be observed, as there is a rock lying right at the entrance, which appears at spring ebbs only. Within the loch you will be well sheltered, your depth moderate, and your ground good. Sail up until you are landlocked, and anchor near the north or east side. To the north west of Loch Ardicar are some Islands, close to the main, called Ilanarone; and nearly N.N.E. of these, 4 miles, is Balag Island, having a small rock above water, at both the N. and S. extremities. This Island lies about a mile from Ru Wochel. Near the latter is a rock above water, close to the land. From hence to Cape Wrath the coast is high and rocky. Off Cape Wrath are said to lie several rocks under water, called the Stags. Vessels in sailing round this headland should always give it a good berth, of 1½ or 2 miles, and steering eastward, they will reach the Pentland Frith.

Isle Oronsay Lighthouse is situated on a low point at the south-east end of the Island of Oronsay, Inverness-shire, in the Sound of Skye, also called Sound of Sleat. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT, from a tower of masonry about 58 feet above high water of spring tides. The Light may be seen in clear weather about twelve nautic miles.

Kyleakin Lighthouse is situated on a point of rock which covers at high water spring tides, and projects from the west end of Eilan Dool, or Gillean Island, in Ross-shire, at the western entrance of "The Narrows," leading to Loch Alsh. The tower is about fifty-three yards within the high water mark of spring tides, and is connected with the Island by a bridge of five spans. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT in the fairway of the Sound of Loch Alsh, and a FIXED WHITE LIGHT in the fairway leading to the Sound of Applecross, and which White Light extends southwards to Pabba Island. From thence it shows a FIXED RED LIGHT, extending eastwards along the shore of Skye to the south of the fairway of Loch Alsh. It also shows a FIXED RED LIGHT to the north-eastwards of the fairway to the Sound of Applecross. To the north of the fairway of Loch Alsh the Light is not shown. It is exhibited from a tower of masonry about 53 feet above high water of spring tides, and may be seen in clear weather at the distance of about eleven nautic miles.

Rona Lighthouse is situated on the northern end of the Island of Rona, in Inverness-shire, between the west coast of Ross-shire and the Island of Skye. The Light is a catadioptric second-class holophotal FLASHING WHITE LIGHT, showing a flash EVERY TWELVE SECONDS. It is exhibited from a tower of masonry erected on a peak at the north-east point of the Island. It is elevated about 222 feet above high water of spring tides, and may be seen in clear weather at the distance of about twenty nautic miles.

Cape Wrath Lighthouse, erected on the Cape, forming the north-western extremity of the main land of Scotland, in lat. 58 deg. 37 min. N., and in lon. 5 deg. W., bears from Hoy Head in Orkney, W. ¾ N., distant 50 miles; from the Butt of the Lewis, E. by S. ½ S., 41 miles; from the rocks called the Stags off the Cape, S. W. by W. ½ W., about 1 mile; from the sunken Rock called the Nun, S.S.W. ¾ W., distant 15 miles; and from the Islands of Stack and Skerry, W.S.W., the former 35½ and the latter 38 miles distant. It is known to mariners as a REVOLVING LIGHT, of the natural appearance, changing with one tinged red, which attain their most luminous effect every two minutes, and become, to a distant observer, totally eclipsed for a short time. The light is visible from S. ½ E. to S. W. by W. by the N., at the distance of 10 leagues.

Dunnethead Light, on the Northern extremity of the mainland of Scotland, in lat. 58 deg. 40 min. N., bears by compass from the N. end of the Island of Stroma, in Pentland Frith, W.N.W., distant 7½ miles; from Hoy Head, leading to Hoy Sound, S.S.W., distant 13 miles; from the Stack and Skerry, S. by E. ¾ E. distant thirty-three miles; and from Cape Wrath, in Sutherlandshire, S.E. by E. ¾ E., distant 54 miles. In reference to these bearings, the light will be visible to the mariner in a northerly direction from S.E. ½ E. to W. by northward. The Light is STATIONARY, and being elevated 346 feet above the medium level of the sea, will be seen like a star of the first magnitude, at the distance of from 7 to 8 leagues, and at lesser distances according to the weather.

Magnetic Bearings & Distances

FOR THE NORTH AND EAST COASTS OF SCOTLAND.

CAPE WRATH (Lat. 58 37 30 N., Long. 5 W.)

		MILES.
To Ru Store	SW by W	26½
Loch Maddy entrance	W by S	92
Glass Island Light	W by S ¼ S	70
Chicken Head	W ⅜ S	47
Tolsta Head	W ¼ N	39
To Nun Rock	NNE ¾ E	15
Hoy Mouth, Stromness	E ⅜ S	61
Holburn Head	SE by E ½ E	51
Strathy Head	SE by E	35

DUNNET HEAD (Lat. 58 40 16 N., Long. 3 22 20 W.)

To Thurso Bar	SW by W ½ W	5
Holburn Head	W by S	5
Hoy Head	NNE	13
Swona, South end of	E by S	10
Pentland Skerries	ESE	14

SULE SKERRIE (Lat. 59 3 N., Long. 4 13 W.)

To Dunnet Head	SSE	33
Strathy Head	S by W	28
Sumburgh Head, Shetland	E	100
Westra Frith	E by S	40

HOY MOUTH, STROMNESS (Lat. 59 3 N., Long. 3 23 W.)

To Scrabster Roads	SW ½ S	17
Strathy Head	W by S ½ S	23
Lock Erobol	W	45
Cape Wrath	W ¾ N	59

DENNESNESS LIGHT, NORTH RONALDSHA (Lat. 59 23 N., Long. 2 23 W.)

To Foul Island	NE	45
Pappa Island, Shetland	NE ½ E	60
Sumburgh Light, Shetland	E ¾ N	46
Fair Island	E by S	28

START POINT, IN SANDA ISLAND (Lat. 59 16 39 N., Long. 2 22 25 W.)

To Foul Island	NE ¼ N	50
Fair Isle	E	30
Noss Head	SW ½ W	50
Copinsha Island	SW ½ W	22

SUMBURGH HEAD, SHETLAND (Lat. 59 51 N., Long. 1 16 W.)

To Noss Island	NE by E	20
Bucanness Light	SW by S	140
Fair Isle	SW by W	21
Start Point, Sanda I.	W by S ¼ S	48
Foul Island	NW by N ½ N	28

NOSS HEAD (Lat. 58 28 38 N., Long. 3 3 5 W.)

To Duncansby	NE by N	10
Pentland Skerries Lights	NE	12½
Fair Isle	ENE	78
Sumburgh Head	NE by E ½ E	96

TARBERTNESS LIGHT (Lat. 57 51 N., Long. 3 48 W.)

To Troup Head	SE ¼ E	48
Cowsey Point	SE by S ¼ S	18
Burgh Head	S ¾ W	13
Nairn	SW ¼ S	16

KINARD'S HEAD (Lat. 57 42 N., L 2 1 W.)

		MI
To Rattry Brigs	SE by S ⅝ S	
Helmsdale	NW by N	
Noss Head	N by W	
Duncansby Head	N ½ W	
Copinsha Island	N by E	
Fair Isle	NE by N	

BUCANNESS LIGHT (Lat. 57 28 15 Long. 1 46 11 W.)

To Peterhead, S.H.	NNE	
Rattry Brigs	NNE	
Sumburgh Head	NE by N	
Bell Rock	SW	
St. Abb's Head	SW ⅜ S	
Girdleness Light	SW ½ W	

THE GIRDLENESS (Lat. 57 8 15 N., Lo 2 3 2 W.)

To Bucanness	NE ½ E	
St. Abb's Head	SSW	
Bell Rock	SW ¼ S	
Flambrough Head	S ½ W	

MONTROSE (Lat. 56 42 N., Long. 2 27

To St. Abb's Head	S by W ½ W	
Bell Rock	SSW	
May Island	SW by S	
Flambrough Head	S	
Longstone Light, Ferns	S ½ W	

BELL ROCK (Lat. 56 26 3 N., Long. 2 6 W.)

To Montrose entrance	NNE	
Girdleness Lights	NE ¼ N	
Bucanness Light	NE	
Flambrough Head	S ¼ E	1
Buttonness	NW ⅝ W	
Arbroath	N by W ½ W	
Dunbar Harbour	SW ½ S	
St. Abb's Head	S by W ½ W	
Fifeness	SW by W ⅝ W	1

MAY ISLAND (Lat. 56 11 8 N., Long. 2 20 W.)

To Fifeness	N ¾ E	
Arbroath	NE by N ¾ N	
Bell Rock	NE ¾ E	
St. Abb's Head	S ¾ E	2
Dunbar	SW by S ¾ S	
Bass Rock	SW ¾ W	
Inchkeith	W ½ N	2

INCHKEITH (Lat. 56 2 N., Long. 3 8 W.)

To Kirkaldy	N by E ⅝ E	
Elieness	E by N ⅜ N	1
Fidra Island	E by S ¼ S	12
Fisherow	S ¼ E	
Colm Island	NNW	
Garvy Island	W by N ¾ N	
May Island	E ½ S	22

ST. ABB'S HEAD (Lat. 55 55 N., Long. 2 9 W.)

To Buttonness	N	37
Bell Rock Light	N by E ⅛ E	32
Aberdeen, Girdleness	NNE	72
Bucanness Light	NE ⅜ N	95
Bass Rock	NW by N	11
Elieness	NW by N ¾ N	25½
May Island	N by W	20
Fifeness	N ½ W	25

EAST COAST OF IRELAND.

POINT CARNSORE TO ST. JOHN'S POINT.

Point Carnsore is the S.E. point or extremity of Ireland, and lies about 42 leagues from Cape Cornwall, bearing N. by E. ½ E.; from the Small's Light N. by W. ½ W., distant 37 miles. Nearly E. by S. from Carnsore Point, distant 6 miles, lies the TUSKAR, a very remarkable rock, 29 feet above the level of the sea at high water, upon which stands a lighthouse similar to that on the Eddystone, elevated 81 feet from its base. The light revolves every two minutes, showing two faces bright, and one red. The red light is visible 18 miles, and the bright 15 miles. During foggy weather a bell is tolled every half minute. This rock bears from the Smalls Lighthouse N. ½ W., distant 33 miles. Ships coming from the westward and bound for St. George's Channel, should endeavour to see this rock before they shape their course to the northward.

Blackwater Bank, in front of Wexford Bay, is a narrow sandbank running nearly in the direction of the coast, at the distance of from 4 to 5 miles. A buoy is placed at each extremity of this bank. Moored off the north end, in 20 fathoms, at low water, spring tides, is a Light Vessel, which exhibits two White Lights—one Revolving, the other Fixed. The Revolving Light, which attains its greatest brilliancy once every minute, is shown from the mainmast, and the Fixed Light from the foremast of the vessel. The Revolving Light can be seen at a distance of about 10 miles. The vessel has three masts, and carries a Ball at the fore and main-mast-heads; is painted Black, with a White Band, having the word "*Blackwater*," in white letters, on her sides; and lies about 1½ miles E. ¾ S. of the black buoy on the north end of the Blackwater Bank, with the following marks and compass bearings:—Arklow Light Vessel, N.E., 13 miles; Cahore Point, N. by W., 5 miles; Tuskar Lighthouse, S.W. ¾ S., 18 miles. A gong is sounded in foggy weather.

Wexford Harbour is capacious and sufficiently sheltered, but is obstructed by a bar extending across it, over which there are at times but 7 feet water. Buoys are laid in the deepest water across the bar; but to enter this harbour a pilot is necessary.

Arklow Bank is a narrow sandbank off Arklow Bay, about two leagues from the land, and nearly 10 miles long from N.E. by N. to S.W. by S., and from ½ to ¾ of a mile broad; the shallowest part is near the N. end, where the least water is 1 foot; the S. end has from 8 feet to 3 fathoms on it, and except at slack water, you will perceive its ripple; near to its East side are from 13 to 20 fathoms: approach it no nearer than 30 fms. The marks for its southern end are Arklow Rock N.W. ½ N. distant 7 miles, and in one with the northern declivity of the Copper Ore mountains; and the Great Sugar Loaf open to the eastward of the Ballynacarrig Hills, and also of Mizen Head, bearing about N. ½ E. The marks for its northern end are the top of Carrig Mc Rely just open to the northward of Maughry Point, bearing N.W. ¾ N., and the Great Sugar Loaf open to the eastward of Wicklow Head, N. ½ W. Wicklow Head bearing N.N.W. clears it. Off this end of the bank is a striped beacon buoy, moored in five fathoms, with Wicklow Head bearing N. ½ W., 5 miles, and Mizen Head W. ½ N., 5½ miles. A Light Vessel is moored, in 22 fathoms, one mile south-east of the southern end of it. It shows a steady bright light, visible 10 miles, and carries a ball; during foggy weather a gong is sounded.

On **Wicklow Head** are two lighthouses, each showing a bright fixed light. The upper may be seen at 21, and the lower 16 miles off. The lights bear from each other N.W. by W. ¾ W., and S.E. by E. ¾ E., 180 yards, and, when in one, lead between the India and Arklow Banks.

Wicklow Harbour, fit for small craft only, there being only 9 feet in the entrance at high water, spring tides, and 6 at neap tides. To make its entrance better, a new channel has been opened; this is formed by 2 Piers about half a furlong to the westward of the Old Bar, and there the depth is 12 and 14 feet.

The **Wicklow Banks** are 2 narrow patches of sand, lying about 5 miles E. from Wicklow Head. The southern Patch, called the India Bank, is about one mile long, N.N.E. ½ E., and S.S.W. ½ W, and ½ of a mile broad. On its middle are 2 fathoms, on its N.E. part 3½ fathoms, and on its S.W. end 3¼ fathoms; at its S. W. extremity is a black buoy, from which Wicklow Head Lights bear W. ¾ S., 5 miles. The lights in one, bearing N.W. by W. ½ W., lead 2¾ miles to the southward of this buoy, in from 12 to 30 fa-

thoms; and the buoy is a guide to pass between Wicklow Head and the Banks. To sail between this Bank and Wicklow Head, bring Wicklow Head lights in one; keep them so until the Sugar Loaf Hill bears N. ¾ W.; then steer by this course, and you go clear, and to the southward and westward, of the India Banks.

The **South Ridge** lies at the N. end of the India bank, separated by a narrow channel of 5 fms., about a cable's length in width; it is 1½ miles long, and ⅓ of a mile broad, with 3¼ to 5 fms. water on it. Its direction is N.N.E. ½ E., and S.S.W. ½ W., and its N.W. end is nearly 5½ miles S.E. by E. from Six Mile Point.

The **Codling Bank.**—The south end of this bank lies N.E. by E., 3 miles from the South Ridge; it then runs N. by E., 3 miles, and turns suddenly to W. by N. for 2 miles, then curving round to the S.E. till it joins the south point. In the middle of the bank, which is 2 miles broad, are from 3¼ to 5 fathoms. The Great Sugar Loaf open north of the Gap, N.W. ¾ N., leads between the Codling and the South Ridge. A Black Buoy is placed on each extremity of the Codling, and lying off the south-eastern end, in 8 fathoms, low water, spring tides, is a Black Spiral Buoy, surmounted by a Staff and Globe, and marked "*Codling Bank*," with the following marks and compass bearings:—Carrickgollogan Hill, in one with Bray Point, N.W. ¾ N.; Great Sugar Loaf, N.W. ¼ W.; Wicklow Head, W. by S. ¾ S.

The **Bray Bank** lies N.E. by E. and S.W. by W.; is 2 miles long and ½ a mile broad, with twelve feet on it. In the Channel, between the Codling and the Bray, which is nearly half a mile wide, there are 8 to 10 fathoms. Carrickgollogan Hill 2 degrees open north of Bray Head, N.W. ¼ N., clears the Codling to the northward. This mark will lead across the bay, in 3 fathoms at low water. The south hummock of the Little Sugar Loaf in one with Windgate Hill, W.N.W. ½ W., leads between the Bray and the Kish Banks in 3¼ fathoms. There is a white buoy at the N. end of the Bray Bank.

The **Kish** is a long, narrow sand, stretching N. by E. ½ E., and S. by W. ½ W., about 6½ miles, and is from ½ to ¾ of a mile broad; on its southern extremity is a black buoy. From it Dublin Lighthouse bears N. by W. ½ W., 12½ miles; Howth Head Light N. 11½ miles; and Bray Head W.N.W. ½ W., 6 miles. On the Kish are from 9 feet to 3 fathoms, the latter depth being near its northern end; here a white buoy is placed, which lies from Howth Head Lighthouse S. S. E., distant 6 miles, and from Dalkey Island E. ¾ S. al same distance. Three-quarters o from the northern extremity of the Floating Light Vessel is moored, v following mark and bearing:—Ir Eye a little open of Howth Hea Dublin Lighthouse, N.W. ½ N., 7½ miles. This vessel bears 3 lig lanterns, on three separate mast distant from each other, the centre being the highest. Three miles southward of the white buoy is con buoy, lying in 1½ fathom and points out the middle and dangerous part of the Kish; at th the Great Sugar Loaf Hill appears saddle of Bray Head, bearing W. ½ Ireland's Eye just open, and shu the Head of Howth, N. ¼ W.

Bennett's Bank.—The S.E. this bank lies about 2 miles N. I from the North Buoy of the Kish, miles S. E. from Howth Head house; it is about 1¾ miles in leng has 5 to 5½ fathoms on it; at ½ mile ward are 8 or 9 fathoms.

The **Burford Bank,** at the en to Dublin Bay, is narrow, and ru N.N.E. ¼ E. and S.S.W. ¼ W. dire being about 1½ mile long, and one of a mile broad. Nelson's Pillar open to the southward of the Pi house on Dublin Quay, will lead cl its southern extremity in 4½ and thoms water; and the same pill Shallows Bath Light, open to the r ward of Poolbeg Lighthouse, will its northern end, in 5½ and 6 fat water. The mark to go clear to the ward of it, is Ireland's Eye open t Nose of Howth. Upon each end o bank is a buoy; that on the souther is vertically striped red and white, that on the northern chequered blac white.

Sailing for Dublin Bay f the Southward. — From the T to Wicklow Head the bearing and tance are N.E. ¾ N. nearly 46½ n but to pass to the eastward of the Ar Bank the course is N.E., observin make due allowance thereon for the the tide, whether flood or ebb. W Wicklow Head Lights bear N. by W. will be clear of the Arklow Bank; to sail within the Wicklow or India Ba bring the Great Sugar Loaf Hill well of Wicklow Head, bearing N. by W Wicklow Lights in one; either of th will lead between the Arklow and I Banks; and when within 2 and 2½ mil the shore, a N. by E. ½ E. course will c you past Moulditch Bank and Dalkey land. If with a westerly or S.W. w you may haul close round the Mugg

ld proceed along shore, avoiding the ullock Rock, which lies about a mile om Dalkey. In working up between he banks and the shore with a flood tide nd northerly wind, do not stand further om the land than four miles: for at bout that distance the stream turns off o N.E. by E., and with little wind may rift you upon the banks; while near the hore the stream commonly makes to the outhward 1½ hours before high water.

Stopping Places. — In moderate weather vessels may stop almost any where within the banks between Wicklow and Dublin, except off the Giant's Bed, where lies the Moulditch Bank; the best part, with westerly winds, is between Bray Bank and the main, from ½ to 2 miles from the shore. Here is very little stream of tide, and the violence of the sea is considerably broken by the banks.

In **Killynee Bay** vessels may anchor in 5 or 6 fathoms, sheltered from W.N.W. to N.N.E. winds, and also in 7 fathoms off Wicklow Church, sheltered from S.W. and westerly winds.

Dublin Bay.—There is good anchorage in the mouth of Dublin Bay when the wind does not blow hard from the E. and S.E.; with these winds a great sea sets in when it blows hard, so that vessels are obliged to run for some place of safety; with north-easterly winds, vessels run for Kingstown harbour, which lies on the S. side of Dublin Bay, and is enclosed by two large piers; on the head of the eastern of which is a lighthouse shewing a revolving light, presenting white and red faces alternately, and attaining their greatest brilliancy at intervals of thirty seconds. During foggy weather a bell is tolled. There is also a fixed red light on the west pier-head. The entrance to this harbour faces the N.E., and has 4 fathoms water; within, from 4 to 2½ fathoms at low water. When going in, leave the revolving light on the larboard hand, and round it close to. BAILEY LIGHT, exhibited from the S.E. point of Howth Peninsula, is stationary, and is visible at a distance of fifteen miles. About a mile to W.S.W. of the lighthouse lies the Rosebeg Bank, which is easily distinguished in blowing weather by the sea breaking over it; and on which are from 2¾ to 3 fathoms water. The Revenue Barrack on with the Poolbeg Lighthouse, bearing N.W. by W.¾ W., leads clear to the southward of it.

Dublin Harbour lies between two banks, the North and South Bull, and is protected by two walls built on piles, the southern one of which is carried 2¾ miles into the bay, and has a lighthouse on its extremity, called the Poolbeg, exhibiting a fixed light all night, and a lower light, much fainter than the upper, from half-flood to half-ebb: in the day a ball is hoisted during the same period. At the extremity of the north wall there is a beacon. There is also a small light further in the harbour, called the Shallows Bath, or City Light. A bar lies across the entrance, on which are 6 to 12 feet at low water. Between the bar and lighthouse are 14 to 27 feet. A red buoy is moored on the bar, in 12 feet at low water: it lies a mile E.S.E. ¼ E. from the lighthouse. Pass about a cable's length to the southward of this buoy, observing the beforementioned mark, and you will carry 12 feet over the bar at low water. On the north side of the channel, and bearing E., 3-10th's of a mile from the lighthouse, is a white buoy, moored in 9 feet at low water, between which and the lighthouse are from 14 to 27 feet. The south bar buoy (black) lies S. ¼ W. 2-5th's of a mile from the lighthouse, on the southern extremity of the south bar patches, which commence about ⅛ of a mile S.E. from the lighthouse, extending in that direction nearly ½ a mile; then turning to the westward about the same distance, when they terminate where the black buoy is placed. On these patches are only from 4 to 5 feet. At nearly three-quarters of a mile within the lighthouse, a white buoy is placed, which must be passed to the northward. The channel is regularly buoyed on the north side with black buoys, and on the south with red buoys, from the Pigeon House to Ringsend. Between Poolbeg and the Pigeon House there are several places where vessels may anchor, in from 16 to 20 feet at low water, the channel having been greatly improved by means of powerful steam dredges. Ships in general, with suitable draughts of water sail over the bar to the northward of the east buoy. This is called the East Channel, and the mark for it is the Church of Irishtown just open to the northward of the lighthouse. This mark will lead you about a cable's length to the northward of the east buoy in no less depth than 15 feet at half-flood. So soon as you are over the bar, the depth will increase to 18 and 20 feet. Keep about mid-channel between the Spit Buoy and the lighthouse, and when about ½ a mile within the latter you may anchor in 15 or 16 feet at low water. This is called Poolbeg, and although a tolerably good place in summer, it is not so good in winter time; it is then best to go a mile further up, so as to take the ground about half-ebb, or to lie along the wall or along the quay above Ringsend. To sail in through the West Channel, you must pass to the southward of the South Buoy; when the lighthouse bears N.E. ¼ N., and on with

Baldoyle Chapel, or the ruins of Kilbarrack Church, steer for it in that direction, giving it a berth on your larboard hand, as you haul round to the westward. When coming from the southward, keep Sandy Cove Tower on with the eastern extreme of the pier at Kingston, S. ¼ E., until you bring the lighthouse on the above bearing: this will lead you in the best water, and well to the westward of the south bar buoy. In the channel are only 6 feet at low water, spring tides. The tide flows at the lighthouse, on full and change days, 10 hours 47 minutes, and rises 13 feet on springs. Vessels coming from the northward, bound for Dublin, must give the Hill of Howth a berth, to avoid the bank called Rosebeg. To avoid it on the east side, bring the eastern extreme of Howth open of the Bailey, or the Bailey Light N.E. ¼ N.; and on the south side, Poolbeg Lighthouse, N.W. by W. ¾ W.

Ireland's Eye is a small island 1½ miles to the north of Howth Head; on its eastern side is anchorage in 6 fathoms; on its north in 7; but the best is on the west side in about 4 fathoms, with the Stack open to the southward of the height, and from whence it is easy to run for the pier of Howth in case of necessity.

Howth Pier Harbour, to the S. of Ireland's Eye, is capable of receiving vessels of 11 or 12 feet draught. There are two piers, on the easternmost of which stands a lighthouse exhibiting a fixed light of a red colour, of essential use to to clear the dangers off Ireland's Eye. There are also two small lights upon the west pier, which are intended to lead vessels going in from the northward, or from between Ireland's Eye and Lambay Island.

Harbour of the Skerries.—This Harbour may be easily known by Rockabill and St. Patrick's Islands; the former is a remarkable rock, always above water, and steep-to all round, having from 9 to 18 fathoms close to it. It lies 4 miles E. by S. of the Skerries, and about 2½ miles from St. Patrick's Island. To sail in, after you have rounded St. Patrick's Island, steer N.W. by W. until all the town of Skerries appears open of the pier-head; you will then be clear of the Cross, and may round into the road, where you will have 4 or 5 fms. of water. Here the riding is safe, unless it come to blow hard from the E. or N.E.; but if you intend going up to the pier, stop about a cable's length from the pier-head, in 3 fathoms, until the tide serves.

Balbriggan Harbour is sheltered from the east by a Pier, on the S. side of the Bay, which runs northward. With the Pier Head, at high spring-tides, a 12 feet water, and with neap-tides, 9 or 1 On the pier, S. side of entrance, is white lighthouse, exhibiting a fixed ligh visible at the distance of 10 miles, b tween W. S. W. and S.S.E. ½ E.

Drogheda Bar lies 27½ miles N. Dublin, about 10 miles N. of Skerries, an 7 miles from Balbriggan, the river run ning due E. and W. Formerly the rive from the Maiden Tower to the bar had tendency to run N.E., but an annual out lay of nearly £6000 a-year in its improve ments has contributed to give the en trance to the river an E. and W. direction thereby enabling vessels to take the ba with much more safety than heretofore The parallel walls at the mouth of the rive having been extended within the last fe years 1800 lineal yards seaward, and no nearly reaching the bar, has caused th water in the river adjacent to the bar t be comparatively smooth in the severes weather. These walls have also had th effect of deepening the channel, and di recting its course in a more southerly direction, thereby making the bar muc easier of access in bad weather. The con tinual dredging of the river has remove the banks and shoals which previously existed, leaving the navigable channel o a uniform depth, not less than from 18 ft 6 in. to 19 ft. at high water of ordinary spring tides. The water on the bar a spring tides is 22 ft., with 17 ft. 6 in. a neaps, 4 ft. 6 in. at low water of spring tides, and 6 ft. 6 in. at neaps. There is an excellent tug-boat in attendance on ves sels requiring her assistance, with a *num*ber of experienced licensed pilots always looking out for vessels bound for this port. There are fifty sailing vessels, with five first-class paddle-steamers, having *in the* whole a registered tonnage of 7327 tons trading to this port, exclusive of other vessels which frequent this place with occasional cargoes. Four lighthouses are placed at the entrance of the river, and a number of stone towers built on the N. side, with wooden perches for landmarks on the S. side; the centre between them denoting the channel. The relative bearings of the E. and W. Lights will be occasionally changed, as the sandbanks alter their places. The present entrance of the river, keeping these two lights in one, is W. by N., until you come abreast of the large Stone Pillar on the north side, then steer N.W. ½ W. for the North Red Light. Ships drawing 10½ feet should have at least 4 hours' flood-tide in bad weather before taking the bar. Vessels in distress or otherwise taking the bar without a pilot, and keeping the two southern lights open, will come into the river with safety.

Dundalk.—Sailing N. you will pass Clogher Head and reach Dunany Point, off which, about a mile E. of high water mark, lies a small rock, drying with low water spring tides. The first buoy is in 3 fathoms at low water, about 4 miles from Dunany, bearing from it N. by E., keeping Clogher Head well open, and bearing from Cooley Point W. by N., distant about 4 miles. The second and third buoys bear N.N.W. ¼ N. from the first buoy. The second buoy is in 3½ fathoms at low water; and the third is on the bar, on which there are, at low water springs, 3, and at low water neaps, 6 feet. The depth on the bar at high water springs, varies from 24 to 18 feet; and neaps, from 16 to 13 feet. These depths continue up to Soldier's Point, whence, to the quays, the depth is at high water springs, 19 feet, and neaps 13 feet. From the bar to Soldier's Point, the W. side of the channel is perched throughout; and on the E. side near to Soldier's Point, at a place called *the Rock*, there is a perch with two balls on its top; and at night there is a Red light on it, provided the other perches from Lighthouse to quay are lighted. A Lighthouse, on screw piles, has been erected at the entrance of the Harbour Channel. The Light is a Fixed Light, varied by Flashes, giving a flash once in every 15 seconds; its focal point 33 feet over the level of the sea, at high water; and in clear weather it is visible at the distance of about 9 miles. To seaward the Light appears of the natural colour, Bright, between the bearings of W. by N. and N. ½ W.; it is masked in the direction of the Dunany Reefs, between the bearings of N. ½ W. and N. by E. ½ E.; it is coloured Red towards the west side of Dundalk Bay; and shows Bright towards the Harbour Channel, northerly. The Lighthouse is borne on screw piles of red colour, braced into an open framing below the dwelling, which is of octagonal form, and coloured white: over this the Lighthouse has a dome-formed top. It stands within the entrance of the Channel in lat. 53° 58′ 40″ N., and lon. 6° 18′ W.; and bears from Castle Rocks, off Cooley Point, N.W. ¾ W., distant 5⅓ nautic miles; from Dundalk Patch (rocky shoal), N. by W. ¾ W., distant 6¼ nautic miles; from Dunany Reefs, eastward of Dunany Point, N. ¼ W., distant ¾ nautic miles. The Channel formerly northward of the Lighthouse now runs southward of it; and on passing it outward the course alters. Masters of vessels are cautioned to give the piles a sufficient berth. When vessels bound to Dundalk come between Cooley Point and Clogher Head, they are required to hoist a signal for a pilot. Vessels wanting the use of a Steam Tug are requested to hoist by day an Ensign to the Fore-top-gallant-mast-head; by night, Two Lights, one above the other. Masters of vessels necessitated to enter the Harbour, without being able to obtain a pilot, should observe, that after passing the Lighthouse, the Channel is perched on the west side as far as a place called the Rock Hole, on the side of which there stands a Perch with two Balls on its top, one above the other, which is to be kept on the starboard hand, after passing which the river is perched on the east side to the Quays.

DUNANY AND IMOGENE ROCKS, DUNDALK BAY.—A *black conical buoy*, surmounted by a staff and ball, has been placed in 3¼ fathoms, at low water, spring tides, to mark the position of the Imogene Rocks, which lie about a mile and three quarters S.S.E. off Cooley Point, north side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Dundalk High Chimney, open of Rathcor Point, N.W. ½ W.; Cooley Point, N.N.W. ½ W.; Carlingford Lighthouse, N. E. ½ N.—A *red conical buoy*, surmounted by a staff and ball, has been placed in 4 fathoms, low water, spring tides, on the outside of the Dunany Reefs, which lie off Dunany Point, south side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Clogher Head, S. W. ¾ S.; Dunany Church, W. ½ S.; Dundalk High Chimney, N. by W. ½ W.; Tipping Mountain on with a saddle in the distance, N. ¼ W.

Loch Carlingford lies two leagues to the eastward of Dundalk Harbour entrance, and forms a large well-sheltered bay, the ground good, and water sufficient for the largest ships; but there are several rocks and dangers which must be attended to. Its entrance is between Ballaggan and Cranfield Points, which bear from each other nearly E. by N. and W. by S., distant 1½ miles. The Helly Hunter, upon which a flag-buoy has been placed, is a rocky shoal lying to the eastward of the entrance of the Loch, and stretching about 1 mile S.W. and N.E.; its western end dries with extraordinary low tides only, and on the other parts the least water is 6 feet. To avoid the Helly Hunter, as you sail to Carlingford from the E. or S., do not bring Mount Culy to the westward of W. ½ N., until the Blockhouse comes on with the top of Foy Mountain, bearing N.W. ¼ N. Then steer for the N. end of Blockhouse or Haulbowline Island, giving the Point of Cranfield and the Island a berth of a cable's length each from the high-water mark, Between the W. side of Blockhouse Island and Ballaggan Point are several rocks and shoals, and consequently this passage must not be attempted.

Carlingford Loch Light, situate on Greenore Point, on the larboard side

in going up Carlingford Loch, revolves, is of the natural appearance, attains its greatest magnitude every 45 secs., and is visible at a distance of 9 miles.

To Sail into Loch Carlingford, take flood-tide, and with the Blockhouse bearing from N. by W. ½ W. to N.W. ½ N., sail in for the E. side of the Island, giving it a berth of a cable's length or two on the larboard. Steer thence for Greenore Point, keeping between ½ a cable and 2 cables' length from it; then run N. by W. up the middle of the channel; and abreast of Killean Point, or above it, nearest the E. side, drop your anchor, in from 2 to 6 fathoms water. Small vessels may lie on the W. side, easy and safe, about 2 cables' length eastward of lingford Castle, on soft mud.

Carlingford Lights are sho from a tower erected on Haulbowl Rock, which lies upon the bar ½ a W. by N. from Cranfield Point, on larboard side of the entrance to Loch. The upper is a fixed light, the lower revolving. The higher li is shown throughout the night, and be seen like a star of the first mag tude, at the distance of fifteen mi The lower light, having also a star appearance, is exhibited from half-fl to half-ebb. In the day, during the s period, a ball is hoisted; and in fo weather, a bell is tolled every half minu

NORTH-EAST AND NORTH-WEST COASTS OF IRELAND.

ST. JOHN'S POINT TO SLIGO BAY.

St. John's Point. — On this Point in lat. 54° 13′ 10″ N., and lon. 5° 39′ 50″ W., is erected a tower, shewing an intermitting light, appearing of its full brightness during 45 secs., and obscure 15 secs. The light bears from Newcastle pier, (Dundrum bay) E. by S. ½ S., 7¼ miles, and from the Calf of Man revolving lights N.W. ½ W., 33 miles, and can be seen seaward from W. by N. ½ N. to E. ½ N. The light kept open will lead clear of Gun's Island and of the St. Patrick's rock, off the entrance of Strangford Lough.

Dundrum Harbour.—On making St. John's Point, the entrance to the inner bay lies 6 miles within the bight of it, about 2½ miles to the eastward of the town of Newcastle, at the mountain foot. In the middle of the entrance channel a black buoy is laid down in 14 feet, low water, spring tides. It may be picked up by keeping the old castle that stands above the town a sail's breadth in on the west point that forms the entrance. Steering north from this, you will arrive at a smaller buoy lying in the middle of the river; then by steering N.W. by W. you will come up with the first perch on the banks to the west, having on it a small barrel—give this a berth of half a cable's length on your larboard hand; after which, by changing your course N. by E., you reach the second perch, having a triangle on it: allow this the same berth as the first. The third perch has a round black top. From the second perch, from which you have the town and pier open, steer N.N.W. up the river u abreast of a red-topped perch, to wh give a berth of half a cable's length your starboard hand, and then keep the pier-end.

Killough, half a league East of John's Point, has a good roadstead off-shore winds, and, within, offers coasters a safe dry harbour, with a mud bottom. Killough Pier is built from t West side, and, between it and a small Pier on the East side, called Coney Isla lies the entrance to the port. Outside t entrance of the bay an Iron Perch mar the Water Rock, which is covered only high water: to avoid it, bring a remar able two-storied house, with white fro and roofs, (called Cotter's House, a situated inside the harbour,) one-thi inboard from the West Pier-head, un you have passed the Perch; then ke more to the Eastward till you bring t House over to the extreme end of the Pie Two cables N.N.E. ½ E. from the Perch the Little Plate Rock, and half a cable N from this is the Big Plate, both covere except at spring ebbs; and, consequentl when there is water to enter the harbou there is also water over these rocks. Th Garter, on which is an Iron Perch, is ledge of foul ground which runs off fro the Western side of the bay, under the Ol Mill Stump. There is also a spit of roug stones, called Crane's Point, extending S W., a short distance from Coney Island but by keeping Cotter's House midwa between the two Pier-ends, when yo

come within two cables' length of them, you avoid this spit. The best anchorage in the Bay is within the Water and Plate Rocks, in from about five to seven fathom, with shelter from all but southerly winds.

Ardglass Harbour, 2½ miles E. of St. John's Point, is easily known by several old Castles and a rising town on the W. side of the bay. You can anchor at the mouth of the bay, between Ringfad and Fennick Points, in from 6 to 10 fathoms water, but if the wind blows on shore, a small vessel may shelter inside the pier under the middle castle in from 1½ to 2½ fathoms water, or run aground on the beach. A temporary red light is shown from the inner shore of harbour, 2 cables' length from entrance N. by W.

Loch Strangford lies N.E. at the distance of 60 miles from the Hill of Howth, and nearly E.N.E. ½ E. 28 miles from Loch Carlingford. The stream at the entrance is very rapid, and when the tide is ebbing and wind strong at S., S.E., or E., the sea is short and broken, which gives the bar across the river the appearance of a ridge of sunken rocks; but there are not less than four fathoms at low water on any part of the bar, and it is quite free from rocks. Few places afford such safety to wind-bound vessels as this Loch, ships having at all times of tide abundance of water, not only on the bar, but also in the two principal roadsteads, *Ballahenry* on the N.E., after passing Portaferry, and *Audley's Road* on the S. W. side of the river, after passing Strangford. An Iron Perch with a square head has been erected on Patrick Rock, which is covered at half-flood, and is about three quarters of a mile off Killard Point. Vessels from the southward can pass close to this Perch, on either hand, in making for the North Bar, the only safe entrance for strangers; and as there has been erected a round Tower of masonry on Rock Angus, and there are Perches on the Garter on the port hand, and Pladdylug rocks on the starboard hand, which lie near its mouth, no danger need be apprehended in daylight; but a good offing should be kept from the E. shore to avoid Pladdylug; and on the other hand do not stand too far towards the Garter, as the flood has somewhat of a westerly direction towards it. Having passed the Tower on Rock Angus a mile and a half, in case of necessity, come to anchor opposite a White Beacon on the south shore, called Cross Roads, where you can stop a tide until you can get to Ballahenry or Audley's Road, 2 miles further, and just beyond Strangford and Portaferry towns. On hoisting a signal, experienced pilots can be had. — The *round Tower* on Rock Angus is a granite structure, three stories high. It was originally built for, and intended to be used as a *lighthouse*, but has not hitherto been applied to that purpose. This is much to be regretted, as a light shown from this rock would be of infinite service, not only to wind-bound vessels within the Lough, but also to the shipping passing along the coast.

South Rock Light is erected on the South Rock, about 2 leagues northward from the entrance to Loch Strangford. The light revolves, attaining its greatest lustre every 1½ minutes, and is visible at a distance of 12 miles. A reef of rocks called the Ridge, extends 1½ miles to the N.E. of the lighthouse, on the extremity of which is a red buoy. The North Rock, about a mile N. by W. of the lighthouse, is marked by a solid Beacon, like a small church spire, erected in 1856. Between the North and South Rock is a channel much frequented by coasters, but not to be attempted by strangers. Sailing along the Downshire shore, from the Copeland to the North and South Rock, the South Light should be kept outside of Burr Isle, or the Black-head of the Gabbans, in Isle Magee, a sail's breadth outside of Donaghadee shore, or the Copeland Light N., to clear Scullmartin Rock that lies N. ¾ E. 3½ miles from Burr Isle, and S.E. 1 mile from the town of Ballywater. To the northward of Scullmartin, on which is a Beacon, lie Ballywater Rocks, which stretch out about ½ a mile, commencing at Ballyferris Point, and run S. two miles. The S. end is seldom covered, the middle is covered at ½-tide, the N. end seldom bare. Six and a half miles N. of Ballywater is

Donaghadee, which has 14 feet in between the two pier-heads at low water; but after passing the pier-heads, at 7 fathoms distance, and nearly in the middle, there is a shoal of loose rubble rock, with only 8½ feet on it at low water. The harbour has gradually filled up, to the extent of 3 feet generally, but where the packets formerly used to lie as much as 7 feet. From the S.E. pier head a Light is shown, red to seaward from N. by E. ½ E. to S. ½ E., and bright towards the harbour and the entrance of Belfast Bay. Sailing in from the southward keep above ½ a cable's length from the shore until the harbour is open, then run in and let go your anchor inside the pier-head. No buoys are allowed to anchors on account of the steam packets. Mariners must be on their guard not to lose sight of the red part of the light in sailing N. or S. of Donaghadee. About a mile north of Donaghadee is Foreland Point, from whence extends a ledge of rocks to the E., with an iron Perch on it, and outside

of that again is a large black buoy, which should not be rounded too close, particularly at low water. Deputy Rock, on which is a red buoy, lies half way between Donaghadee and Copeland, and has about 8 ft. at low water. The proper course through the sound is between the Foreland and Deputy buoys; but there is a channel on the E. side of the latter, keeping one-third from the Copeland, as a shelf of foul ground runs out after passing the Deputy. Cairn Point, at N.W. end of Copeland, must have a good berth on the starboard hand, to avoid a rock called Gordon's Bush, that lies a cable's length S. of it, and is seldom bare at low water. These are all to be feared in the Sound of Donaghadee.

Copeland Island lies 2½ miles N. E. ½ N. from Donaghadee, and one mile to the eastward of Nout Head. E.N.E., one mile from Copeland, are the Cross and Mew Islands, between which is a narrow channel not navigable. On the Cross Island is the Copeland Light. Between these small islands and the Copeland is the outer sound. On the E. side of the Copeland, near the south point, is a ledge of rocks extending above two cables' length to the eastward: there is also a ledge extending from the Mew Island to the westward; between these is the channel. Half way between the sound of Copeland and Cross Island, is a small rock called the Pladdins, over which are, with common spring tides, 3 or 4 feet of water: it bears S. ¾ W. off the light. To avoid this rock on the E. side, bring the lighthouse N. by W.; on the S. side, bring the S.W. house in Donaghadee in sight with the S. end of Copeland Island: in this sound the currents are strong, and, as there are no buoys, is to be avoided by strangers.

Belfast.—The entrance to Belfast Lough is immediately to the N. of Copeland Light, and lies between Orloch Point and Black Head; the latter bearing from the former N. a little W., distant about 8 miles. At the larboard side of the entrance, about a mile to the W. of Orloch Point, is a rocky ledge called the Briggs, stretching out three quarters of a mile, and upon which is a red buoy. About 6 miles to the W. of the Briggs is Grey Point, and, in a sort of bight between them, is the town and harbour of Bangor, fit for small vessels only. Two miles further W. from Grey Point, a small ridge of rocks runs out from the shore rather more than a quarter of a mile. On the opposite side of the Lough, and bearing W. by N. ⅝ N. from Orloch Point, distant 9 miles, is the town of Carrickfergus, where there is a pier, having, with spring tides, 10 feet water, and with neaps 7 feet. As a guide to the entrance of this harbo at night, a red light is shown two ho before and two hours after high wat this light to be brought immediately o a street lamp in Governor's-place—t red light showing about 2 feet *above* white light, and from a vessel coming due north. Off this town, to the S. a W., is a bank running out 1¼ miles fr the shore, and extending N. 1¼ miles; least water over it is 7 feet. Extendi a mile from the shore on the S. side of t Lough, and opposite the village of Hol wood, is Hollywood bank, on which i lighthouse built on screw piles, whi shows a red light, visible 5 miles. tween the Hollywood and middle ban is the commencement of the pool of G moyle, which extends from abreast t large red buoy on the starboard han having from 3 to 4 fathoms at low wat From Garmoyle, the channel up to B fast is crooked, having 9 feet at low wat spring tides; it is well buoyed—red the larboard and black on the starboa hand going up to the quays. There is al a green light on Hollywood Bank, wi three more of the same colour towar Belfast, all of which are to be left on t port side when going up. There is al a red light S.W. of the stone Beaco to be left on the starboard side. Lar ships usually anchor off the town of Ca rickfergus, near the middle of the Loug Vessels drawing not more than 16 fe water may anchor higher up in the Fol Roads—between the Carrick bank an abreast of White Abbey—smaller vesse in Whitehouse Roads. Large vesse drawing 18 feet water, intending to rea the quays, may anchor in Garmoyl A large pilot cutter is constantly unde way during the daytime, and generall boards vessels bound to Belfast belo Gray Point. The Briggs of Kilroot l on the N. side of the Lough, and stret almost from Kilroot Point to White Hea and about a quarter of a mile from th shore.

Loch Larn.—A lighthouse is erecte on Farres Point, on the larboard han going into this spacious Loch, opposit which are the Maiden or Hulin Rock Sailing into Larn from the S.E., pass Muc Island, Brown's Point and Bay; giv Barr's Point a berth near half a mile, as ridge of rocks runs off above a quarter a mile; give Farres Point, on which the Lighthouse, a berth of half a cable length; run for Corran Point on Lar side, on which stand the ruins of an ol castle, giving Isle Magee side a larg berth, as a long shoal runs out from very near half way across to the steam packets' wooden wharf opposite the sal pans, and continue to near the Point

acknow, round which is Yellow Stone oads, sheltered from all sea, and little de. There is a long flat runs out from e N.W. side of the entrance which hen covered, is so deceitful to stran-ers, that they should open the mouth the Loch well; keep no more than two ables' length from the lighthouse, run p past the wooden wharf, giving it a erth on the starboard hand. Anchor ⅔ f a cable's length from Isle Magee shore. mall vessels from above the wharf should un up abreast of Corran Point in two fa-thoms, keeping one-third from Corran shore, and two-thirds from the Island. Large vessels should come to further out, about one-third from Corran side. There are no rocks in Larn Loch, and should a vessel run too far, she will only go on soft sand or mud. A stranger going in, in the night, should take his soundings from Isle Magee shore; but going to the Yel-low Stone Roads should take a pilot. Ves-sels may run in without anchors or cables —there are no rocks nor shoals to inter-rupt them, coming from the south-ward, except Barr's Point, before men-tioned, and Hunter's Rock. Four miles off the mouth of Larn Loch, and 4 miles N. ¼ W. from Knee or Muck Island, the Sound of Muck appears open, and Corran Castle on with Larn Lighthouse.

Maiden, or Hulin Rocks Light. Two lighthouses, marked with broad red and white belts, are erected on the Maid-en or *Hulin* Rocks. These Rocks bear by compass from the Mull of Cantyre Light, S.S.W., distant 24 miles; from Sanda Is-land, S.S W. ¼ W., 18¾ miles; from Ailsa, W.S.W., 23 miles; from Copeland Island Light, N. ¼ E., 16½ miles, and from the eastern extremity of Rachlin Island, S. by E. distant 29 and a half miles. The lights are distant from each other 320 fathoms, and bear N.W. by W. and S.E. by E. The mariner in passing should give them a wide berth, there being a number of sunken rocks extending upwards of 3 miles N. and 1½ miles S. of them.

Ballicastle Harbour.—Opposite Church Bay, on the Irish Coast, is Balli-castle Harbour, formed at the mouth of a small rivulet near the town, affording shelter for small vessels drawing 7 feet water, for at high water there are 9 or 10 feet between the pier heads, with spring-tides, and 8 feet with neap. In summer ships may ride near the W. side of the bay in 9 or 10 fathoms water, the glass-house bearing S.S.W., Sheep Island being shut in with Kinbane Head, and Clare House bearing on the top of the cliff near it; but it will not be prudent to lie long here. Should the wind blow from the N. or N.W., and a swell begin to set in, weigh anchor, and rounding Tor Point, make for Cushinden, Cushindaal, or Larn.

The **Skerries** lie W. by N. 5 miles from Bengore head, and about a mile from the shore: on the south side of the largest of these islands, where it appears lowest, a vessel may anchor in 6 or 7 fa-thoms water, a little more than a cable's length from shore. In sailing into this anchorage be careful of the Stirks on the east side, and of the Kers on the west side: they lie a little to the southward of a cluster of rocks about half a mile westward of the Skerries, and dry at four hours' ebb.

Port Rush is much improved by a pier and quay; there are from 8 to 24 feet within the harbour, while off the mouth of the port a vessel may anchor in 6 to 8 fathoms, on a bottom of sand. On entering the harbour you must give the North Pier a berth of at least fifteen yards, to clear the stones which have been placed to break off the swell, and which are covered at ¾ flood.

Loch Foyle is a capacious harbour, where the largest ships may ride in safety in all weathers; but the best place for large ships is on the N. side, 3 or 4 miles within the entrance, in from 5 to 8 fathoms water: but vessels of 11 or 12 feet draught will ride easiest between Quigley's Point and Ture, in from 2½ to 3 fathoms. The danger to be avoided is the Tuns Bank, which lies on the S. side of the entrance, having a channel between it and the land, on the N. side, ¾ of a mile wide. To sail into Loch Foyle, wait for flood tide, or a brisk leading wind to stem the ebb, which runs at the rate of 3½ knots in the entrance: keep Glenegad Head 2 or 3 ships' length open off Inishoan Head, until the mouth of Derry River at Kilmore Point is a little open of Magilligan's Point; then steer for the entrance, keeping ⅛ of a mile from the N. shore, and you will pass between it and the Tuns Bank: when you are within Magilligan's Point, you may keep at a greater distance from shore, and run up to the anchorage. On Donagree Point, a little to the S. of Inishoan Head, are two lighthouses, bearing from each other E. and W., distant 153 yards. The lights are fixed, visible 13 miles, and when in one lead clear of the Tuns Bank.

Inistrahul Island, on the N.E. part of which a lighthouse stands, is 6 miles N. ½ E. from Glenegad Head, and 4 miles from the nearest shore. The light makes a revolution every two minutes.

Loch Swilly.—The entrance of this Loch lies 7 miles W. by S. from Malin Head, and is about 3½ miles wide, from shore to shore. Fannet Point is a low point at the W. side of the entrance: it is

distinguished by a lighthouse which displays a steady light, which, when seen from sea, appears of a deep red colour, but from within the Loch, bright. This is a safe harbour for vessels of any size; but the best anchorages are off Burncranah House, 2 or 3 cables' length from shore, in from 4 to 8 fathoms, or between the Island Inch and Rathmullin, rather nearer to the latter, in from 5 to 8 fathoms.

Mulroy Harbour is known at a distance by Tory Island, Horn Head, and Rosgull Hill; it has water sufficient for the largest ships; but a part of the channel is narrow and difficult. Strangers should always take a pilot.

Sheephaven & Downing Bays.—Few vessels like to run for Sheephaven as many get on shore, yet some are compelled, not being aware of the excellent anchorage in Downing Bay, which lies on the E. side, at the bottom of Sheephaven. The bay is formed by points called Downing and Morlach. Close under Morlach Point is the anchorage, in from 4 to 6 fathoms. In running for it from Hornhead, the course will be S.E. by S., distant six miles, care being taken to give a berth to two half-tide rocks about a cable's length N.N.W. from Downing; when the sea breaks on them, which it generally does, they may be approached as most convenient: there are no other dangers.

Tory Island, the east end of which lies 7¼ miles N.W. from Horn Head, has no good anchorage on its S. side; but in the summer season, with S. winds, a vessel may stop on the north side in 18 or 20 fathoms, within half a mile of the shore. On its N.W. end is a lighthouse, exhibiting a steady bright light, visible from seaward 16 miles all round; but when passing to the S.E. of the island, is shut in behind the heights between N.W. by N. and N.W. ½ W.

Rathlin-O-Birne.—This island 2 miles S.W. ¼ W. from Malin More He and is about ½ a mile long and ⅓ of a n wide. A lighthouse has been erected on it, in N. lat. 54° 40′ and W. long. 8° exhibiting a flashing light, at an inter of 20 seconds, visible at a distance of miles, but red towards the mainland sound, eastward of the island.

Donegal Harbour is on the E. s of the peninsula, called the Hassens, Green Islands, 2 miles below the To of Donegal, where small vessels n ride in 2 or 3 fathoms water at ab a cable's length from shore. To sail take half-flood, and keep about ½ a n from the shore on the larboard or N. si until you are near the Black Rock; th steer E. ½ N. until you are a cabl length past it; you may then steer rectly for the Green Islands, giving t north shore a berth of about two cabl length.

Sligo Bay is to the southward of t point of Raugly, and at the N.E. side the bay is the entrance to Sligo Harbou S. by E. ½ E. from Raugly point is Bla Rock, covered at high water, on whi is a fixed bright light, shewing fr S. W. seaward to S. E. by S. and seen a distance of 13 miles. To sail in ke about 2 cables' length to the northward the lighthouse, in order to avoid the sh water on the N. side of the rock. T only place where a vessel will lie afloat all times of the tide, is Oyster Island Ha bour, but the bottom is rocky, and do not hold well. On this island are tw fixed lights, bearing N.N.W. ¾ W. a S.S.E. ¾ E., 165 yards from each othe After passing the bar, the lights in o clear the Bun Gar Bank, and lead to t entrance of the harbour, or up to t Metal Man Beacon.

SOUTH-EAST COAST OF IRELAND.

WATERFORD TO BALTIMORE.

Waterford Harbour.—From Great Saltee Island to Hook Point, on which Waterford Lighthouse is erected, the bearing and distance are, W. N. W. 13 miles; and from the Longship Lighthouse off the Land's End, N. ½ E. 43 leagues. When coming from the S. or the E. for Waterford, bring Sleanaman Mount, a remarkable mountain inland, to bear N.E. until you see Hook Lighthouse on the E. side of the entrance of Waterford Harbour, from which a bright and steady light is exhibited. Go not nearer Hook Poi than about 2 cables' length, to avoid fal ing into irregular streams of tide that ru near it. Having passed the Hook, an intending to proceed for the anchorage Passage, take a flood-tide or a leadin wind, and steer for Credan Head, givin it a berth of at least ½ a cable's length From Credan Head steer N. E. by N. fo Duncannon Fort, carefully avoiding th sand banks which extend from both shore That on the starboard side begins at Blu

ead, extends more than ½ a mile from ore, and terminates at Duncannon Fort. tween Bluff Head and Duncannon Fort allistraw Bay. The sand on the other e, called Drumroe Bank, extends more an a mile from shore, and narrows the ssage abreast Duncannon Fort to about ¼ of a mile. Two lights in Duncannon ort, one above the other, are exhibited direct vessels to that point. On the t, or what is known as "the bar," 4 feet of water can be had on the lowest ring tides. This shallow lies nearly midway between Credan Head and Dun-annon, extends for about a mile in ength, and is composed of hard sand; he course by compass over it is from N. N. E. ¼ E. to N. N. E. ¾ E. Another ighthouse, having a fixed bright light, is erected N. N. E. ¼ E. from Duncannon ort lighthouse, distant ½ a mile. These two lights kept in a line, will lead in the best channel across the bar between the eastern and middle buoys. The lower light from the Fort is exhibited only from half-flood to half-ebb. When above the lights keep near the eastern side, steering about N. ½ W. for the Church of Ballihak, until the perch, which is fixed in the upper end of Drumroe Bank, comes on with the town of Passage; you may then steer upward N. W. by N., in mid-channel. Abreast of this perch are ten or eleven fathoms. The usual anchorage is about a mile above Passage Town, in five or six fathoms. Two or 3 miles above Passage is very good anchorage, and there the stream is much weaker than at Passage. In proceeding for this place, avoid a spit of sand called the Seedes Bank, which stretches off about W.S.W. from Buttermilk Castle, extending about half-way over to the opposite side; the least water on it is 9 feet. Avoid also a small rock of 9 feet at low water, and 14 feet at half-tide, which lies about 2 cables length from shore, on the S. side of Cheek Point. In proceeding about low water, keep in the middle between the two points, or rather nearest to Buttermilk Point; if the flood-tide be running, keep in the rough part of the stream, and you will clear the shoal. Vessels drawing 20 or 22 feet water may go up to Waterford, where there are 2 fathoms at low water, a ship's length from the Quay. The safest channel to Waterford is on the N. side of Little Island: the channel on the other side is deeper, but it is narrow, and subject to eddy-tides, which make it dangerous. Pilots may always be had at the entrance of the harbour.

Dungarvan Bay.—A lighthouse has been erected on Ballinacourty Point, on the northern side of Dungarvan Bay, with the following marks and compass bearings:—Helvick Head, S. ½ W., 1⅛ miles; Carrickapane Rock, S. S. E., 9 cables' length; and Whitehouse Spit, W. by N., 3½ cables' length. It shows a fixed bright light, visible between the bearings of W. and S.E. ¾ S.; green, bearing from W. to N.W. by W.; and red in the direction of Carrickapane Rock. Its white appearance can be seen at the distance of about 10 miles in clear weather.—The intermittent light on Mine Head, S. W. by W., 4 miles from Helvick Head, marks the approach from the westward to Dungarvan Bay, and can be seen farther eastward than the range of Dungarvan Light. A vessel in the entrance of Dungarvan Bay must keep clear of the red colour of the light to avoid Carrickapane Rock; and on the northern side of the bay keep to the southward of the green light to avoid Carricknagaddy, and the rocks which extend half-a-mile eastward of Ballinacourty Point.

Youghall Harbour lies about 13 miles W. S.W. from the entrance of Dungarvan. During high water, spring tides, ships drawing fully 17 feet may go in, and ride off the middle of the town. Across the mouth of the harbour is a bar, which extends above a mile south from the entrance, and has 6 to 9 feet on it at low water. Except when the wind blows from the south, south-east, or south-west, there is always smooth water on this bar: 14 to 15 feet water are on it at high water, neap-tides. When Cable Island bears W.S.W. you are on the outer edge of the bar. When sailing for Youghall Bay from the southward, keep Knockmeldown Mountain N. by E. To anchor when waiting to go over the bar, the best places are on the S. side of the bar, the harbour mouth bearing N. N.E., in 3 or 4 fathoms; or on the N. side of Cable Island, in 3 to 6 fathoms, about 2 cables' length from the shore. From a tower on the west side and within the entrance, is shown a fixed bright light, open to the harbour, and seaward to S.W. by S., and may be seen at a distance of 6 miles.

Cork Harbour.—From a tower on Roche Point, at the east side of the entrance, is shown a fixed light, red towards the sea, to the harbour bright, and visible at the distance of 14 miles. From it Cork Head bears S. W. by W. about 4 miles. From the Longship Lighthouse, off the Land's End, to the entrance of Cork Harbour, is 46 leagues N. by W. ½ W. Coming from the southward, and bound to this harbour, keep Knockmeldown Hill about N. E. by E. until you see the Old Head of Kinsale, a bluff point of land with 2 lighthouses on it. From this Head the entrance of Cork Harbour lies E. ¾ N., distant about 5 leagues. When off the harbour, Roche Tower with its lighthouse is

remarkable. A little without the point, on E. side of the entrance, lie the Stag Rocks. There is clean ground in a moderate depth without the harbour's mouth, where ships may, with a northerly wind, wait the flood or day-light. A white buoy is placed on the edge of the bank off Fort Camden; another white buoy about a mile further in, to the northward of the entrance to Cross Haven; a third, of the same colour, off the east side of Spike Island; and a white buoy on the eastern extremity of East Haulbowline Bank. Each of these buoys is numbered. There are also several black buoys on the side opposite, on the edge of the mud flat: they lie in four fathoms, and are likewise numbered. Above these, at the entrance of the E. passage, are also the keg buoys of the quarantine ground. Having passed the Narrows, which is about 450 fathoms over, the channel continues that width on a N. by E. and N. E. direction, between the white buoys on the W., and black buoys on the E. side, to the anchorage E. of Spike Island, on sandy ground; thence it leads upwards, narrowing round the beacons on the northern side of the Spit extending E. S. E. from Haulbowline Island, close in to Cove Town on the north shore. At the entrance of the passage to Cove is a white buoy; and at about 160 fathoms to the S.W. of this, in 2½ fathoms, is the Lower Spit Buoy, quartered black and white on the top, with alternate black and white rings on the side. The Upper Spit Buoy, white, lies in 9 feet, N. W. by W. ½ a mile from the Lower Spit Buoy. Here the tide runs 2 or 3 knots: it is high water on the full and change at half-past 4, and the tide rises from 9 to 13 feet.—Large ships going in at or near low water, must be careful to avoid the Harbour Rock, which lies a little within the Stag Rocks, on the east side. On it are two buoys, about 1½ cables' length apart: one on the eastern, white with red rim; the other on the western edge, red with black rim. It has 15 feet on it at low water spring-tides. About ⅓ of a mile N. by E. ½ E. from the Harbour Rock lies the S. end of Turbot Bank, extending thence N.W., and which has on its shoalest part, the N. end, in common tides, but 10 feet water. The middle of this bank lies with a remarkable dark stone building, on the precipitous part of Kenly Cove, bearing W.S.W., and touching the projecting part of the land south-eastward of Temple Breedy Church. It has on it two buoys, about a cable's length apart: one on the east, white with a black rim; the other on the west side, red with a white rim. In order to avoid the Shoals on the E. side, keep within 2 cables' length of the eastern shore; or bring the lower part of the white wall, which stands to the southward of the fort upon Dog's Nose, on, or under the bastion of that fort. To go to the W ward of the Harbour Rock and Tur Bank, keep the fort on Dog's Nose, o to the westward of the lower part of white wall above-mentioned; or wi without the harbour, bring and keep a lage, which appears on a hill upon Gr Island, over some pine trees, touching point of Dog's Nose, bearing N. 38 deg which will lead clear of all dangers that side. To go between the Sho keep the flag-staff in the fort of Do Nose, on, or over, the lower part of white wall. To avoid the Harbour Ro on the S. side, keep the Crow Rock on w Poor Head. The Turbot Bank may avoided by keeping nearer to the E. th to the W. side of the entrance. Betwe the Harbour Rock and the E. point ar or 6 fathoms; between the Harbour Ro and Turbot Bank are 6 and 7 fathon and between the bank and the west shore are 5 and 6 fathoms at low wat About a mile S.E. by E. ½ E. from Ha bowline Island, extends the Spike Sa which begins to dry on the North s at half-ebb, and shelters the anchorage Queenstown. On the east elbow of th bank a lighthouse has been erected screw piles, in 9 feet: it exhibits a fixed r light, visible from N.N.E. ½ E. to S.E. E. ½ E. round by Eastward, and at a di tance of 8 miles. Masters of vessels a cautioned not to cross the bank betwe the lighthouse and Haulbowline Islan and to give the lighthouse and detach beacon-pillar sufficient berth in passin In going from Dog's Nose for the Cov keep Dog's Nose Point S. by W. ¾ W or steer for the E.most part of the fort the N. shore, between the black and whi buoys, to avoid a flat which extends some parts a mile from the E. shore, a also a rock that lies to the westward Cork Beg, which appears at half-ebb. Th best place for large ships to anchor is t the garrison, in from 8 to 5 fathoms. Me chant ships may ride off the Cove, smoother water and less tide; they ma go also further up the harbour of Passag and ride any where between the fir houses and Ronan's Point. In proceedi from Queenstown to Passage, do not ap proach nearer than ½ a cable's length the S. side of Black Point; and give th W. side of it a berth of about a cable length, to avoid a sand which exten from that shore, and dries at low wate You may go westward from Haulbowlin Island, until you see Ronan's Point in th channel of Passage; then steer northwar along the W. side of the channel, for th anchorage. Vessels drawing 16 feet may with spring tides, go up to Black Roc or to the town of Cork, and lie at th quays with 9 feet at low water, averag tides. Between Passage and Horse Hea

is a spit of sand, of 6 feet water, extending above a cable's length eastward from the Clay Cliff: you will avoid the extremity of this spit by keeping Dunkettle House on with a grove of trees which stand on the top of a hill above the House. The point of this spit lies with Belveley Castle and Ronan's Point in one; and vessels which anchor near it, should have the castle fairly without Ronan's Point, or wholly shut in with it. In a small creek called Cross Haven, within the entrance of Cork Harbour, and on the west side, opposite Dog's Nose, vessels may ride in 10 or 12 feet.

Kinsale Harbour.—A new lighthouse has been erected on the Rocky Point at the S. end of the Old Head, distant half-a-mile S.S.W. ½ W. from the old lighthouse, bearing from Bulman's Rock S.W. ¼ W. 4¼ miles. This light is a fixed bright light, similar to that heretofore shown from the old lighthouse, and is visible from N.E. ¼ N. seaward to W. by N., and at the distance of 21 miles. In sailing towards the harbour from the southward, keep Knockmeldown Hill N. E. by E. until you see the Old Head of Kinsale; after making that, which is about 3½ miles S.W. by S. from the entrance of the harbour, run in until the old lighthouse on it bears W.N.W., about 3 miles; then run in N.W. by W. until the old lighthouse bears S.W. by S.; and then steer N.E. by N. until you are abreast of the lower cove, where you may anchor in 6 fathoms. The only danger near Kinsale Harbour is Bulman Rock, which lies about a cable's length S.S.W. ½ W. from Hangman's Point on the E. side of the entrance, and has 4 feet on it at low water. This rock is buoyed, and may be passed on either side, but the channel on its W. side is the safest for ships coming in or going out.

Baltimore Harbour lies about 5½ miles to the north eastward of Cape Clear, and is very convenient for ships bound either eastward or westward. Small vessels may ride 2 or 3 cable-lengths N.N.W. of Baltimore Town, in 10 or 11 feet at low water, sheltered from all winds.

BRISTOL CHANNEL.

LIGHT VESSELS AND BUOYS.

Light Vessels are moored, and Buoys laid in this Channel as follow:—

Light Vessels.

A Light Vessel, exhibiting a bright light, which revolves every minute, and is visible 10 miles, lies near the English and Welch Grounds, on the south side of the Bristol Channel, and in lat. 51 deg. 26 min. N., and long. 2 deg. 58 min. W. This vessel is painted red, carries a ball during the day, has the words *English and Welsh Grounds* upon her sides, and is moored in 6 fathoms, with the high land of Minehead on with Flatholm Light Tower, W. by S.; the Usk Light Tower, N. by E. ½ E.; a remarkable Peak on the distant Land (See-me or See-me-not), on with St. Thomas' Head, S. ½ W. A gong is sounded in foggy weather.

A Light Vessel, bearing a bright light, which revolves every minute, and is visible 10 miles, lies off the western end of the Helwick Shoals, and in lat. 51 deg. 31 min. N., and long. 4 deg. 24 min. W. This vessel is painted red, shows a ball in the daytime, has the word *Helwicks* upon her sides, and is moored in 16½ fathoms, with Oxwich Point, E. by S.; Worm's Head, N. E. by E. ½ E.; Caldy Lighthouse, N. W. by N. ½ N. During foggy weather a gong is sounded.

Buoys.

Sand Ridge, White, lies in 4 fathoms low water spring tides, with the Valley of Rocks Hotel, midway between Linton church and a conspicuous house on a hill westward, bearing S.S.W.; Hurtstone, apparently a cable's length outside the Foreland, E. S. E.; Rillage bearing W. by N. ½ N.

Gore, Black, lies in 10 feet, with Burnham High Light three times its apparent breadth open southward of the Low Light, E. by S. ½ S.; Flatholms Island, its apparent length open west of Steepholms; the Lighthouse, N. N. E. ½ E.; Sand Point appearing open of Brean Down Point, N. E. by E. ½ E.

West Culver, Red and White striped, with Beacon, lies in 4 fathoms, with Swallow Cliff, a little open of the South of Steepholme Island, E. ¼ N.; Willet's Tower, well open to the Westward of West Quantocks Wood, S.S.W. ¼ W. Westerly; East Culver Buoy, E. by S.

EAST CULVER, Red, lies in 6½ fathoms, with Penarth Head, on with Lavernock Point, N.N.E. ½ E.; Black Nose Point, just open Southward of Steepholm Island, E. by N. ¼ N.; Flatholm Lighthouse, N.E. ½ E.; Burnham Church Tower, S.E. by S.

ONE FATHOM, Black, lies in 4½ fathoms, with Barry Church (with Belfry) twice its apparent breadth on the West end of Barry Island, N. by W.; Lavernock Point, N.E. by E.; Flatholm Lighthouse, E. ½ N.; Steepholm Flagstaff, E. by S. ½ S.; Brean Down, E.S.E.

HONEYCOMB, Black, lies in 5 fathoms, with Weston-super-mare Church on with W. end of Piggot's Summer House, S.S.E. ¾ E.; Kewstock Church about a ship's length open N. of Breanbeck Island, E. by S.; Brean Down Point, S. W. ¼ W.; Swallow Cliff Point, N.E. by E. ¾ E.; Flatholm Lighthouse, N.W. ¼ W.

NEW PATCH, White, lies in 9 feet, with the high Land of Minehead just open Southward of the South end of Flatholm Island, W. by S.; Cardiff Church Tower, and the two Glass House Chimnies at Cardiff, apparently at equal distances, the Church Tower being the Eastern object, N. ¼ E.; Hayes Windmill over the East end of Sully Island N. W. ¼ W.; Penarth Church, N. ¾ W.

WOLVES, Red and White chequered, lies in 5 fathoms, half a cable's length westward of the Rocks, with Hayes' Windmill on with the West end of Sully Island, N. W. Northerly; Penarth Head, N. by E. ½ E.; Flatholm Lighthouse, S.E.

SOUTH WEST PATCH, Red, with Beacon, lies in 4 fathoms, with Worle Mill in a line with the western side of Middlehope Beach, S. ½ E.; Flatholms Lighthouse, W.S.W.; Usk Lighthouse, N. by E. ¾ E.; Grounds Light Vessel, S.E. ¾ E.

WELSH HOOK, Black, lies in 5 fathoms low water spring tides, with Aust Head a ship's length open southward of Denny Island, E. by N. ½ N.; See-me and See-me-not on with Clevedon Old Church, S. S. W. ¼ S.; Grounds Light Vessel, W. ½ S.

RANNEY FLOATING BEACON lies in 4½ fathoms low water spring tides. Sailors' Home, at Cardiff, just open off Penarth Head, N. by E. ½ E.; the Western part of Brean Down on with Flatholms Island at low water; the Lighthouse, S. by E. ¼ E.; Ball Point, W. ¼ N.; the highest part of Sully Island, W ¼ S.

WEST CARDIFF, Black, with Beacon, lies in 4½ fathoms, with the Monkstone Beacon in line with Clevedon New Church E. by S.; the Eastern side of Steepholm, just open West of Flatholm, at high water, the Lighthou S. by E.; Sully Island open a ship length Southward of Ball Point, W. S.; Penarth Church N.

EAST CARDIFF, Red, lies in 6 feet lo water spring tides: Monkstone Beac on with S. E. end of Steepholm S. W. ½ W.; Penarth Church W. ¼ S. Usk Lighthouse E. N. E.

CARDIFF HOOK, Black and White ch quered, lies in 2 fathoms, with Cardi Church Tower its apparent length ope Eastward of a conspicuous Clump Trees, N. N. W. ¼ W.; Peterstor Church Tower apparently midway b tween the Spire of Newport New Churc and the Tower of the Old Church, N. by E.; the Usk Light Tower, N. by E. ¾ E.

NORTH WEST SPIT, Black and Whit Vertical Stripes, lies in 2 fathoms lo water spring tides; West Cardiff Buo 2 cables distant, S. S. E. Easterly; th eastern part of Steepholms on with th western high water mark of Flatholms S. ½ E.; Penarth Church, N. ½ W.

BREAKSEA, Black and White striped ho rizontally, with Beacon, lies in 5 fa thoms, about one cable's length fron low water mark, and ½ a cable's lengt without the Rocks, with the Nash Lo Light Tower apparently midway be tween the High Light Tower and th White Beacon upon St. Donant's Cliff N.W. ½ W.; Evans' Farm House, appa rently midway between a large Yellow Dwelling House and Limpert House the latter being the Eastern object, N by E. ½ E.; Brereton Windmill, N. N W. ½ W.

EAST NASH, Black and White chequered lies in 4 fathoms, with Groes' House (yellow) twice its apparent width open Westward of the Tower upon Dunraven Promontory, N. Easterly: the North side of the Nash High Light Tower on with the South side of the Low Light Tower, S. E. by E. ½ E.; Nash Swatchway Buoy, N. W. ¼ W., 4¼ miles; Tusker Beacon, N. N. W. ¾ W.; the fair channel course from the Mumbles to this buoy inside the sands, with the Mumbles Light Tower N. N. W. ¾ W., and the Nash Low Light Tower S. S. E. ¾ E.

NASH SWATCHWAY, Black, lies in 2½ fathoms, with Sker House on with Rhwychwyn Point, N. ½ E.; Newton Down Windmill, its apparent length open Northward to Newton Nottage Church Tower, N.N.E. ¾ E.; the Nash High Light Tower, its apparent length open Northward of the Low Light

Tower, S. E. ¼ E.; Tusker Buoy, N. E.; East Nash Buoy, S. E. ¼ E., 4 miles; West Nash Buoy, N. W. ¼ W., 2¼ miles.

West Nash, Black and White chequered, with Beacon, lies in 6 fathoms, with Newton Down Windmill on with the centre of the Breakwater at Porth Cawl, N. E. by E. ½ E.; the Nash Low Light Tower, S. E. ¼ E.; East Skerweather Buoy, N., 2 6-10 miles; West Skerweather, N. W. ¼ N., 6½ miles; Mumbles Light Tower, N. by W. ¾ W.; Nash Swatchway Buoy, right between the Lighthouses, S. E. ¼ E., 2¼ miles; Tusker Beacon, E. ¼ S., 2½ miles.

East Skerweather, Red and White striped, lies in 6 fathoms, with a conspicuous Shaft on the summit of the highest Hill, open Eastward of Constantinople Cottages, the apparent length of them, N.N.E. ¾ E.; Margam Trees, on with the West end of a long stone wall terminating near the Beach E. ¼ N.; the Windmill inland of Cwm Mawr on with Dunraven Point, S. E. ¼ E.; Kemfig Church 2¼ points open Westward of the Scar House, N. E. by E. ½ E.; Nash Low Light Tower, S. E. ¼ S.; Mumbles Light Tower, N. N. W. ½ W.; West Nash Buoy, S. ¼ W., 2 4-10 miles; West Skerweather Buoy, W. by W. ½ W., 5 miles; Mixon Buoy, N. N. W. ½ W., 9 miles; Tusker Beacon, S. E. ½ E.

West Skerweather, Red, with a Beacon, lies in 4½ fathoms, with Constantinople Cottages on with the mouth of Aberafon Harbour, E.N.E. Northerly; Margam Trees open Southward of Sker House three times their apparent width E. by S.; Nash High Light Tower, S.E; Mumbles Light Tower, N. ¼ E., 6 miles; East Skerweather Buoy, S E. by E. ½ E., 5 miles.

Hugo, Black, lies about a cable's length from the dry sand on the N.E. side of the Bank, with a large square House on with the South end of the large Store House at Porth Cawl, S. E. ¼ E.; Kemfig Church its apparent breadth open South of a White Cottage (the Northernmost in the Village), E. ½ N.; Nash Low Light Tower, S. E. by S.; Mumbles Light, N. N. W. ½ W.; Constantinople Cottages N. E. ½ N.; East Skerweather Buoy, S.

Inner Green Grounds, Red Nun, lies in 3½ fathoms, about one and a half cable's length from 5 feet on the S.E. end of the Shoal, with Kilvey Old Mill, ⅓ distant from the Inn (a large brick house), towards Tennant's Look-out House, N.E. by N.; Mumbles Lighthouse, W. ½ N.; Woodland Castle, N.W. ¼ N.

Outer Green Grounds, Black and White chequered, lies in 2½ fathoms, with the Tut between the two Houses on the Mumbles Point, W. ½ N.; Woodland Castle, N.W. by N. ¼ N.; Swansea Pier and Lighthouse, N.E. by N.; Kilvey Old Mill, N.E. ½ E.

Mixon, Black, with Bell, lies in 10 fathoms, with Porth Einion Point on with Oxwich Point, W.N.W. Westerly; Kilvey Old Mill Tower on with Swansea East Pier Head, N. E. ¾ E.; Mumbles Light Tower, N. E. ¾ N.; West Skerweather Buoy, S., 5 miles.

West Helwick, Black, lies in 5½ fathoms, with Rhossily Parsonage on with East Crow of Table-land of Worms Island; Porth Einion Point, E. by S. ½ S.; Worms Head, N.E. by E. Easterly; Helwick Light-vessel, S. W.; Caldy Lighthouse, N. W. ¼ N.

Helwick Swatchway, Black and White striped, lies in 4½ fathoms, with Burry Holmes appearing in the centre of Worms Sound, N.N.E. ¼ E.; Oxwich Point on with Porth Einion Point, E.S. E., Easterly; East Helwick Buoy, E. S. E., 3½ miles; Worms Head, N. ¼ W., 2 4-10 miles; West Helwick Buoy, W. N. W., 2½ miles.

East Helwick, Black, lies in 2½ fathoms, with Rhossily Point open Westward of Tears Point the supposed breadth of a Ship, N.N.W. ¾ W.; a White Building upon the high Land, apparently midway between two White Cottages below that building, N.N.E. ½ E.; Helwick Swatchway Buoy, W. N. W., 3½ miles; West Skerweather Buoy, S. E., 12 miles; Mixon Buoy, E. by S. ¾ S., 9¼ miles; Worms Head, N. W. ½ N., 4 1-10 miles.

Cockburn Shoal, Black, lies in 4 fathoms, about 20 fathoms S.E. from the shoal, with the Avon Lighthouse one-third between Penpole House and Miles' House, S. E.; High water mark of Black Nose Point on with Portishead Point, W. ½ S.

Tusker and Monkstone.—A mast with a large red ball attached is erected as a beacon upon each of these rocks. From the Tusker Beacon, Porth Cawl Point, N. ½ W., is 1½ miles; Nash Low Light Tower, S. S. E. ½ E., 5 miles; East Skerweather Buoy, N. W., 3½ miles; East Nash Buoy, S. S. E. ¾ E., 5 miles; West Nash Buoy, W. ¼ N., 2½ miles.

BEACON ON THE WOLF ROCK.—This Beacon consists of an artificial cone, bearing a mast having a large ball upon

its summit at an elevation of 36 feet above the level of the sea at high water; the mariners are to observe that spring tides rise at this station 19 feet, and that at low water of those tides, the rock is uncovered to the height of 15 feet. St. Michael's Mount open of Lemorn Cove leads 2½ miles to the Eastward of it; Longships Lighthouse touching Cape Cornwall leads 1¼ miles Westward of it. The Bearings and Distances of the mentioned objects from this Beaco as follows, viz.:—Longships Light N. E. Northerly, 7¾ miles; Scilly house, W. by N. ½ N., 21 miles; R stone Rock, which covers at half E. by N. ½ N., 7 miles; Seven S centre thereof, N. W. ¼ N., 13½ Lizard Lighthouses, S. E. by E. ¾ miles.

WEST COASTS OF ENGLAND AN WALES.

SMALLS LIGHT TO THE PORT OF LIVERPOOL.

Smalls Light is placed on Smalls Rocks, lying off St. David's Head in Pembrokeshire, and bearing from St. Ann's Point, N.W. by W., distant 18 miles. This light is stationary, appearing like a star of the first magnitude, at the distance of 4 or 5 leagues. To avoid these rocks, keep above a mile from the highest on all sides, and do not attempt to pass inside of them without a good chart and ample directions, or a pilot; with these there is excellent anchorage to be found in St. Bride's Bay in 8 or 9 fathoms.

South Bishop Light.—The Bishop and Clerks are a number of dangerous rocks, with great overfalls, lying northwest of Ramsey Island, at the distance of 2½ miles. On the southernmost, called the South Bishop, is a lighthouse, exhibiting a revolving light, visible in all directions, and appearing with great brilliancy at intervals of 20 seconds, whereby it will be readily distinguished from the Smalls and other lights in its vicinity; it can be seen at the distance of 17 miles. This light is the principal guide the mariner has to enable him to know his exact situation, when sailing near this dangerous part of the coast of Wales. The light must be always passed to the westward, and when to the northward of it never bring it to the westward of south, until you are 3½ or 4 miles from it, particularly on a flood-tide, in moderate weather, for then you have the tide nearly on the beam, which runs rapidly through amongst the islands; at spring tides nearly 5 knots, and causes several overfalls. The passages between the rocks must not be attempted by strangers.

From St. David's Head to Strumble Head the course is E. N. E. ¾ E., distance 11½ miles; between them at the distance of 5½ miles from the former, is castle Island, lying close to the land sailing from St. David's Head to Card Bay you must give the shore a good b for several rocks under water lie scatt about, some of which are nearly a from shore; they are called the Sled and are 2 miles eastward of St. Da Head.

Fishgard Bay.—Three miles to eastward of Strumble Head you open F gard Bay, having good anchorage any wind, except from the N. to the the ground holding well. The best chorage will be to the southward of Cow Rock, which is always above wa in 4 or 5 fathoms, the rock bearing N. E. ½ E., distant a ¼ to ½ a mile. This ba more desirable for vessels seeking sh ter in gales from S. and W. than Studwa Road, which is 17 miles to the leeward, it is well sheltered from these gales, wh Studwall's Road is not, and the bay affo a more ready outlet to the S. or N. th any place in the neighbourhood.

Newport Bay opens when you ar or 7 miles distant from Strumble Head. The bar and channel to Newport lie abo ¼ a cable's length from the shore, direct below the village of Newport. On the b are 14 feet water with spring tides, and or 9 at neaps. When a vessel is ov the bar, she will be sheltered from a winds.

Cardigan Bay.—The Buoy on th Causeway in Cardigan Bay has bee moved, and now lies near the extremit of the Causeway Reef, in five fathoms a low water springs, with the followin marks and compass bearings: Slandebrog Mill in line with the east side of Wes Island at St. Studwall, N. by. E.; Penkila Head, N. by W.; Bardsey Lighthouse, N. W. ½ W.

Cardigan Harbour is adapted for vessels, drawing about fifteen feet. In the channel over the bar, which is liable to shift, are 23 feet water with spring-tides, and 12 feet with neap; but in Cardigan Road a ship may stop, in moderate weather, almost any where outside the bar, the best anchorage being about three cables' length from the shore.

Aberystwith Harbour is fit for vessels which draw 15 feet. There are land-marks to lead you over the bar, one of which is moored on wheels, as the bar shifts. When any vessel is seen off the place in the evening, there are lights put upon the marks, which must be brought in one, to direct you over the bar.

Aberdovey is about 3 leagues to the northward and eastward of Aberystwith, and 6 miles to the south of the Diamond Beacon on Beach Head. This harbour has a shifting bar about a cable's length broad, and about half that in and out. The Trinity Board have placed a large Black Buoy at the entrance, outside, and a Red one inside the bar. A good look-out should be kept for a small Buoy between the Black and Red Buoys, which makes the angle of the passage if any. These Buoys are all placed in the fairway. Vessels may come to anchor half a mile above the Red Buoy, and which is about the same distance below the town, where from 12 to 15 sail, drawing from 12 to 15 feet water may ride in safety and in good holding ground.

Barmouth Bay may be known at a distance by the highest mountain on that coast: it has two tops—the southmost is highest; and when seen from the westward, is in a line with the N. side of the entrance of Barmouth. From the N. side of the Bay, and about 1 mile from the main, a shoal called the Causeway, extends W. by S. 3 leagues: at low water there is not more than 2 or 3 feet water all along the edge of it, where at a cable's length the compass is so affected by magnetism, as to vary 90 degrees, and, as you approach nearer, quite reverse the points.

Studwall's Road affords excellent anchorage for the largest ships, sheltered from all winds except from E. to S. E. by E. It is easily known by two Islands that lie off the point, and there is no danger except a small rock about ¼ of a mile eastward of the Islands, between which there is a good passage, as well as between the westernmost and the main, at a cable and a half's length from them.

Bardsey Island is separated from the mainland by a channel more than a mile and a half wide, having from 15 to 25 fathoms in it. On the S. W. part of this Island is a lighthouse exhibiting a bright fixed light, visible seaward from E. ¾ S. to N.E. ¼ E., and at a distance of 17 miles; but masked between the bearings of N. 50 deg. E. to S. 70 deg. E. If in a gale of wind from the W.N.W. vessels should be unable to weather Bardsey Island, this light will point out a secure asylum in Studwall's Road, enabling them to preserve a proper position until daylight, when they can proceed to the anchorage therein. Vessels bound for Studwall's Road, or laying-to for daylight, must not bring the light to bear to the westward of W.N.W.; and if they lose sight of the light when it bears from them nearly in that direction, they will be too far to the northward, and in danger of getting embayed in Hell's Mouth.

Carnarvon. — From Brauchypool Head the shore lies nearly E. N. E. to Carnarvon Bar, and from thence nearly N. by W. ½ W. to Holyhead Island, forming Carnarvon bay. Vessels going in are to leave the outer or Black Buoy on the port hand, the Red Buoys on the starboard hand, and the Perch beacon on the port hand. The black and white chequer Buoy is placed in mid-channel. Nun Buoys, painted green, denoting sunken rocks, are placed off Llanddwyn Point. This Point may be distinguished, in the day time, by two white towers, (a large and a small one) and during the night, by a fixed red light, visible, in clear weather, about five miles to seaward, between the bearings (from Llanddwyn by compass) of N.W. by N., and S.W. by W.; and which is intended solely as a leading light for the entrance to the Menai Straits. The bar should not be attempted until daylight, nor by vessels drawing more than 10 feet before half flood. During gales from W. to N., vessels may find shelter on the S. E. side of Llanddwyn Point. The proper anchorage is about a quarter of a mile from the shore, with the small tower a little open to the northward of the large tower. In running in, give a good berth to the sunken rocks (the green Buoys indicating which are placed to seaward); but it is much preferable for strangers to heave to outside sufficiently to windward, and make a signal for a pilot, four of whom are stationed at Llanddwyn, with a life-boat and Marryat's code of signals. Vessels wishing to communicate will be answered from the large tower.

South Stack Light. — Off the N. W. point of Holyhead Island is the South Stack Rock, upon which is a lighthouse, bearing a brilliant light, which revolves every minute, whereby it will be readily distinguishable from the light on the Skerries, which is a stationary light,

and bears from the light on the South Stack N.E. ½ E., distant 8 miles, and may be seen through a great part of Carnarvon Bay. During foggy weather a smaller bright light, revolving in 1½ min., is occasionally shown, about 40 ft. above the sea, and 30 yards north of the main lighthouse.—Any vessel making either of these two great lights, can find no difficulty in navigating round the head, or into the harbour of Holyhead, if the wind permits; and no directions that could be given would serve equal to that of having the two lights in sight, as will be the case in the situation above mentioned.

Holyhead Refuge Harbour is chiefly formed by an immense breakwater, the heel resting on Soldier's Point, from whence it projects N.E. by E. nearly one and a half cables' length, then E.S.E. about five cables' length, and then E.N.E., to its end, which is marked by a red light, visible at a distance of 3 or 4 miles. The end of the breakwater is N. N. E., one mile from the Old Harbour Light.—To sail into Holyhead Refuge Harbour, give the end of the breakwater a good berth, as a strong tide sets to the westward nine hours out of the twelve, and strikes hard upon it. Having rounded the breakwater, steer to the W.S.W., between it and the outer Platters, leaving all the black buoys on the port hand, and anchor well in, close to the beach. There are passages between the Platters and Salt Island; but these should never be attempted by strangers. Vessels should have both anchors ready for letting go, with 50 to 60 fathoms of chain ranged according to the weather, and should be careful to anchor well up, or they will have to shift berth. Vessels disabled or without ground-tackle may be laid on a beaching-slope at the head of the harbour, which has been prepared for the purpose.

Old Harbour of Holyhead.—A wooden pier has been recently built, extending from the Old Harbour Lighthouse in a direction E. by S. Two red lights of equal height mark its end.—All vessels bearing up for Holyhead Harbour, should be prepared with both bower anchors ready to let go, and the end of a good warp for a boat to take to one of the Dolphins, moored along the passage for that purpose. The course round the pier, up the harbour is W. by N., then W.N.W.; therefore, with the wind at N., and to the westward of that point, a press of sail should be carried, especially after-sail: run the jetty close on board, and neither start tack nor sheet till the vessel is well inside of the lighthouse and the packets' moorings, then act as circumstances may require. Rise of water at spring-tides 17 feet; depth of water the entrance, at low water, spring tide about 12 feet. Holyhead harbour being tide harbour, and frequently with ma anchors down in the way, vessels drawi 12 feet should not run in until about tw hours' flood, and those of a heavy draug should, if possible, keep off till four hou flood. In tempestuous weather no vess should run in for the harbour at nigh time. There is no occasion to use this a harbour of shelter now the new harbo is established. All vessels anchoring ou side must keep a light up during the nigh

Holyhead Harbour Lights, s tuate on the starboard hand in enterin the harbour, are stationary. The highe a bright fixed light, is visible at a dis tance of 11 miles; and the lower, re is visible from S. S. W. to S. W. onl serving as a mark to clear the Platter and rocks on both sides. Vessels ente ing the harbour are in the fairway whe they see the RED light, and steer for i A red light is shown from the easter extremity of the new breakwater; an two red lights, of equal height, are ex hibited from the end of the temporar wooden jetty which has been recentl built out from the Old Harbour Light house in a direction E. by S.

The Skerries is a cluster of islet and rocks 1 3-5ths mile to the northwar of Carmel Point, occupying a space o about half-a-mile. Upon the centre an highest islet of the group is a lighthous 54 feet high, showing a fixed bright ligh at 117 feet above the level of high water visible 15 miles. The position of thi lighthouse is lat. 53° 25′ 18″ N., and long 4° 36′ 24″ W. A short distance all roun the islands is deep water, except on th northern side of the group where is a dangerous rock of 2¾ fathoms, called th African, lying with the lighthouse in one with Pengarn Hill bearing S.S.E. Upon this rock there is a great overfall when the tide is running either way. Between the Skerries Islets and Carmel Point is a dangerous ledge of rocks, drying with spring tides only, called the East Platters. Close-to all round are 8 to 16 fathoms, and there is a strong rippling when the sea is heavy. You may sail between the rocks and the Skerries by bringing the South Stack Bridge over the North Stack, and between them and Carmel Point, by bringing the South Stack and North Stack in one. The Beacon on the West Mouse Rock in one with the Middle Mouse, also clears it on the south side.

Point Lynas lies S.E. by E. ½ E. of the eastern point of Almwch Bay, distant 1¼ mile, and is situated in lat. 53° 25′ N., and long. 4° 17′ W. It is a bold con-

spicuous point of land both from the eastward and westward. A lighthouse is erected on the high pitch of the point, and is a castellated building, with a white basement. It exhibits a flashing light, which becomes instantaneously obscured at intervals of 10 seconds, and remains obscured 2 seconds only, so that it is readily distinguishable from the Skerries and other lights in the vicinity. From Lynas Lighthouse to Great Orms Head, S.E., 16 miles; N.W. Lightship, Liverpool, E.S.E., 37 miles; Calf of Man, N. ¼ W., 42 miles; Buoy Nelson, off Preston, E. Southerly, 45 miles; St. Bees' Head, N.E., 70 miles.

Port of Amlwch, Anglesea.—In the day time, when the Breakwater Balks are down, a Ball is fixed on a pole at the easternmost point of the harbour. When too many vessels lie at the entrance of the harbour, a Red Light will be shown, and when the entrance is clear, a White Light.

To Sail into Beaumaris Harbour, THROUGH THE SOUND IN LOW WATER.—Steer in for Table Land, till the W. end of Puffin Island comes open with the E. end of Penmaenmawr Hill. These marks will clear the Dinmora Bank on your starboard hand. You then have the Sound fairly open; but to avoid the rocks off Trwyndu Point, keep more to the Perch on your left; and when Beaumaris comes open off Trwyndu Point, haul up for the red buoy off Penman, keeping it on your starboard hand, and off the red buoy of the Causeway on your left. Anchor in 4 fathoms off Penman red buoy, clean and good holding ground, well sheltered from a north-westerly wind; but if one hour's flood, you will carry 16 feet over the Flats off Penryn Point. Steer for the black buoy on the Spit of the Levan Sand, abreast of Friar's House, where anchor in 5 fathoms low water spring-tides, or at ½ flood steer for the town, keeping off Castle Hill 2 cable's length, and about the same distance off Watch House Point, in 6 and 7 fathoms. Keep that depth of water until the Church at Beaumaris bears N.N.E. by compass, when you may anchor in 9 fathoms at that time of tide. Thence you will see Bangor Pool, which is above Ferry Point. But if any of the buoys should be missing, as you steer up, keep the Church Tower and Lodge Hill in one.—Opposite the Friar's House, in mid-channel, is a sandbank, marked by a red and white chequered buoy: in sailing up to Beaumaris, keep this buoy on the starboard hand.

To Sail out of Beaumaris Harbour, FROM THE ANCHORAGE OFF THE TOWN.—Weigh at high water, and drop down to Friar's Road. Give the black buoy off the Spit a berth on your starboard hand, and the red buoy off Penman on your larboard. At half ebb, take the eastern passage, keeping off the red buoy of the Causeway on your larboard hand. From the latter, steer for the east end of Puffin Island, on your larboard hand, keeping off it half a cable's length, and the black buoy off the Dutchman's Spit the same distance on your starboard hand.

Menai Lighthouse is erected at the north-eastern entrance of the Menai Straits. The Light is STATIONARY and of a RED colour, visible from N.W. ¾ W. seaward, to S.W. ¼ W. excepting that by the intervention of Puffin Island the Light will be eclipsed to vessels upon the bearings from it of E. by N. ½ N. to E. ½ S. A ledge of rocks extending under water from the base of the Lighthouse nearly 50 yards, it is advisable not to approach the building within that distance.

Conway Harbour.—There are two channels leading into this harbour—the west and north. For the west channel, steer from the N.W. black buoy to the second black buoy, leaving them on your larboard hand; keep the red buoy off Penmaenbach, the chequered red and white buoy, the two red buoys, and the perch, on your starboard hand; haul up, and steer for the quay, keeping close to Deganwy Point on the larboard hand. The entrance to the north channel is marked with a black perched buoy: the second, third, and fourth are all black, and moored in the best of the channel. Vessels drawing from 10 to 12 feet may lash alongside the quay, on mud and sand, dry at low water.

To Sail from Point Lynas to the Great Ormshead.—The course from Point Lynas to the Great Ormshead is S.E. per compass; from whence keep the Ormshead as the line is drawn on the chart, till Rhydland Castle and St. Asaph Church are in one; then haul in till the south mark on Helbre and Bidston Lighthouse come in one. Steer forward on that line which is the deepest water along the shore. It will also clear the Middle Patch on the left, which is dry at low water, spring tides. Buoys are placed here; red on the starboard, and black on the larboard hand, coming in. Give the Point of Ayr Lighthouse a berth of a mile on the starboard hand; and when it bears W. haul up S.S.E. for mid-channel. At that time the rippling of the tide on the edge of the Salisbury Bank will be very perceptible, as well as on the Welch side. Continue that course, in mid-channel, till the Grange Mill bears N.E. by E. by compass, then haul quick for Dawpool, and keep that bearing till Burton Mill

comes over the town of Parkgate. That course clears the south end of Salisbury Bank, and the Bagilt Flats on your right. As you advance, keep the lead going, and borrow on the Haswell Church side of the shore. It will carry you clear to Bearhouse Pool, where anchor till you obtain a pilot. The leading mark for passing at high water across the Salisbury Bank to Hoylake is Helbre Eye on with the Grange Mill.

Chester Bar is a narrow sandbank between 3 and 4 miles in length, stretching rather circularly from S.E. to N.W.; its South end is near to Nant House, and is called the Middle Patch, sometimes drying; the middle of it is called Earwick, and dry at low water; but much the greater part of it never dries, having from 3 to 6 feet water over it at all times. To clear the Earwick to the eastward, bring Nant House and the barn above it in one. To SAIL OVER CHESTER BAR in a ship drawing 12 feet, take half-flood; and when Craig Disart Hill bears S. S. E., which with Middle Hill and Comb Hill form an equilateral triangle, keep the two Ormsheads shut below, and a little open above; by this you will avoid all danger on the southward. To avoid the banks and shallows on the north side, open the Ormsheads below near a ship's length, but not more. If a vessel comes to Chester bar before half-flood, and is apprehensive of not having sufficient water to cross it, she may sail between the Middle Patch and the Earwick, keeping the Ormsheads a little open below; and when Craig Disart Hill and Middle Hill are in a line, steer N.E. by E. until you deepen your water to 4 or 5 fathoms, and sail along Hoyle Sand for the Point of Air, giving that point a berth of half-a-mile. To avoid that part of Hoyle which is opposite to Air, keep Bidston Windmill to the south of Helbre Summerhouse; this will carry you through the swashway toward Hoyle Lake. But the mark which leads clear of the north part of the Hoyle Sand, and directly into Hoyle Lake, is the Point of Air Lighthouse open to the northward of Helbre Island.

The River Dee.—Vessels may s a tide about 1 mile to the eastward of Point of Air, upon which a lighthous erected. The tide runs, when strong 3½ miles an hour; and when the tide wind are contrary to each other, mak rough sea here. At this place, whicl called Wild Road, you can anchor in 5 6 fathoms; or you may proceed higl up to the anchorage off Linacre Cre where, in 6 or 7 fathoms, you will much better sheltered than in Wild Rc from north-westerly winds, and ride ground that holds well. To sail fr Wild Road to Dawpool, a distance of n 6 miles, bring the southernmost hou of Dawpool, which stands below a cl cliff, exactly in a line with the barn ha ing a white end, standing on the top the cliff, but the barn must not be broug on either side of the house; anchor abo 2 cables' length from high water ma in 3½ or 4 fathoms at low water. He the stream runs 5 miles an hour wh strongest. At Parkgate, which is mo than 4 miles up the river, vessels mu lie aground on the beach; for thou there are 2½ fathoms in the channel, the town, and 3 fathoms above it, yet th stream is so strong, and the ground s indifferent, that a vessel would drag it anchor. Take the ground about 2 hou before high water, below the houses Parkgate. Vessels in making their pas sage to Parkgate must use the utmos caution to avoid the Salisbury Bank, dangerous shoal, and lying in the direc tion of the river. The channel now t Parkgate is opened into a swashway by Bagilt and Flint; four red buoys ar placed on the edge of the Mostyn and Bagilt Banks, and two black ones on the Salisbury bank; the former of these are to be left on the starboard side, the latter on the larboard. A black buoy lies on the SELDOM SEEN ROCKS in the channel between the Salisbury bank and the Lime Wharf. There are three small islands or rocks, called the Helbre Islands, lying to the southward of the Hoyle Sands: on the northernmost, which is called Great Helbre, are two wooden beacons or marks, distant from each other 653 yards.

BAY AND HARBOUR OF LIVERPOOL.

In the vicinity, and to the northward and westward of the Rivers Dee and Mersey, lie the banks which form the several channels to Liverpool, viz., the Hoyle Banks, the Burbo Sands and Flats, the Jordan Banks, Formby Point Flats, &c. The principal channels are, the Horse and Rock Channels, the Victoria Channel, the Queen's Channel, the Zebra Channel, the Old Formby Channel, and the Crosby or Main Channel.

The principal lights and sea-marks of Liverpool Bay are as follow:—

The NORTH-WEST LIGHT VESSEL, off the Horse and Helbre Channels, in 7½ fathoms, low water, has three masts, each bearing a lantern, so disposed as to form a triangle, and showing brilliant fixed

lights of the natural colour, which may be seen at the distance of 10 miles; in the day she carries a black ball. Her hull is painted black, with a broad white streak. In thick or foggy weather, either by day or night, a bell and gong is sounded alternately. This Light Vessel is now more particularly distinguished by the burning of a blue light, of 2 or 3 minutes' duration, at the following periods, namely, during the months of November, December, January, and February, at 6, 8, 10, and 12 o'clock, p.m., and 2, 4, and 6 o'clock, a.m. During the months of March, April, September, and October, at 8, 10, and 12 o'clock, p.m., and at 2 and 4 o'clock, a.m. During the months of May, June, July, and August, at 10 and 12 o'clock, p.m., and 2 o'clock, a.m. The instant of ignition is as near Greenwich mean time as possible; but those approaching under difference of time at ship should look out around the anticipated bearing five minutes before the respective hours.

The FORMBY LIGHT VESSEL, at the elbow of the Crosby and Queen's Channels, moored in 25 feet at low water, shows two bright fixed lights upon separate masts, visible 8 miles; a red ball is exhibited during the day. Her hull is painted red. In foggy weather a bell is tolled. Crosby Lightship, S.E. ½ S., 2½ miles; N.W. Mark, E. by N. ¼ N., 3⅞ miles; Buoy Q. Fy. (bell beacon), N.W. by W. ½ W., 2⅝ miles.

The CROSBY LIGHTHOUSE, situated to the north-eastward of Crosby Point, shows a fixed red light, elevated 96 feet above the level of the sea at half-tide, and visible between the bearings of S.S. E. ¼ E. and E., which limits indicate respectively when a ship is westward of Formby Spit, or to the southward of Crosby Lightship.

About a mile and a quarter to the north-eastward of Crosby Lighthouse is the FORMBY OLD LIGHTHOUSE, the light from which has been discontinued. Near the latter, on the strand, is a beacon, erected for the purpose of rendering the line of leading objects into the Victoria Channel more available; further to the northward is the Life Boat House; and near it, just round Formby Point, is the North-west Mark. This mark in one with another on Mad Wharf, bearing S.E. by E. ¼ E., is the leading direction for entering the Old Formby Channel.

The CROSBY LIGHT VESSEL, at the north-east elbow of the Great Burbo Bank, moored in 44 feet at low water, shows a bright fixed light, visible 8 miles, and carries a red ball at the mast-head in the daytime. Her hull is painted red. From hence the fairway course up the Mersey is S. by E. ½ E. Small vessels without pilots on board having grounded at different times, during ebb-tide, on Burbo Bank, in sailing through Crosby Channel during ebb-tide, vessels should be kept well to the eastward of a line drawn between the Rock Lighthouse and Crosby Lightship.

At Bootle, near Liverpool, are two obelisks on the shore, and behind Bootle, near Walton Church is a beacon, called Bootle Inner or Walton Mark.

On the south side of Liverpool Bay, on the peninsula separating the Mersey from the Dee, are many objects used as sea-marks, several of which will have been seen before arriving at the North-west Light Vessel. Off the west end of the peninsula are the islets, called the Great and Little Helbre, upon which are placed two beacons. On the mainland, within two miles S.E. by S. of the Helbre Islets, are the village and church of Kirby, to the east of which is Grange Hill, surmounted by a beacon, in the form of a pillar, at 173 feet above half-flood. Within two miles S.S.E. from Kirby, is Irby Hill, with its mill and wood.

About a mile and a quarter north of Kirby, near the shore, is the Hoylake Hotel, and within half-a-mile E.N.E. from this are the HOYLAKE LIGHTHOUSES, showing fixed lights, which mark the eastern entrance to the roadstead of that name. The upper one exhibits a brilliant light at 71 feet above half-flood, and may be seen at the distance of 13 miles. This light is decidedly and strongly lighted on a north aspect, and so masked as suddenly to appear when coming in, or disappear when going out, immediately it bears south by compass, thereby indicating when Bidston and Leasowe Lights must be crossed to clear the Six Feet Flats, when inward-bound, or the Spit-Elbow of East Hoyle, when outward-bound. It is masked so as not to show further to the westward than the bearing of south, or midway between the buoy of the flats (H 1, Black and White Nun) and the buoy on the south-east shoulder of East Hoyle Bank (H 3, Red Can). The lower light is 47 feet above the same level, and may be seen at the distance of 11 miles. This light is so lighted as to open abruptly when coming from the westward, or shut when going westward, directly it bears S. by E. ¾ E. by compass, thereby indicating when you are approaching the line of N.W. Spit Buoy of East Hoyle (H 1, Red, with Perch), and that you may haul into the Horse Channel (when Bidston and Leasowe Lights open their breadth eastward) when the said Hoylake light bursts forth to view; or haul from the Horse Channel to the westward when it disappears. It will thus serve as a guide round the Spit of Hoyle (even should the N. W. Light Ship be missing), with the

like effect as the Upper Hoylake Light at present indicates when to cross the line of Bidston and Leasowe Lights, to clear the Six Feet Flats. The two Hoylake Lights in a line indicate the turning point from the Horse into the Rock Channel, or the contrary. At a mile to the eastward of the lower Light are the Dove Beacons, erected as a mark for the eastern passage into Hoylake, the interior channel of communication between Helbre Swatch and the Horse Channel, which is, at times, a very desirable harbour.

The Old Bell Beacon lies at the entrance of the Rock Channel. It bears a self-acting bell, and is marked, "R. 1, Spencer's Spit."

The next conspicuous object is the LEASOWE LIGHTHOUSE, which is white; its light brilliant and fixed, 110 feet above the level of half-tide, is seen 5 leagues off, on all points, from N.N.E. seaward, to N.N.W. This light is so masked as to give a defined light in the Rock Channel, within certain limits, and suddenly disappears, bearing S.W. ½ S. to vessels inward-bound, when off West Wharf Buoy, R. 3, Red, and suddenly appears when outward-bound. This is succeeded inland by the BIDSTON LIGHTHOUSE, upon the summit of Bidston Hill, with its church and mill. This lighthouse is of stone, but appears of a dark colour, and shows a brilliant fixed light at 244 feet above the level of half-tide. Its light can be seen 23 miles off. This light is so masked as to give a defined light in the Rock Channel, within certain limits, and to vessels inward-bound it suddenly disappears on the bearing of S. by W. ½ W. when abreast of East Wharf Buoy, R. 4, Red, and suddenly appears when outward-bound. The lights of Leasowe and Bidston are called the Sea Lights. At three-quart of a mile eastward from the Leaso Light is Mockbeggar Hall, and at 2¼ mi farther east is the Black Rock Lig house, standing upon the reef, so call at the entrance of the Mersey.

The BLACK ROCK LIGHTHOUSE is bu on the rocks of New Brighton, on t west side of the entrance of the Riv Mersey, and is a handsome round tow of Anglesea limestone. It is surround by water at nearly half-tide. The heig of the building, from the lantern to t base, is 75 feet, and the whole heig above the level of the sea is 88 fe The light revolves, exhibiting alternate from the same light room, two brig lights, and one of a red colour, each intervals of a minute, the whole rev lution being completed in 3 minute Having acquired their brightest stat they gradually become less luminou and are eclipsed. The light in cle weather can be seen about 5 leagues o A bright fixed light from a lower chan ber is also shown down the Rock Chan nel and up the River while 11 feet wat remain in the Gut, and a black ball d notes the same by day. Three bells to in succession during foggy weather; an a blue flag summons the Magazine life boat when distress appears.

Garston Dock.—This Dock, whic is 4 miles south of the Liverpool Docks and on the same side of the river, is fre from the Liverpool dock rates, vessel entering it being only liable for the har bour and light dues. The channel from Liverpool is buoyed with red and black buoys similar to those in the Victoria Channel.

The Publisher would acknowledge her deep obligation to the various harbour authorities for the additional information to be found in the "Mariners' Guide," and other portions of this year's Almanack; at the same time, she begs respectfully to solicit a continuance of their kind assistance—without which, she is convinced, it would be impossible to bring out a work of this nature with sufficient accuracy.

APPENDIX.

Correct List of Estates in the Isle of Man.—1859.

PATRICK.

[illegible]-mooar, [illegible]wiliel } R. Quirk, C. P.
[illegible]mmahan, Miss Thomas.
[illegible]brooie, [illegible]rpet, } J. Quane.
[illegible]allin, Charles Dodd.
[illegible]quayle, T. Quayle.
[illegible]enna, J. Quirk.
[illegible]carney, J. Clucas.
[illegible]mooar, J. Richardson.
[illegible]kmoar, — Stephen.
[illegible]ha, E. M. Gawne.
[illegible]ane, W. Gell.
[illegible]mooar, } J. Quirk.
[illegible]agher, [illegible]beg, T. Corrin.
[illegible]et, J. S. Windle.
[illegible]lean, J. Clucas.
[illegible]nagh, Mrs. Clucas.
[illegible]allin, E. Birnie.
[illegible], — Radcliffe & others.
[illegible]by, W. Gell.
[illegible]rso, R. Quirk.
[illegible]her, T. Karran.
[illegible]rtt, Capt. Cameron.
[illegible]ger, C. Fargher.
[illegible], D. H. Davidson.
[illegible], P. Quirk.
[illegible]ge, Mrs. Looney.
[illegible]-looie, [illegible]-beee, } PatrickCuninghame
[illegible]-kshen, [illegible]shane, } E. Faulder.
[illegible]-mooar, J. Carran.
[illegible]e, T. Quirk.
[illegible]rrowdhoo, J. Quirk.
[illegible]coil, R. Turnbull.
[illegible]cain, T. Tear.
[illegible]callea, J. Quirk & T. Cubbon.
[illegible]htchen, J. Quilliam.
[illegible]ghlonna, T. Kay.
[illegible]lagha, C. Gill, and H. Watterson. [Quilliam, and W. Gell.
[illegible]kerkey, W. Watterson, J.
[illegible]hrink, W. Quirk & J. Quane.
[illegible]ggan, W. Quayle, W. Gell,
[illegible]ottier, J. Cottier. [W. Cringle
[illegible]ell, P. Robinson.
[illegible]einey, J. Clark.
[illegible]-mooar, J. Sayle.
[illegible]edle, J. Quirk, jun.
[illegible]carney, J. Clucas.
[illegible]hass, J. Quirk, sen.
[illegible] Cushlan, C. Dodds.

GERMAN.

Kenna and Ballaoats, J. Gell, C.P.
1 Ballagyr, T. Carran.
2 Ballagyr, C. Cain.
[illegible]kilworrey, Joseph Fisher
[illegible]eece, Capt. H. Murray.
[illegible]nayre, Lady Buchan.
[illegible]quane, R. J. Moore & others.
Monte Casino, R. J. Oliver.
[illegible]cross, J. Shimmin.
[illegible]essen, Capt. Cameron.
[illegible]agarraghan, T. Mylchreest.
Glenmore, Beary Park, } Frank Matthews.
[illegible]dhine, R. D. Quirk.
[illegible]chrink, J. Corris.
[illegible]willin, J. Clark
[illegible]hara, W. Mylchreest.
[illegible]lough, E. Gell.
[illegible]churry, J. Kelly.
[illegible]craine W. Harrison.
Malloch Dawson, E. M. Gawne.
[illegible]ligar J. Crellin.
1 Ballavaaish, L. Craigie.
2 Ballavaaish, [illegible]quayle, } J. Crellin.
Kerrow-ny-glagh, Wm. Muter.
Cronk Dhoo, W. Gell.
[illegible]booie, J. Shimmin.
Stanley Mount, A. Emmerson.
Ballakaighin, James Cottier, &c.
Ballaquine, J Kaighin.
Ballashimmin, J. Jelly.
Ballasayle, M. Cowley.
1 Lhergydoo, J. Moore.
2 Lhergydoo, T. Caine. [Woods.
Knocksharry, R. J. Moore and W.
Rockmount, W. Harrison.
Kew, J. S. Moore.
2 Kenna, W. Quine.
Bamff-place, Mrs. Bonnyman.
Norfolk-place, J. Burman.
Brackabroom, S. Healey.
Balellis, E. Shimmin, and others.
Rees, C. Wattleworth.
Coayl-sleau, R. Harrison [J. Quane
Kerrowgarrow, J. Mylchreest and
Eary-voar, C. Crellin.
Eary-veg, Rev. J. Carter.
Rennas and Voane, T. Killip, &c.
Knockbane, R. & P. Cowley.
Knockbreck, J. Crellin.
Knock-e-killey, T. Gawne
Monte-video, P. Harrison.
Northop, J. Quine.
Beary, W. Harrison.
Eary-glass, C. Shimmin. [Quine.
Lambfell-mooar, R. Quirk and T.
Lambfell-beg, W. Killey, &c.
Stockfield, T. Quay & P. Crellin.
Corvalley, F. L. Gelling, &c.
Skiristell-voar, W. Cain.
Skiristell-veg, J. Cannell and J. Kaighin.

MICHAEL.

White-house, E. Gell, C.P.
Ballaskyr, J. Caine,
Bishop's Court, The Lord Bishop.
Ballachrink, Liargy-vreck, } Lady Buchan.
Orrisdale, John Crellin.
Cooly Lodge, Mrs. Anderson.
Ballacreggy, T. Carran.
Montpelier, Eary-Kelly &c. } J. Brook.
Ballacarnane-mooar, J. Cannell.
Ballacarnane-beg, Eary, } J. Cannell.
Ballagawne, P. Daugherdy.
Baark, J. T. Cannell.
Kerroocruin, Gen. Goldie.
Ballafajeen, J. Cannell.
Barnagh, E. Metcalfe
Ballarhenny, — Nelson.
Ballana, D. Caine.
Cooillshellagh, J. Cannon.
1 Ballionney, W. Corjeag.
2 Ballionney, J. Oats.
Shalghaige, J. Quiggin.
Loghan-ny mashey, L. Craigie.
Little London, J. Quine.
Ballalhig, P. Cunninghame.
Ballamanagh, P. Quiggin.
Cleieen, W. Killip.
Cronkurleigh, Rev. Hodgkinson.
1 Orristal, W. Caine.
2 Orristal, J. T. Callister.
Kiondroghad, P. Cannell.
Kerrooglass, J. Cannell.

BALLAUGH.

Brough-jarg-beg, Ballacry, Ballavolley, } J. Teare.
Brough-jarg-moar, T. W. Corlett.
Ballacaine, Rev. J. E. Harrison.
Carmodil, } John Stephen.
Ballavolley, } [T. Teare.
Ballamona-mooar, — Hughes and
Ballamona-beg, W. Corlett.
Ballabeg, Corvalley, } E. Forbes.
Ballakoig, Miss Wilks.
Ballacooiley, J. Mylrea.
Ballathoar, — Kewley.
Ballamooar, W. Stephen.
Ballaneddin, J. Tear & J. Corlett.
Ballaterson-mooar, Mr. Corlett.
Ballaterson-beg, T. Corlett.
Ballacurne-mooar, J. Callister.
Ballacurne-beg, D. Keig.
Ballacrosha, J. Taubman.
Ballakinnag, R. Corlett, & J. Killip
Ravensdale, T. Okell.
Cronkould, Slewvolley-park, } Mrs. Maclean.
Dollaugh-beg, J. Craine.
Carmodil-beg, T. W. Corlett.
West-corvalley, D. Corlett.
Squeen, J. Craine.
Squeen-lodge, J. Kelly.
Glenshoggil, J. Corlett and D.
Glendoo, J. Killip. [Boyde.

JURBY.

Ballamoar, East-nappin, } W. Farrant.
Ballavarran, M. S. Quayle.
Ballachurrey, T. Teare.
Ballatear, R. Richardson.
Ballachristery, W. Christery.
Ballacain, D. Caine.
Ballaquie, F. Anderson.
Ballaworrey, J. Morrison.
Ballaconnelly, J. Callister.
Sartfield, F. J. Lace.
East-sartfield, J. Cleator and T.
West-nappin, W. Clark. [Stephen
Summer-hill, J. White.
Berrag, J. Corlett.
Bretney, Ballig, Cronk-breck, Ballasalla } Rev. J. E Harrison
Ballagarraghen, P. Clark.
Rheindoo, T. Clark.
Ballameanagh, T. Kelly.
Close-moughtin, Mrs. Quilliam.
Ballahasney, W. Kelly.

ANDREAS.

1 Ballachurry, W. W. Christian, C P
Knockedhooney, Smeal, } J. Martin, Lieut. of Parish
Regaby, J. Kneale. [Mrs. Clarke.
Ballaseyre, Rev. B. Philpot, and
Braust, — Quayle.
North and South Kiondroughed, Revs. J. E. Harrison & J. Howard
Mullenlowne, J. Christian, and J. S. G. Taubman.
Guilcagh, Kerrow-mooar, } C. Cary.
Ballavoddan, P. Teare.
Ballasteen, Chas. Kneen.
Knocketholt, Thos. Martin.
Ballakelly, Robert Teare.
Ballavarry ½ of Ballacross, } T. Allen.
Craig, R. Corlett, &c.
Ballacleator, P. Teare.
Ballaradcliffe, W. Clarke.
Ballawhane, Balladoughan, } W. Teare, &c.
Ballaghaue, Ballacaneen, } C. Cowle, &c.
Ballalane, W. Cleator, &c.
Ballayockey, Ardonan, } D. Christian.
Regaby-beg, W. Kneale, &c.
Ballacrebbin, — Joughin.
1 Leodest, Gat-y-whing, } D. Kee, &c.
2 Leodest, T. Christian.
Ballathoney, Lerivane } W Sayle.
Ballakeyl, W. Sayle.

PRINCIPAL ESTATES.

Lhan Moore, John Callister, John Kayhen, J. C. Moore and J. E.
Ballabeg, W. Curphey. (Harrison.
2 Ballachurry, C.Cary, &c.
Ballawanton, W. Callister.
Kerrogarroo, J Christian.
Ballacamaish, Thomas Moore.
Leihkerroo, J. Rutterford.
Knockean, D. Goldsmith.
Ballaslig, L. L. M'Whannell, &c.
Ballalheaney,
Ballaquarrys, W. Christian, &c.
Ballabane, T. Teare.
Ballabirragh, J. Sayle, &c.
Downe, C. Cary and J. Kneale,
Ballaquan, J. Cormode, &c. [&c.
Ballacunner, D. Teare, &c.
Ballavastyn, E. Dougherty, &c.
Ballakinnag, W. Teare, &c.
Ballamegagh, S. Christian, &c.
Ballaclucas, Rev. J. E. Harrison.
Ballacollom, W. Teare, &c.
Ballamacsheally, J. Christian, &c.
Keiltustag, J. Sayle, &c.
Balleigh, John Sayle.

BRIDE

Ballavair, Kionlough, } F. J. D. LaMothe, CP.
Ballayonnage, W. Christian.
Ballacowle, C. Christian.
Ballamooar, W. Callister.
Ballachrink, J. Kneale.
Ballacallow, W. Christian.
Ballacondyr, Wm. Clark & others.
Ballacottier, J. Cottier.
Ballakilley, J. Drinkwater.
Ballakesh, — Chambers.
Lambhill, J. C. Cowell.
Ballavarkish, W. Callister.
Ballafail, C. Christian.
Ballaquark, D. Joughin.
Ballawannel, Ballacregga, } W. Tear.
Ballacree, J. Corkill.
Ballamin, T. Corlett.
Ballaskeally, D. Teare.
Ballabeg, W. Christian.
Ballaglentruan, J. Cowle.
Grenaby, Cittin, } Mrs. Kayll.
West Kimmeragh, P. Bourne
East Kimmeragh, J. R. Kneale.
1 Kionlough, W. Camaish.
2 Kionlough, J. Quarry.
Belargey, W. Sayle.
Shallag, W. Teare.
Crosby, the Clergy.
Thurot-cottage, Mrs. Drinkwater.
Cronk-bane, D. Joughin.
Corrough-beg, D. Goldsmith.
Ballakey, W. Christian.

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West Kella, Mrs. Maclean.
Miltown, Close-lake, } J. Christian.
Ballakillingan, E. Farrant.
Tholt-e-Willie, J. P. Harrison.
Ballamona, F. Tellet.
Ballamannaugh, J. Corlett and H.
Balladool, J. Goldsmith. (Kinrade
Ballacottier, R. Maddrell.
Ballacowle, T. Kneale.
Ballalhargey, A. Guinness.
Ballacaley, J. Caley.
Ballacree, Philip Teare.
Ballaskella, J. Quayle. [lett.
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Loughen-e-yeigh, T. A. Corlett.
West Glentrammon, J. Teare.
Glenduff, Dry-closes, } L. M'Whannell.
Grange, Bulreuny, } P. Cunningham.
Coolbane, Major Bacon
Ellanbane, F. J. D. Lamothe.
Baldromma, T. Curphey.
Loughmallow, J. S. G. Taubman.
Rheastmooar, Gen. Geo. L Goldie.
Closechairn, J. Crellin & Mrs. Llewellyn.
West Aust, T. Moore & J. Kneale
East Aust, J. Crow and C. Moore.
Moore-hill, P. Teare.
1 Bailie, D. Christian.
2 Bailie, Cottage-mona, } E. Gawne.
Paldooie, Miss Christian.
Garey, Mrs. Qualtrough.
Grist, F. B. Clucas.
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Staward, Forrester's Lodge } Major Bacon.
Claddaugh, Mrs. Corlett.
Narradal, Mrs. Mucklar and T.
Curragh, T. Lace. (Cowley.
Cleanagh, C. Bacon, & others.
Nappin, F. Tellett, Esq., H.B.
Narey, W. Crow.
Vollan, L. McWhannell.
Carrick, J. Cleator.
Balleaghteragh, J. R. Kneale.

MAUGHOLD.

Lewaigue, E. Christian, C.P.
1 Ballafayle, G. W. Dumbell.
Cloughbane, — Kermode.
Leaghany, Folieu, Ballacriggan, Rhoun, Thalloqueen, } Mrs. Christian, &c
Clonogue, Cornah, Barony. } J. Christian.
Ballastole, The Flat, Barroole, } J. S. G. Taubman.
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Ballure, Miss Christian.
Portlewaigue, C. Spencer.
West Ballaterson, W. Christian.
East Ballaterson, T. Quayle.
Crowe-ville, Mrs. Hinds.
Balla-Kelly, Clergy & W. Kelly.
Baldroma-mooar, E. Christian.
Baldroma-beg, E. Christian & othrs
Ballajora-west, W. Corkill.
Ballajora-east, W. Kermode.
2 Ballafayle, R. Kerruish.
Ballaskeg-moar, G. W. Dumbell.
Ballaskeg-beg, R. Gill.
Magher-e-kew, John Drinkwater.
Ballaglass, Wm. Haslam.
Cardle-mooar, R. Kerruish.
Cardle-beg, W. Callow.
Corranee, W. Kerruish.
Ballagoree, J. Corkill.
Ballashughlaig, T. Corteen.
Balallin, W. Kerruish & J. Quayle.
Doon & Reinnee, H. R. Oswald.
Bevoail-e-velt, W. Kerruish.

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Rhaa, W. Kneale, CP.
Ballameanagh-beg, Lhekerroo } Mrs. Tate. (chreest
Ballameanagh-mooar, W. Myl-
Ballakoigh, 2 Ballaglass, Baljean, Raby, Granane } Duncan Gibb.
Baldromma-mooar, P. Simpson.
Ballavarane, W. Clague.
Gretch-beg, J. Kewley.
Gretch-voar, — Christian and — Skillicorn.
Balnemilgyn, T. Quayle.
Barruse, T. Kelly.
Ballagraw, F. B. Skrimshire.
Ballaquark, J. Teare.
Ballacoweu, T. Cowin.
Ballaquine, J. Cowin.
Ballaskirroo, J. Kelly.
Ballagare, Mrs. Dickson, &c.
Ballabeg, W. Kelly.
Ballacannell, T. Cowin, &c.
Poolhilley, J. Hampton, &c.
1 Grawe, W. Kelly.
2 Grawe, A. Guinness.
3 Grawe, T. and J. Fargher.
4 Grawe, T. Mylrea, J. Cowley
Balnekilley, T. Moore, J. K
T. Mylrea, &c.
Ballig, R. Craine, and J. Coge
Baldrine, T. Kelly.
2 Rhaa, Mrs. Bridson.
Balladhoo, T. Brew, & — Berr
Brondel, J. Quay.
Shonest, J. Teare.
Glenroy, R. H. Bishop.
Balcoan, P. Kissack, &c.
Balneluney, D. Kneale, and M
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Ballafageen, P. Killip, and J. C
Ballacosney, J. Kewley, J. Cra
Ballakee, J. Cowin. [han,
2 Ballaglass, R. Craine,
Ballacoar, J. Kewley, &c.
Gretchvane, T. M'Neal.
Crock-e-chule, J. Kermode, &c
Ballacowell, Mrs. Bridson,
Balencregga, R. Clague.
Ballawill, J. Hudson & J. Kewl
Baldrine, G. W. Dumbell.
Baldooin, J. Kerruish & J. Kew
Ballacreggan, J. Killey.
Ballagawne, J. Gale.
Ballachrink, Mrs. Kneale and
Ballamooar, T. Looney. (Moo
Scinsco, S. Harris.
Ballarragh, P. Quilleash, &c.
Mulloughour, (Intack) J. Knea
Mooney, (Do.) J Kewley.
Balladew, Patrick Kelly.

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Summer hill, Mr. Harrison.
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2 Ballaquayle, Rev. W. Hutchins
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Ballamenagh-beg, Miss and Watterson.
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Sulby, A. Scott.
Tromode, Ballanard, } James Kewley.
Ballanard-beg, J. J. Kewley.
Ballacottier, G. W Dumbell.
Belargy, R. Lewin.
Hague, Miss Penny.
Ballakermeen, Major Bacon.
The Hills, T. Bridson and others
Ballabrooie, Mrs. Mc.Guffoc.
Clepse-mooar, D. Christian.
Ballakillmartin, E. Christian.
Ballafargher, R. Nicklin.
Bibaloe-beg, R. Sherwood.
1 Ballachrink, A. Spittall.
2 Ballachrink, E. M. Gawne.
3 Ballachrink, W. Cain & Gen Goldi
Ballacreech, Mrs. Roskell, Adams
Clepse, J. Creer. [and Clergy
Belig, E. Quine.
Finch Land, P. Christian.
Glendoo, Wm. Wilson.
Woodburne, Mrs. Harrison.
Ballacain, J. Aiken.
Brooksby, M. Perston.
Grange, J. G. Jones.

Lark-hill, T. Cowin.
Ennemona, Capt. Orr.
Scalby, Thos. Moore.
Langahan, W. F. Moore.

BRADDAN.

Ballabeg, Nunnery, } J. S. G. Taubman.
Middle, Mrs. Tobin.
Pulrose, J. Moore.
Ballaughton, G. W. Dumbell.
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Port-e-chee, Deemster Drinkwater
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Snugborough, — Fargher.
Oak Hill, R. Crossfield.
Ballafletcher, Colooneys, Ballaglonney, } A. Scott.
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Hampton, J. Bell.
Cronk Bourne, W. F. Moore.
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Ballavear, Sea-view, Capt. P. Petrie
Batterfield, J. M. Jeffcott.
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Ballacreggan, W. Stowell.
Ballapadeg, J. Quane.
Ballvagher, H. D. Stewart.
Ballamona, P. H. Leece.
Ballamillaghyn, A. Spittall and T. Rogerson.
Ballaquine, J. Kelly, & A. Spittall.
Ballamoda, M. Creer.
Ballakewish, G. W. Dumbell.
Ballavriew-mooar, John Mc.Clure.
Ballavary, — Cowin.
Ballashamrock, M. H. Quayle.
Ballaoats, Mrs. Garrett.
Virginia, Misses Bridson.
Cronkbane, W. Broughton.
Golden Grove, James Coats.
Injebreck, Calden, Ballaveron, Largnymuckly, Richmond, Cronkrule, A. Spittall.
Leece Lodge, Mrs. Drinkwater.
Ardwhallen, Rev. Thomas Cain.
Ulican, R. Corkill.
Groves, Thos. F. Hutchinson.
Renscault, J. Kelly.
Mount View, W. Skottoe.
Eirey-beg, Major Bacon.
Ballaslig, T. Creer.
Killkaney, W. Scottoe.
Cleybane, J. Kelly.
Algare, Major Pollock, & J. Fayle.
Ballawillan, W. Kelly, and T. & W. Cannell.
Ballachrink, Capt. P. Petrie.
Ballagarey, W. Cowley.
Ery-ween, W. Cowley.
Dhoon, D. Keneen.
Creg-e-cowen, W. Quilliam.

MAROWN.

Gart, T. Clucas, C.P.
Glenlough, Lady Buchan.
Ballalough, Cross Valley, Ballagarrow, } A Spittall.
Balla-Kelly, W. Curphey.
Ballacallin, Gen. G. L. Goldie.
Ballacallin Beg, P. Killey.
Ballagarey, Capt. G. Goldie.
Ballavagher, A. Gelling.
Ballaquinney-mooar, Mr. J. Clucas
Ballaquinney-beg, Ballalergy, } Messrs. Bridson & La Mothe
Ballanicholas, Mrs. Campbell.
Ballafreer, Mrs. Kewley.
Ballaharry, J. Quine.
Ballawilley-killey, P. Killey.
Eyreton, Crosby, } Mrs. Eyres.
Ballingan, Wm. Callister.
Hope Lodge, John Firth.
Rock, G. W. Dumbell.
Trollaby, W. Kelly.
Airey-Kelly, Mrs. Llewellyn.
Corvalley, Mrs. Clucas.
Creig-mooar, J. Kelly.
Creig-veg, W. Gell.
Braaid, R. Cretney.
West Boychen, J. Gelling.
East Boychen, R. Robert.
Ballachrink, M. Hampton, jun.
Ballavitchal, Fratlag, } R. Kelly.
1 Ballagraue, A. Spittall.
2 Ballagraue, P. Kelly.
Ballaclucas, R. Cottier.
Nab, J. Hampton.
Ballaglonney, J. Kelly.
Ellerslie, W. Turnbull.
Ballamona, J. Kermode.
Cooilingil, T. Kewley.
Ballergy, T. Cubbon.
Rhyne, T. Kewley.
Balla-Key, Mrs. Key.
Close-mooar, Mrs. Cameron.
Brook-mooar, H. Smith.
Braaid, J. Key.

SANTON.

Seafield, Major Bacon. C.P.
Mount Murray, Ballacostain, } Mrs Murray.
Oatland, Arrogan-beg, } Frank Matthews.
Ballacreggan, Mary-voar, Ballanahowin, Mary-vegg, } F. B. Clucas.
Balnehow, J. Moore.
Balla-Kissack, J. Kissack.
Balnehowin, Balladoo, } — Kinley.
Arragon-mooar, J. Taubman.
Glentragh, J. Blythe.
Ballaquiggin, P. Bridson.
1 Ballachrink, Balla-Kelly, } J. Kissack.
Ballavilley, W. Moore
Sulbrick, T. Moore.
Crogga, & Lhergy, Knock-a-Laughtan } M. H. Quayle
Ballavartin, G. W. Dumbell.
Ballavagher, H. Duff.
Myllen-e-quinney, T. Brew.
1 Ballafurt, J. Anderson.
2 Ballafurt, Mrs. Dickson.
1 Ballacrine, 2 Ballacrine, } T. Quinney.
Knockfroy, J. Kermode.
Ballagick, W. Quine.
2 Ballachrink, —. Gick.

MALEW.

Crescent Cottage, Skybright, Great Meadow, Slockfield, } T. Moore, CP.
Ronaldsway Langness, Ballahogal, Ballahotte, } J. S. G. Taubman.
Billowne-mooar, Ballasalla-house, Cronkleague, Ballawhitston. Whitestone, Ballahogal, Ballajerei, } J. Drinkwater.
Knockrushen, Scarlet, } — Lucas.
Hango-hill, Ballagilley, } Trustees of the Academic Fund.
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Ballashimmin, B. Duggan.
Ballavarvane, Ballagarey, Knoc-e-brew, } W. Callister.
Ballafarrat, John Graham.
Creggans, Clycur-mooar, } Js. Ewart.
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Ballacroak, T. Fargher.
Balla-Kew, John Moore
Shenvaley, Mrs. Campbell.
Glashen, M. H. Quayle.
Trollaby, T. Cretney.
Cordeman, — Bridson, — Kinnish and John Curphey.
Ballamodda, — Mylchreest.
Balla-Killey, C. Dodds.
Ballachrink, — Harrison.
Greneby, Ballabeg, } W. Shimmin.
Kerrowkeil, — Mylchreest.
Balloun, H. Fitsimmons.
Kerrew-mooar, J Quayle, W. Quayle, & — Mylchreest.
Billowne, Mrs. Quayle.
Baroole & Crossack, E. M. Gawne.
Ballastrang, R. Quinney.
Balladuggan, Glen, } M. H. Quayle.
Cooilcam, W. Fargher.
Rushen Abbey, Rev W. Ward, &c
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Renshent, J. Quane.
Drey, Horse Geary, } Trustees of the Impropriate Fund.

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Bell Abbey, M. Dawson, C. P.
Ballagawne, Ballacomish Aristane, Ballacomish Ardairey, Ballacarine, Ballagell and Ballacurphey and Ardairey, Ballafada, Ballacregeen, Ballasherlogue, Bellevaire, Claughvane, Colby-moar, E. M. Gawne.
Balladoole, G. Woods.
Balla-Keigen, — Woods.
Parville, Ardary, Ballavlac, } Misses Quirk.
Ballanorris, P. Cunningham
Friary, Ballaghilbert, 1 Ballajuke, } R. J. Greetham.
Cronkdarragh, J. M. Jeffcott.
Ballavarkish, P. Cunningham
Ballamaddrell, J. Maddrell.
Balla-Kindry, Balla-Oats, } R. Harrison.
Ballaclauge, Ballarobert, Garee-mooar, } Rev J. E. Harrison
Colby, H. Watterson & J Kermode
2 Ballajuke, J. & R. Duke
Ballachrink, J. Costain.
Ballacalloo, W. Harrison.
Ballacannell, J. Radeliffe.
Ballayac, J. Bridson.
Ballamooar, J. Harrison.
Ballagreiney, J. Kinvig.
Ballaghlioney, Messrs. Cubbon, Halsal, and Waterson.

LIST OF CLERGY.

Ballayelse, J. Cubbon.
Cronkshynnagh, W. Kinley,
Ballacricyrt, J. Kelly.
Balnahawin, W. Cubbon.
Ballachross, J. Moore.
Ballacubbon, R. Taggart, and W. Duggan.
Ballachleree, W. Cubbon.
Ballastroke, J. & W. Comish.
Ballacannell, Mr. Quirk.
Bwoaillee-wooar, T. Costain.
Croit, Ardoaillee, } J. Corrin.

RUSHEN.

Kentraugh, Strandhall, Scholaby, Orrisdale, Scard, Lhingague, Ballarhenny, Bwoailleefayle, Droghadfayle, Ballabane and Mule and Sound, Surby, Scholaby-beg and Level, Colby Glen, E. M. Gawne, C.P.
Lhingague North, R. Clague.
Cronkmooar, Misses Quirk.
Mount Gawne, Mrs. Connell.
Ballagawne, Ballacurrey, } Mrs. E. Gawne
Ballawinican, T. Kegg.
Ballacreggan, Ballavraarey, Port-le-moirrey, Rheynwyllin, } P. Petrie.
Balla Killey, Balla-Kneale, } J. T. Clucas.
Ballaglionney, T. Moore.
Ballaglionney North, W. Moore.
Balla-Killowie, H. Watterson.
Bradda-mooar, J. Watterson.
Bradda West, H. Kermode.
Ballaqueeney West, J. Taylor.
Ballaqueeney East, H. Kelly.
Ballacorkish, — Harrison.
Balnahow, P. Cuninghame.
Surbie East, R. Qualtrough.
Glendowin, Cregneish, } W. Gawne.
Ballacrink, Grampus } J. Sansbury.
Shenvalley, T. Clucas.
Lhargies. T. Harrison.
Rowanies, Messrs Clague &
How, J. Gawne.
Corvalle, W. Qualtrough.
Glenshast, Fistart, } J. Gawne.
Croitecale, R. Kneen,
Croglough, H. Kermode.
Scard, J. & T. Cooil.
Darrag, J. Shimmin.
Bregyl, Dhring, } T. Lawson.
Bealevayr, Messrs. Gawn
Balla-Kilpatrick, W. Corrin.
Cronkedoone, J. Qualtrough
Calf of Man Isle, C. Cary.

C.P.—Captain of the Parish.

List of the Clergy of the Diocese of Sodor and Man.

Marked thus [*] and Thomas Arthur Corlett, Esq., Vicar-General, Ramsey, are Surrogates for gr ing Marriage Licences.

The Honourable and Right Reverend Horatio Powys, D.D., Lord Bishop
Venerable Joseph Christian Moore, M.A., Archdeacon.

Airey, Rev. Robert, Curate of Jurby.
* Brown, Rev. Joseph, A.M., Vicar of Michael.
Brown, Rev. Thomas Edw., A.M., Vice-Principal of King William's College.
* Cannell, Rev. John, Chaplain of St. Matthew's, Douglas.
Caine, Rev. Thomas, Vicar of Lonan.
Christian, Rev. William Bell, B.A., Vicar of Lezayre.
Clarke, Rev. Benjamin Philpot, B.A., Curate of Rushen.
Clarke, Rev. John Thomas, Chaplain of St. Mark's, Malew.
Clay, Rev. William French, B.A., Curate of Lezayre.
Corlett, Rev. John, Chaplain of Sulby, Lezayre.
Corrin, Rev. William, Vicar of Rushen.
Dawes, Rev. George, B.A., Chaplain of St. Luke's, Baldwin, Braddan.
Davidson, Rev. Hugh Coleman, English Master, King William's College, Castletown.
Dixon, Rev. Robert, D.D., Principal of King William's College.
Douglas, Rev. Charles, Curate of Michael.
Drury, Rev. William, Vicar of Braddan.
Duggan, Rev. Wm., Vicar of Marown.
Ferrier, Rev. Edward, A.M., Chaplain of St. Mary's, Castletown.
Meekins, Rev. R. W., B.A., Curate of St. Barnabas', Douglas.
Forbes, Rev. Edward, B.A., Chaplain of St. George's, Douglas.
Gard, Rev. John Frye, A.M., Chaplain of St. John the Baptist's, German.
Gelling, Rev. Alex., Vicar of Arbory.
Gelling, Rev. Samuel, Vicar of St. Ann.
Gill, Rev. Hugh Stowell, B.A., Chaplain of Christ's Church, Laxey, Lonan.
* Gill, Rev. William, Vicar of Malew.
Gray, Rev. Joseph Henry, A.M., Chaplain of St. Barnabas', Douglas.
Hardy, Rev. Henry, Chaplain of St. J the Evangelist's, Cronk-y-voddy, C man.
Harrison, Rev. Bowyer, Vicar of Mau old.
Harrison, Rev. John Edward, Vicar Jurby.
Harvey, Rev. Gilmour, Chaplain of Ki William's College, Castletown.
Hawley, Rev. William, Curate of George's, Douglas.
Hill, Rev. Charles, A.M., Chaplain Dalby, Patrick.
Holmes, Rev. Archibald, Vicar of P trick.
Howard, Rev. John, Vicar of Onchan.
Howard, Rev. Thomas, Rector of Ba laugh.
Jones, Rev. William Lloyd, B.A., Cura of St. Thomas', Douglas.
Kelly, Rev. James Butler, A.M., Chapla to the Bishop.
* Kermode, Rev. William, Chaplain St. Paul's, Ramsey.
Leach, Rev. John, A.M., Chaplain Foxdale.
Machray, Rev. Robert, A.M., Assistan Curate of St. George's, Douglas
Moore, Rev. Joseph Christian, A.M Rector of Andreas.
Nelson, Rev. Daniel, Rector of Bride.
Qualtrough, Rev. John, Chaplain St. Jude's, Andreas.
Simpson, Rev. Samuel, A.M., Chaplai of St. Thomas', Douglas.
Sparrow, Rev. William Charles, Curat of St. Mary's, Castletown.
Stephen, Rev. George Cæsar.
Stowell, Rev. Hugh Ashworth, A.M., Chaplain of Christ's Church, Maughold.
Stowell, Rev. John La Mothe, B.A., Vicar of German.
White, Rev. Henry Grattan, B.A., Curate of Andreas.

M. A. QUIGGIN, PRINTER, 52, NORTH QUAY, DOUGLAS.

ACHES TO L

QUIGGIN'S

ISLE OF MAN

LMANACK,

FOR THE YEAR OF OUR LORD

1860,

Being Bissextile or Leap-Year,

E 23rd-24th OF THE REIGN OF HER PRESENT MAJESTY;

WITH CORRECT

TIDE TABLES,

FOR THE

D DOCK SILL, LIVERPOOL, AND THE CUMBERLAND GATES, BRISTOL;

AND

ARINERS' COMPANION;

CONTAINING ALSO EVERY CALCULATION NECESSARY FOR

WORKING A LUNAR DISTANCE.

CALCULATED TO MEAN TIME, IN LATITUDE 54° 10′ N. AND LONGITUDE 4° 30′ W.

*** The Tide Table on these pages being calculated for Liverpool, LOCAL TIME, twelve minutes are required to be subtracted from the Table to give the time of high wate at Douglas, LOCAL TIME; and two inches to the foot must be subtracted from the rise of the water to give an approximate height of the Tide.

THIRTY-FIFTH ANNUAL IMPRESSION.

DOUGLAS, ISLE OF MAN:
PRINTED AND PUBLISHED BY M. A. QUIGGIN,
52, NORTH QUAY.

PHASES OF THE MOON.

First Quarter,	1st day, at	10h. 30m. morning.
Full Moon,	8th day, at	3h. 7m. afternoon.
Last Quarter,	15th day, at	6h. 40m. morning.
New Moon,	22nd day, at	11h. 59m. night.
First Quarter	31st day, at	4h. 53m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury. rises.	☿ Mercury. sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn rises.	♄ Saturn sout
1	6 m 7	6 a 0	16 18	6m27	10m 26	5 a 33	1 a 45	3m16	7m57	4 a 28	0m54	7 a 43	3m1
8	6 6	6 7	16 18	6 42	10 29	6 7	1 53	3 14	7 47	3 55	0 22	7 13	2 4
15	6 3	6 16	16 18	7 2	10 41	6 31	2 0	3 12	7 36	sets.	11a46	6 43	2 1
22	5 58	6 27	16 17	7 20	10 57	7 56	2 6	3 9	7 26	7m44	11 15	6 13	1 4
29	5 49	6 39	16 16	7 31	11 15	7 21	2 11	3 6	7 16	7 13	10 44	5 42	1 1

M D	W D	Remarkable Days	High Water. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equ of T
1	A	1 Sun. aft. Christmas	3 52	12 9	4 14	13 2	3
2	M	Proper Lessons. [Isa. xxxvii; Romans ii. — xxxviii; Coloss. ii.	4 41	12 1	5 9	12 5	4
3	Tu	B. of Princeton, 1777	5 41	11 9	6 16	11 11	4
4	W	Newton born, 1642	6 51	11 4	7 28	12 1	5
5	Th	Bank Dividends due	8 2	12 6	8 36	12 10	5
6	F	Epiphany. 12th Day	9 7	13 9	9 35	14 1	5
7	S	Fenelon died, 1715	10 2	15 4	10 28	15 5	6
8	A	1 Sun. aft. Epiphany	10 52	16 11	11 16	16 8	6
9	M	Proper Lessons. [Isa. xliv; Matt. vi. — xlvi; Rom. vi.	11 41	18 5	— —	— —	7
10	Tu	Royal Ex. built, 1838	0 3	17 9	0 27	19 4	7
11	W	Hilary Term begins	0 50	18 3	1 13	19 7	8
12	Th	Lavater died, 1801	1 38	18 1	2 2	19 3	8
13	F	Camb. Term begins	2 25	17 4	2 47	18 2	8
14	S	Oxford Term begins	3 8	16 2	3 29	16 9	9
15	A	2 Sun. aft. Epiphany	3 53	14 9	4 17	15 0	9
16	M	Pro. Les. [Isa. li; Matt. xiii. — liii; Rom. xiii.	4 44	13 4	5 17	13 4	9
17	Tu	Battle of Falkirk, 1756	5 52	12 3	6 30	12 1	10
18	W	Prisca, V. & M.	7 11	11 11	7 53	11 9	10
19	Th	James Watt born, 1736	8 32	12 4	9 7	12 3	10
20	F	Fabian, Bishop	9 37	13 5	10 4	13 1	11 1
21	S	Agnes, V. & M.	10 29	14 6	10 48	14 0	11 2
22	A	3 Sun. aft. Epiphany	11 6	15 6	11 26	14 9	11 4
23	M	Pro. Les. [Isa. lv; Matt. xx. — lvi; 1 Cor. iv.	11 43	16 4	11 59	15 5	12
24	Tu	Day increases 1 hour	— —	— —	0 15	16 11	12 1
25	W	Conversion of St. Paul	0 31	15 11	0 47	17 2	12 3
26	Th	Dr. Jenner died, 1823	1 3	16 0	1 19	17 1	12 4
27	F	Mozart born, 1756	1 35	15 11	1 49	16 9	12 5
28	S	Sir F. Drake d. 1596	2 6	15 7	2 22	16 2	13
29	A	4 Sun. aft. Epiphany	2 37	14 11	2 53	15 1	13 2
30	M	Proper Lessons. [Isa. lvii; Matt. xxvi. — lviii; 1 Cor. x.	3 9	14 1	3 29	14 0	13 3
31	Tu	Hilary Term ends	3 49	13 2	4 10	12 8	13 4

Circles before Sun's Apparent Time, to Subtract from Mean time.

BRISTOL TIDES.				SUN.					MOON.				M	ASPECTS AND WEATHER.
morn.	even.	height		rises.	sets.	rt. ascen.	declin. S.		sets.	souths	declin.	age.	D.	
H. M.	H. M.	F.	I.	H M	H M	H. M. S.	° ′ ″		H. M.	H. M.	° ′			
11 40	— —	23	4	8 23	3 44	18 45 6	23 3 14		0m2	6 a 2	9N48	8	1	*The year will*
0 4	0 28	21	9	8 23	3 45	18 49 31	22 58 14		1 17	6 46	15 3	9	2	☉ in Peri. 8a50
0 56	1 30	21	0	8 23	3 46	18 53 55	22 52 47		2 36	7 33	19 47	10	3	*probably*
2 4	2 50	21	10	8 22	3 47	18 58 19	22 46 53		3 58	8 26	23 40	11	4	☿ gr. elon. W.
3 31	4 8	24	3	8 22	3 49	19 2 43	22 40 32		5 21	9 23	26 16	12	5	♅ ☌ ☾, 4 a 24
4 41	5 10	26	8	8 21	3 50	19 7 6	22 33 43		6 40	10 25	27 11	13	6	*begin with*
5 39	6 8	29	0	8 21	3 51	19 11 29	22 26 28		7 43	11 29	26 7	14	7	*windy and*
6 35	7 2	30	1	8 20	3 53	19 15 52	22 18 47		rises.	morn	— —	F	8	♀ gr. H.L.S.
7 29	7 53	32	4	8 19	3 54	19 20 13	22 10 39		5a14	0 31	23 2	16	9	*cold weather,*
8 18	8 41	33	9	8 19	3 56	19 24 35	22 2 5		6 52	1 31	18 16	17	10	☾, in Pergee,
9 3	9 25	34	4	8 18	3 57	19 28 56	21 53 6		8 25	2 26	12 17	18	11	♃ ☌ ☉, 3 m 48
9 47	10 9	33	11	8 17	3 59	19 33 16	21 43 40		9 56	3 18	5 38	19	12	*then milder*
10 27	10 45	32	4	8 17	4 1	19 37 35	21 33 50		11 25	4 8	1s13	20	13	*weather and*
11 3	11 24	29	8	8 16	4 2	19 41 54	21 23 34		morn	4 56	7 50	21	14	*fair.*
11 44	— —	26	7	8 15	4 4	19 46 13	21 12 54		0 53	5 45	13 53	22	15	*Stormy*
0 8	0 36	23	6	8 14	4 6	19 50 30	21 1 49		2 19	6 35	19 4	23	16	☿ in ♐, 9 m 28
1 6	1 41	21	6	8 13	4 8	19 54 47	20 50 20		3 43	7 27	23 8	24	17	♂ ☌ ☾, 10m21
2 27	3 18	21	9	8 12	4 10	19 59 4	20 38 27		5 3	8 20	25 52	25	18	*about*
4 3	4 41	23	5	8 10	4 11	20 3 19	20 26 10		6 12	9 14	27 7	26	19	*this*
5 12	5 40	25	2	8 9	4 13	20 7 34	20 13 31		7 5	10 8	26 52	27	20	*time.*
6 7	6 29	26	0	8 8	4 15	20 11 48	20 0 28		7 43	11 0	25 12	28	21	☿ ☌ ☾, 7 m 59
6 49	7 12	27	3	8 7	4 17	20 16 2	19 47 3		sets.	11 50	22 18	N	22	☉ eclip., inv.
7 30	7 47	28	6	8 5	4 19	20 20 14	19 33 16		4a57	0a36	18 25	1	23	*Fair and*
8 5	8 22	29	6	8 4	4 21	20 24 26	19 19 7		6 12	1 19	13 48	2	24	*frosty,*
8 37	8 52	30	0	8 3	4 23	20 28 37	19 4 37		7 25	2 0	8 40	3	25	♀ ☌ ☾, 7 a 8
9 7	9 22	30	1	8 2	4 25	20 32 47	18 49 46		8 36	2 40	3 15	4	26	☿ in Aphelion
9 35	9 51	29	7	8 0	4 27	20 36 57	18 34 35		9 48	3 19	2N18	5	27	*which will*
10 6	10 19	28	8	7 59	4 29	20 41 5	18 19 3		11 1	3 59	7 49	6	28	*change to*
10 39	10 45	27	5	7 57	4 31	20 45 13	18 3 12		morn	4 41	13 6	7	29	*ruin or*
11 3	11 20	25	6	7 55	4 33	20 49 20	17 47 2		0 15	5 25	17 58	8	30	*snow.*
11 37	— —	23	2	7 54	4 35	20 53 26	17 30 32		1 35	6 14	22 8	9	31	

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	NOON.			3 HOURS.			6 HOURS.			9 HOURS.			MIDN.			15 HOUR.			18 HOUR.			21 HOUR.		
	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
1w	90	33	32	91	57	10	93	21	3	94	45	1	96	9	35	97	34	15	98	59	12	100	24	27
2	101	49	59	103	15	50	104	41	59	106	8	29	107	35	18	109	2	28	100	29	59	111	57	52
3	113	26	7	114	54	44	116	23	44	117	53	7	119	22	54	120	53	4	122	23	39	123	54	38
4	125	26	2	126	57	52	128	30	6	130	2	46	131	35	51	133	9	22	134	43	18	136	17	40
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.
11th	140	15	40	138	32	9	136	48	50	135	5	43	133	22	49	131	40	10	129	57	45	128	15	35
12	126	33	41	124	52	4	123	10	44	121	29	41	119	48	55	118	8	28	116	28	20	114	48	30
13	113	9	0	111	29	48	109	50	57	108	12	24	106	34	12	104	56	20	103	18	47	101	41	35
14	100	4	42	98	28	9	96	51	57	95	16	4	93	40	31	92	5	17	90	30	24	88	55	49
15	87	21	34	85	47	37	84	14	0	82	40	41	81	7	40	79	34	58	78	2	33	76	30	26
16	74	58	37	73	27	4	71	55	48	70	24	49	68	54	6	67	23	39	65	53	28	64	23	32
17	62	53	52	61	24	25	59	55	14	58	26	17	56	57	34	55	29	4	54	0	48	52	32	45
18	51	4	54	49	37	16	48	9	51	46	42	37	45	15	36	43	48	46	42	22	7	40	55	39
19	39	29	22	38	3	16	36	37	20	35	11	34	33	45	59	32	20	33	30	55	17	29	30	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25w	27	1	32	28	22	35	29	43	36	31	4	37	32	25	36	33	46	35	35	7	34	36	28	33
26	37	49	32	39	10	32	40	31	34	41	52	37	43	13	41	44	34	48	45	55	58	47	17	11
27	48	38	27	49	59	47	51	21	12	52	42	41	54	4	15	55	25	56	56	47	42	58	9	35
28	59	31	36	60	53	43	62	16	0	63	38	24	65	0	58	66	23	42	67	46	36	69	9	41
29	70	32	57	71	56	25	73	20	6	74	43	59	76	8	7	77	32	28	78	57	4	80	21	55
30	81	47	2	83	12	26	84	38	6	86	4	5	87	30	21	88	56	56	90	23	50	91	51	3
31	93	18	37	94	46	32	96	14	48	97	43	26	99	12	26	100	41	51	102	11	36	103	41	46

Explanations

The TIDE TABLE on the left-hand pages is calculated for LIVERPOOL mean time, with the height of each Tide at the marks on the east side of the Canning Dock, allowance being made for the diurnal inequality in the height. Greenwich mean time being now adopted at that port, the difference—12 minutes earlier—must be added to adapt it to the time now used.

PHASES OF THE MOON.

Full Moon,	7th day, at	2h. 17m. morning.
Last Quarter,	13th day, at	6h. 32m. evening.
New Moon,	21st day, at	7h. 21m. night.
First Quarter,	29th day, at	7h. 38m. night.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.
1	5m46	6 a 43	16 16	7m34	11m24	7 a 31	2 a 13	3 m 5	7m11	7m 0	10a30	5 a 29	1 m 3
8	5 35	6 55	16 15	7 37	11 44	7 55	2 17	3 1	7 1	6 30	10 0	4 58	0 34
15	5 22	7 8	16 13	sets.	0 a 5	8 19	2 20	2 57	6 51	6 1	9 30	4 27	0 4
22	5 8	7 21	16 12	4 a 41	0 26	8 43	2 23	2 52	6 41	5 32	9 0	sets.	11 30
29	4 54	7 32	16 10	5 28	0 47	9 6	2 26	2 46	6 30	5 3	8 31	6m40	11 0

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time
1	W	St. Bridget.	4 37	12 1	5 9	11 7	13
2	Th	Purifica. B. V. Mary	5 48	11 5	6 34	11 1	13
3	F	Blasius, Bishop	7 22	11 8	8 7	11 9	14
4	S	Pleiades souths 6 a 42	8 46	13 2	9 17	13 3	14
5	A	Septuagesima Sun.	9 47	15 1	10 14	15 2	14
6	M	Proper Lessons. [Genesis i; Mark v. — ii; 2 Cor. i.	10 40	17 4	11 3	17 1	14
7	Tu	Sirius souths, 9 a 29	11 26	19 2	11 49	18 7	14
8	W	Mary Q. of Scots beh.	— —	— —	0 10	20 5	14
9	Th	Dr. Maskelyne d. 1811	0 32	19 4	0 53	20 10	14
10	F	Victoria married, 1840	1 16	19 2	1 38	20 4	14
11	S	Washington b. 1732	1 59	18 10	2 20	19 1	14
12	A	Sexagesima Sunday	2 41	17 2	3 0	17 1	14
13	M	Proper Lessons. [Genesis iii; Mark xii. — vi; 2 Cor. viii.	3 20	15 4	3 43	14 10	14
14	Tu	Valentine, Bishop	4 7	13 7	4 35	12 8	14
15	W	Bp. Atterbury d. 1732	5 9	11 10	5 51	10 9	14
16	Th	Melancthn. b. 1495	6 38	11 1	7 25	10 4	14
17	F	Regulus souths 0 m 13	8 10	11 7	8 51	11 0	14
18	S	Luther died, 1546	9 24	12 8	9 51	12 2	14
19	A	Shrove Sunday	10 14	14 1	10 34	13 7	14
20	M	Proper Lessons. [Gen. ix. to v. 20; Luke ii. — xii; Gal. ii.	10 52	15 5	11 8	14 9	14
21	Tu	Shrove Tuesday	11 22	16 6	11 38	15 10	13
22	W	Ash Wednesday	11 52	17 4	— —	— —	13
23	Th	Sir J. Reynolds d. 1792	0 7	16 7	0 21	17 10	13
24	F	St. Matthias	0 35	16 11	0 50	17 9	13
25	S	Sir C. Wren died, 1723	1 3	16 10	1 18	17 5	13
26	A	1 Sunday in Lent	1 32	16 6	1 47	16 9	13
27	M	Pro. Les. [Gen. xix. to v. 30; Luke ix. — xxii.; Ephes. iii.	2 3	15 11	2 19	15 8	13
28	Tu	Elliott's Engagement	2 36	14 11	2 53	14 4	12
29	W	off Ramsey, 1760.	3 14	13 9	3 37	12 10	12

Equation of Time: Clock before Sun — Add to Apparent Time, or Subtract from Mean Time

The Tide Table on these pages being calculated for Liverpool, *local time*, twelve minutes are required to be subtracted from the Table to give the time of high water at Douglas, *local time*; and two inches to the foot must be subtracted from the rise of the water to give an approximate height of the Tide.

	Bristol Tides.				SUN.						MOON.				M	ASPECTS AND WEATHER.
	morn.		even.		height	rises.	sets.	rt. ascen.		declin. S.	sets.	souths	declin.		age.	
D.	H.	M.	H.	M.	F. I.	H M	H M	H.	M. S.	° ′ ″	H. M.	H. M.	° ′		D.	
1	0	1	0	28	20 11	7 52	4 37	20	57 31	17 13 44	2m57	7 a 7	25 N	16	10	1	*The month*
2	1	2	1	45	20 1	7 50	4 39	21	1 36	16 56 38	4 15	8 5	27 0		11	2	♅ ☌ ☾, 1 m 22
3	2	39	3	34	22 1	7 48	4 41	21	5 39	16 39 15	5 25	9 6	26	58	12	3	*will probably*
4	4	18	4	51	25 6	7 46	4 43	21	9 42	16 21 34	6 22	10 9	24	58	13	4	*begin with*
5	5	22	5	51	29 0	7 45	4 45	21	13 44	16 3 36	6 58	11 10	21	4	14	5	♃ ☌ ☾, 1 m 11
6	6	20	6	46	30 10	7 43	4 47	21	17 45	15 45 21	7 23	morn	—	—	15	6	☉ eclip., inv.
7	7	12	7	37	33 8	7 41	4 49	21	21 45	15 26 51	rises.	0 9	15	36	F	7	♄ ☌ ☾, 0 a 15
8	8	0	8	24	35 10	7 39	4 51	21	25 45	15 8 5	7a25	1 4	9	4	17	8	*wet and*
9	8	44	9	6	36 7	7 37	4 53	21	29 43	14 49 3	8 58	1 56	2	1	18	9	*showery*
10	9	26	9	45	35 9	7 35	4 55	21	33 41	14 29 47	10 29	2 47	s5	1	19	10	*weather,*
11	10	4	10	23	33 9	7 33	4 57	21	37 38	14 10 16	11 59	3 38	11	35	20	11	♅ stationary
12	10	39	10	55	30 10	7 31	4 59	21	41 35	13 50 31	morn	4 29	17	19	21	12	♄ ☍ ☉, 2 m 7
13	11	15	11	35	27 0	7 29	5 1	21	45 30	13 30 32	1 28	5 22	21	55	22	13	*which will*
14	—	—	0	0	23 2	7 27	5 3	21	49 25	13 10 20	2 52	6 16	25	10	23	14	♂ ☌ ☾, 10 a 39
15	0	38	1	5	24 2	7 25	5 5	21	53 19	12 49 55	4 5	7 10	26	54	24	15	☿ gr. H. L. S.
16	1	48	2	43	19 6	7 22	5 7	21	57 13	12 29 17	5 1	8 4	27	7	25	16	*change to*
17	3	37	4	23	21 7	7 20	5 9	22	1 6	12 8 27	5 45	8 57	25	52	26	17	*fair and*
18	4	58	5	26	23 11	7 18	5 11	22	4 58	11 47 26	6 5	9 47	23	22	27	18	*frosty,*
19	5	50	6	12	25 0	7 16	5 13	22	8 49	11 26 13	6 33	10 33	19	48	28	19	☿ in sup. ☌ ☉
20	6	33	6	51	27 2	7 14	5 15	22	12 40	11 4 50	6 47	11 17	15	25	29	20	*if not*
21	7	7	7	24	28 9	7 12	5 17	22	16 30	10 43 16	sets.	11 59	10	27	N	21	*milder*
22	7	41	7	57	30 5	7 9	5 19	22	20 19	10 21 23	6a25	0a39	5	6	1	22	☿ ☌ ☾, 3 m 39
23	8	12	8	26	31 3	7 7	5 21	22	24 8	9 59 39	7 36	1 19	N 0	25	2	23	*weather*
24	8	40	8	52	31 1	7 5	5 23	22	27 56	9 37 37	8 49	1 58	5	58	3	24	*toward*
25	9	6	9	17	31 1	7 2	5 25	22	31 31	9 15 27	10 4	2 39	11	20	4	25	♀ ☌ ☾, 5 m 59
26	9	33	9	47	30 0	7 0	5 27	22	35 30	8 53 8	11 20	3 22	16	19	5	26	*the end*
27	10	1	10	16	28 7	6 58	5 29	22	39 16	8 30 41	morn	4 9	20	41	6	27	*of the*
28	10	30	10	48	26 7	6 56	5 31	22	43 2	8 8 7	0 38	4 59	24	9	7	28	*month.*
29	11	8	11	29	24 0	6 53	5 33	22	46 47	7 45 26	1 56	5 53	26	25	8	29	♅ ☌ ☾, 9 m 14

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M.	Noon.			3 Hours.			6 Hours.			9 Hours			Midn.			15 Hour.			18 Hour.			21 Hour.		
D.	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
1w	105	12	20	106	43	19	108	14	43	109	46	32	111	18	46	112	51	27	114	24	34	115	58	8
2	117	3	28	119	6	36	120	41	30	122	16	52	123	52	41	125	28	58	127	5	42	128	42	53
3	130	20	32	131	58	39	133	37	13	135	16	13	136	55	40	138	35	33	140	15	53	141	56	38
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10z	132	13	57	130	32	20	128	51	5	127	10	14	125	29	48	123	49	46	122	10	10	120	30	58
11	118	52	11	117	13	49	115	35	54	113	58	23	112	21	18	110	44	38	109	8	24	107	33	35
12	105	57	12	104	22	13	102	47	39	101	13	30	99	39	45	98	6	24	96	33	27	95	0	53
13	93	28	43	91	56	55	90	25	30	88	54	27	87	23	46	85	53	26	84	23	27	82	53	49
14	81	24	30	79	55	32	78	26	52	76	58	31	75	30	28	74	2	44	72	35	16	71	8	6
15	69	41	12	68	14	34	66	48	11	65	22	4	63	56	11	62	30	32	61	5	8	59	39	56
16	58	14	58	56	50	11	55	25	37	54	1	15	52	37	3	51	13	3	49	49	13	48	25	33
17	47	2	2	45	38	41	44	15	29	42	52	25	41	29	30	40	6	43	38	44	4	37	21	31
18	35	59	6	34	36	48	33	14	36	31	52	30	30	30	31	29	8	37	27	46	50	26	25	8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
24w	29	21	13	30	43	3	32	4	58	33	26	59	34	49	6	36	11	20	37	33	40	38	56	8
25	40	18	42	41	41	24	43	4	14	44	27	11	45	50	18	47	13	33	48	36	57	50	0	30
26	51	24	14	52	48	8	54	12	12	55	36	28	57	0	55	58	25	34	59	50	25	61	15	29
27	62	40	46	64	6	17	65	32	2	66	58	1	68	24	15	69	50	45	71	17	31	72	44	33
28	74	11	52	75	39	28	77	7	22	78	35	34	80	4	4	81	32	54	83	2	3	84	31	33
29	86	1	22	87	31	33	89	2	4	90	32	57	92	4	12	93	35	50	95	7	50	96	40	14

The Equation of Time is given to the nearest second for Greenwich mean noon; and as the difference between the equation of time for mean noon and apparent noon does not in any instance amount to the fifth part of a second, the given minutes and seconds may be used for reducing mean time into apparent time, or the contrary. When the column is headed "Clock before Sun," the Equation is to be *subtracted* from *mean* time to reduce it to *apparent*; or, in the case of a celestial observation, the result being apparent time, the equation must be added to reduce it to mean time. And when "after Sun," the equation must be added to *mean* time, to reduce it to *apparent* time, or subtracted from *apparent* time to reduce it to *mean* time.

PHASES OF THE MOON.
- FULL MOON, 7th day, at 0h. 26m. afternoon.
- LAST QUARTER, 14th day, at 8h. 50m. morning.
- NEW MOON, 22nd day, at 1h. 38m. afternoon.
- FIRST QUARTER, 30th day, at 6h. 34m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus sets.	♀ Venus sout.	♂ Mars rises.	♂ Mars sout.	♃ Jupiter sets.	♃ Jupiter sout.	♄ Saturn sets.	♄ Saturn sout
1	4m54	7 a 35	16 10	6 a 31	0 a 49	9 a 10	2 a 27	2m45	6m30	4m59	8 a 27	6m36	10a
8	4 34	7 50	16 8	7 23	1 7	9 34	2 30	2 38	6 19	4 31	7 59	6 7	10 2
15	4 16	8 4	16 7	7 58	1 13	9 57	2 33	2 30	6 9	4 4	7 32	5 39	9 5
22	3 56	8 19	16 5	8 0	1 1	10 21	2 37	2 21	5 58	3 37	7 5	5 11	9 2
29	3 24	8 36	16 3	7 25	0 27	10 44	2 42	2 11	5 47	3 11	6 39	4 43	9

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height	Evening. Time.	Evening. Height.	Equa of Ti
1	Th	St. David	4 2	12 6	4 34	11 5	12
2	F	Chad, Archbishop	5 14	11 5	6 3	10 8	12
3	S	E. Waller born, 1603	6 55	11 7	7 42	12 8	12
4	G	**2 Sunday in Lent**	8 26	13 2	9 3	13 1	11
5	M	*Pro.* Genesis xxvii; Luke xv. *Less.* — xxxiv; Phil. iii.	9 33	15 5	9 59	15 4	11
6	Tu	Pleiades sets 1 m 13	10 23	17 8	10 44	17 3	11
7	W	Perpetua, M.	11 5	19 9	11 27	19 0	11
8	Th	Procyon souths 8 a25	11 47	20 11	— —	— —	10
9	F	Castor souths 8 a 14	0 6	19 10	0 26	21 2	10
10	S	B. West died, 1820	0 46	19 8	1 8	20 5	10
11	G	**3 Sunday in Lent**	1 29	18 10	1 50	18 9	10
12	M	*Proper Lessons.* Genesis xxxix; Luke xxii. — xlii; 1 Thes. ii.	2 11	17 4	2 32	16 7	9
13	Tu	Arcturus souths 2m45	2 53	15 6	3 15	14 2	9
14	W	Admiral Byng shot	3 40	13 5	4 8	11 10	9
15	Th	Rigel souths 7 a 21	4 41	11 9	5 24	10 1	8
16	F	Julius Cæsar assass.	6 11	10 11	6 56	9 9	8
17	S	St. Patrick	7 42	11 8	8 23	10 7	8
18	G	**4 Sunday in Lent**	8 56	12 5	9 22	11 11	8
19	M	*Proper Lessons.* Genesis lxiii; John v. — lxv; 1 Tim. i.	9 44	13 10	10 5	13 5	7
20	Tu	Sir I. Newton d. 1727	10 25	15 3	10 40	14 9	7
21	W	Benedict, Abbot.	10 54	16 4	11 8	15 8	7
22	Th	Goethe died, 1822	11 20	17 2	11 34	16 8	6
23	F	Aldebaran souths 0m3	11 47	17 8	— —	— —	6
24	S	Ramadan commences	0 2	17 2	0 18	17 9	6
25	G	**5 Sunday in Lent**	0 31	17 2	0 46	17 5	5
26	M	*Proper Lessons.* Exodus iii; John xii. — v; 2 Tim. iii.	1 2	16 11	1 18	16 9	5
27	Tu	Day 12h. 38m. long	1 35	16 3	1 54	15 8	5
28	W	Castor souths 9 a 51	2 14	15 4	2 34	14 3	5
29	Th	Cambridge Term ends	2 55	14 1	3 19	12 9	4
30	F	Pleiades souths 11a41	3 48	12 10	4 21	11 5	4
31	S	Oxford Term ends	5 2	12 0	5 52	10 11	4

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	11 57	— —	21 3	6 51	5 35	22 50 32	7 22 38	3m10	6a51	27 N 8	9	1	*Much rain*
2	0 32	1 15	19 3	6 49	5 37	22 54 16	6 59 45	4 8	7 51	26 6	10	2	*may be*
3	2 8	3 5	21 1	6 47	5 39	22 58 0	6 36 45	4 51	8 51	23 14	11	3	♃ ☌ ☾, 8m19
4	3 57	4 37	25 7	6 45	5 41	23 1 43	6 13 40	5 22	9 49	18 40	12	4	*expected to*
5	5 8	5 35	29 9	6 42	5 43	23 5 25	5 50 30	5 44	10 45	12 46	13	5	♄ ☌ ☾, 8 a 11
6	6 2	6 26	31 5	6 40	5 45	23 9 8	5 27 16	5 59	11 39	5 58	14	6	*fall*
7	6 49	7 13	34 8	6 37	5 47	23 12 50	5 3 57	rises.	morn	— —	F	7	☾ in Perigee
8	7 36	7 57	36 9	6 34	5 49	23 16 31	4 40 34	7a51	0 32	1 12	16	8	*about*
9	8 17	8 37	37 2	6 32	5 51	23 20 12	4 17 7	9 28	1 24	8 13	17	9	*this time.*
10	8 58	9 17	36 2	6 30	5 53	23 23 53	3 53 38	11 0	2 16	14 36	18	10	☿ in Perihel.
11	9 36	9 55	33 8	6 27	5 55	23 27 33	3 30 5	morn	3 10	19 56	19	11	♃ stationary
12	10 14	10 31	30 5	6 25	5 57	23 31 13	3 6 30	0 28	4 6	23 54	20	12	☾ in Apogee
13	10 49	11 11	26 5	6 22	5 58	23 34 53	2 42 52	1 49	5 2	26 18	21	13	*Changeable*
14	11 35	— —	22 4	6 20	6 0	23 38 33	2 19 13	2 57	5 58	27 5	22	14	♂ ☌ ☾, 11m21
15	0 3	0 40	18 11	6 17	6 2	23 42 12	1 55 32	3 45	6 52	26 19	23	15	*weather,*
16	1 22	2 9	18 6	6 15	6 4	23 45 51	1 31 50	4 17	7 43	24 12	24	16	☿ gr. elon. E.
17	3 4	3 53	20 9	6 12	6 6	23 49 30	1 8 7	4 39	8 31	20 58	25	17	*and still*
18	4 29	4 56	23 5	6 10	6 8	23 53 9	0 44 25	4 55	9 16	16 52	26	18	*inclined*
19	5 19	5 41	26 0	6 7	6 10	23 56 48	0 20 42	5 7	9 58	12 6	27	19	*to wet.*
20	6 3	6 20	27 2	6 5	6 13	0 0 27	N 0 3 1	5 17	10 38	6 54	28	20	☉ ent. ♈ Spr.
21	6 36	6 52	28 11	6 2	6 14	0 4 5	0 26 42	5 25	11 18	1 25	29	21	[com.
22	7 6	7 21	30 3	6 0	6 15	0 7 43	0 50 23	sets.	11 58	N 4 8	N	22	*Still*
23	7 36	7 52	31 4	5 57	6 17	0 11 22	1 14 1	7a52	0a38	9 34	1	23	☿ stationary
24	8 9	8 22	31 7	5 55	6 19	0 15 0	1 37 38	9 9	1 21	14 42	2	24	*showery,*
25	8 36	8 51	31 4	5 52	6 21	0 18 38	2 1 13	10 26	2 7	19 17	3	25	*and but*
26	9 6	9 21	30 4	5 50	6 23	0 22 16	2 24 44	11 43	2 56	23 2	4	26	♀ ☌ ☾, 7 m 1
27	9 38	9 57	28 9	5 47	6 25	0 25 54	2 48 13	morn	3 48	25 40	5	27	♅ ☌ ☾, 4 a 20
28	10 14	10 31	26 10	5 45	6 27	0 29 32	3 11 38	0 58	4 44	26 53	6	28	*little*
29	10 51	11 16	24 3	5 42	6 29	0 33 10	3 34 59	2 0	5 42	26 29	7	29	*March*
30	11 45	— —	21 8	5 40	6 30	0 36 49	3 58 16	2 48	6 40	24 23	8	30	♃ ☌ ☾, 4 a 47
31	0 21	1 5	20 5	5 37	6 32	0 40 27	3 21 29	3 21	7 37	20 39	9	31	*dust.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ″
1 W	98 13 0	99 46 11	101 19 45	102 53 44	104 28 7	106 2 55	107 38 7	109 13 45
2	110 49 47	112 26 15	114 3 8	115 40 26	117 18 9	118 56 18	120 34 52	122 13 50
3	123 53 13	125 33 0	127 13 11	128 53 46	130 34 45	132 16 6	133 57 50	135 39 55
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
10 E	138 18 55	136 39 5	134 59 41	133 20 42	131 42 8	130 4 1	128 26 20	126 49 5
11	125 12 17	123 35 56	122 0 2	120 24 35	118 49 34	117 15 0	115 40 52	114 7 11
12	112 33 56	111 1 7	109 28 44	107 56 46	106 25 14	104 54 6	103 23 22	101 53 3
13	100 23 7	98 53 34	97 24 25	95 55 37	94 27 12	92 59 7	91 31 24	90 4 1
14	88 36 58	87 10 14	85 43 49	84 17 43	82 51 54	81 26 23	80 1 8	78 36 10
15	77 11 27	75 46 59	74 22 46	72 58 47	71 35 2	70 11 29	68 48 9	67 25 1
16	66 2 4	64 39 18	63 16 42	61 54 17	60 32 1	59 9 53	57 47 55	56 26 4
17	55 4 21	53 42 45	52 21 15	50 59 52	49 38 35	48 17 24	46 56 18	45 35 16
18	44 14 19	42 53 27	41 32 38	40 11 53	38 51 11	37 30 33	36 9 58	34 49 26
19	33 28 56	32 8 30	30 48 6	29 27 46	28 7 29	26 47 15	25 27 6	24 7 1
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
24 W	21 54 17	23 17 8	24 40 16	26 3 41	27 27 21	28 51 15	30 15 23	31 39 45
25	33 4 20	34 29 7	35 54 8	37 19 21	38 44 47	40 10 25	41 36 16	43 2 20
26	44 28 37	45 55 7	47 21 49	48 48 45	50 15 54	51 43 17	53 10 53	54 38 43
27	56 6 48	57 35 7	59 3 41	60 32 29	62 1 33	63 30 52	65 0 27	66 30 17
28	68 0 24	69 30 47	71 1 27	72 32 23	74 3 37	75 35 9	77 6 58	78 39 5
29	80 11 30	81 44 13	83 17 15	84 50 36	86 24 16	87 58 15	89 32 33	91 7 11
30	92 42 9	94 17 26	95 53 3	97 29 0	99 5 17	100 41 55	102 18 52	103 56 9
31	105 33 46	107 11 43	108 49 59	110 28 35	112 7 30	113 46 45	115 26 19	117 6 11

In the Tide Table for Bristol, on the right-hand pages, the heights are given of those Tides which happen nearest to noon in each day at the Cumberland Gates, without taking into account the diurnal inequality of the height.

PHASES OF THE MOON.

FULL MOON,	5th day, at	9h. 42m. night.
LAST QUARTER,	13th day, at	1h. 16m. morning.
NEW MOON,	21st day, at	5h. 27m. morning.
FIRST QUARTER,	28th day. at	2h. 18m. afternoon.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.
1	3m36	8 a 43	16 2	6 a 58	0 a 8	10a54	2 a 44	2 m 6	5 m42	2m59	6 a 28	4 m31	8 a 48
8	3 4	9 2	16 0	rises.	11 m24	11 16	2 49	1 54	5 30	2 33	6 3	4 3	8 19
15	2 40	9 23	15 58	4m35	10 49	11 36	2 54	1 42	5 18	2 8	5 38	3 35	7 51
22	2 12	9 45	15 56	4 19	10 29	11 53	3 0	1 28	5 5	1 43	5 14	3 7	7 24
29	1 42	10 12	15 54	4 5	10 21	0m 2	3 5	1 13	4 50	1 18	4 50	2 40	6 55

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time
1	G	**Palm Sunday**	6 41	12 4	7 29	11 9	3 50
2	M	*Proper Lessons.* [Exodus ix; Matthew xxvi. — x; Heb. v to ver. xi.	8 8	13 9	8 38	13 6	3 32
3	Tu	Richard, Bishop	9 8	15 11	9 33	15 8	3 13
4	W	Ambrose, Bishop	9 57	17 11	10 17	17 6	2 56
5	Th	Aldebaran sets, 11 a 9	10 38	19 5	10 57	18 10	2 38
6	F	**Good Friday**	11 20	20 2	11 41	19 2	2 20
7	S	Lalande died, 1811	— —	— —	0 1	20 2	2 3
8	G	**Easter Sunday**	0 22	18 8	0 43	19 3	1 46
9	M	*Pro. Les.* [Exodus xii; Romans vi. — xiv; Acts ii to ver. 22	1 4	18 4	1 25	17 8	1 29
10	Tu	**Easter Tuesday**	1 47	16 11	2 9	15 9	1 13
11	W	Wm. & My. crnd., 1689	2 32	15 5	2 54	13 7	0 56
12	Th	Dr. Young died, 1765	3 19	13 8	3 46	11 8	0 40
13	F	Cambridge T. begins	4 18	12 1	4 55	10 3	0 25
14	S	Handel died, 1759	5 36	11 2	6 20	9 11	0 10
15	G	**1 Sun. after Easter**	7 0	11 6	7 35	10 7	0 5
16	M	*Proper Lessons.* [Num. xvi; Acts xii. — xxii; James iv.	8 10	12 5	8 39	11 9	0 20
17	Tu	Arcturus souths 0m 30	9 3	13 7	9 21	13 2	0 34
18	W	Oxford Term begins	9 40	14 10	9 58	14 5	0 48
19	Th	Alphege, Archbishop	10 14	15 9	10 29	15 5	1 1
20	F	Spanish Armada, 1657	10 45	16 6	11 0	16 2	1 14
21	S	Napoleon III. born	11 17	17 0	11 32	16 9	1 26
22	G	**2 Sun. after Easter**	11 48	17 1	— —	— —	1 38
23	M	*Proper Lessons.* [Num. xxiii, xxiv; Acts xx. — xxv; 2 Pet. ii.	0 6	17 0	0 23	16 10	1 50
24	Tu	Cromwell born, 1599	0 40	16 9	0 59	16 5	2 1
25	W	**St. Mark Evan.**	1 20	16 7	1 41	15 6	2 12
26	Th	Altair rises, 10 a 35	2 0	15 8	2 22	14 4	2 22
27	F	Sir W. Jones d. 1794	2 45	14 8	3 12	13 2	2 31
28	S	Mutiny Bounty, 1789	3 43	13 7	4 19	12 2	2 41
29	G	**3 Sun. after Easter**	4 58	13 3	5 41	11 11	2 49
30	M	*Proper Lessons.* [Deut. iv; Acts xxvi. — v; I John v.	6 22	13 6	7 0	12 8	2 57

Equation of Time: Clock before Sun. / Subtract from mean Time. / Clock after Sun. / Subtract from Apparent Time.

M D.	Bristol Tides morn. H. M.	even. H. M.	height F. I.	SUN rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON sets. H. M.	souths H. M.	declin. ° ′	age.	M D.
1	1 52	2 50	22 4	5 35	6 34	0 44 5	4 44 37	3m45	8a32	15N31	10	1
2	3 28	4 11	26 5	5 32	6 36	0 47 43	5 7 39	4 0	9 24	9 20	11	2
3	4 42	5 8	30 3	5 30	6 38	0 51 22	5 30 37	4 17	10 16	2 30	12	3
4	5 34	5 57	33 3	5 27	6 40	0 55 1	5 53 28	4 30	11 8	s4 31	13	4
5	6 20	6 42	34 5	5 25	6 42	0 58 40	6 16 13	rises.	12 0	11 15	F	5
6	7 7	7 31	35 9	5 22	6 44	1 2 19	6 38 52	8a23	morn	— —	15	6
7	7 52	8 13	35 10	5 20	6 46	1 5 58	7 1 24	9 56	0 54	17 12	16	7
8	8 33	8 53	34 7	5 18	6 47	1 9 37	7 23 48	11 24	1 50	21 58	17	8
9	9 13	9 33	32 3	5 15	6 49	1 13 17	7 46 6	morn	2 48	25 11	18	9
10	9 53	10 14	29 4	5 13	6 51	1 16 57	8 8 16	0 40	3 46	26 43	19	10
11	10 30	10 51	26 0	5 10	6 53	1 20 37	8 30 17	1 36	4 42	26 35	20	11
12	11 14	11 42	22 5	5 8	6 55	1 24 18	8 52 11	2 16	5 36	24 56	21	12
13	— —	0 14	19 5	5 5	6 57	1 27 58	9 13 55	2 43	6 26	22 3	22	13
14	0 50	1 31	18 10	5 3	6 59	1 31 40	9 35 31	3 1	7 12	18 13	23	14
15	2 16	2 58	20 6	5 1	7 0	1 35 22	9 56 57	3 14	7 55	13 40	24	15
16	3 40	4 11	23 2	4 58	7 2	1 30 4	10 18 14	3 25	8 37	8 38	25	16
17	4 37	4 55	25 7	4 56	7 4	1 42 46	10 39 20	3 34	9 16	3 16	26	17
18	5 15	5 34	27 7	4 54	7 6	1 46 29	11 0 16	3 43	9 56	N2 14	27	18
19	5 52	6 9	29 0	4 52	7 8	1 50 12	11 21 1	3 53	10 36	7 43	28	19
20	6 27	6 45	29 9	4 49	7 10	1 53 56	11 41 35	4 3	11 19	12 58	29	20
21	7 3	7 20	30 4	4 47	7 12	1 57 40	12 1 57	sets.	0 a3	17 46	N	21
22	7 37	7 57	30 9	4 45	7 13	2 1 25	12 22 8	9a31	0 52	21 49	1	22
23	8 14	8 30	30 6	4 42	7 15	2 5 10	12 42 6	10 47	1 44	24 50	2	23
24	8 48	9 7	30 0	4 40	7 17	2 8 55	13 1 52	11 53	2 40	26 29	3	24
25	9 26	9 43	28 11	4 38	7 19	2 12 41	13 21 24	morn	3 37	26 33	4	25
26	10 2	10 21	27 4	4 36	7 21	2 16 28	13 40 44	0 44	4 35	24 57	5	26
27	10 44	11 11	25 3	4 34	7 23	2 20 14	13 59 50	1 22	5 31	21 46	6	27
28	11 43	— —	23 3	4 31	7 25	2 24 2	14 18 42	1 48	6 25	17 11	7	28
29	0 17	0 54	22 6	4 29	7 26	2 27 50	14 37 20	2 8	7 17	11 32	8	29
30	1 33	2 20	24 0	4 27	7 28	2 31 38	14 55 43	2 24	8 7	5 10	9	30

ASPECTS AND WEATHER.

April
☿ ☌ ☾, 3 m 28
showers, if not
♀ in Perihel.
rainy weather; then changeable, but
♂ ☌ ☾, 11 a 38
♀ ☌ ♅, 1 m 30
inclined to fair
☿ stationary
for the sowing season.
☿ ☌ ☾, 10 m 29
♄ stationary
Expect more
☿ in Aphel.
showers
♀ ☌ ☾, 0 m 6
and
♃ ☌ ☾, 3 m 13
rainy weather.
☿ gr. elon. W

LUNAR DISTANCES FROM THE SUN.
Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	118 46 21	120 26 49	122 7 35	123 48 37	125 29 56	127 11 31	128 53 21	130 35 26
..	.. .. ..	1	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
9 E	131 58 8	130 24 45	128 51 46	127 19 10	125 46 59	124 15 12	122 43 49	121 12 49
10	119 42 13	118 12 0	116 42 11	115 12 44	113 43 40	112 14 57	110 46 37	109 18 38
11	107 51 0	06 23 43	104 56 46	103 30 9	102 3 50	100 37 51	99 12 9	97 46 46
12	96 21 39	94 56 49	93 32 16	92 7 58	90 43 55	89 20 6	87 56 31	86 33 9
13	85 10 1	83 47 4	82 24 19	81 1 45	79 39 22	78 17 8	76 55 4	75 33 9
14	74 11 22	72 49 42	71 28 10	70 6 44	68 45 24	67 24 10	66 3 1	64 41 56
15	63 20 56	61 59 59	60 39 5	59 18 13	57 57 24	56 36 37	55 15 50	53 55 5
16	52 34 20	51 13 34	49 52 49	48 32 3	47 11 16	45 50 28	44 29 38	43 8 47
17	41 47 53	40 26 58	39 6 0	37 44 59	36 23 57	35 2 52	33 41 44	32 20 35
18	30 59 24	29 38 12	28 16 58	26 55 45	25 34 32	24 13 22	22 52 15	21 31 15
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
23w	26 50 53	28 18 37	29 46 41	31 15 5	32 43 46	34 12 45	35 42 0	37 11 31
24	38 41 18	40 11 20	41 41 37	43 12 8	44 42 54	46 13 54	47 45 8	49 16 36
25	50 48 18	52 20 13	53 52 22	55 24 44	56 57 20	58 30 10	60 3 12	61 36 29
26	63 9 58	64 43 41	66 17 37	67 51 46	69 26 9	71 0 45	72 35 35	74 10 38
27	75 45 54	77 21 23	78 57 6	80 33 2	82 9 11	83 45 33	85 22 8	86 58 57
28	88 35 58	90 13 13	91 50 40	93 28 20	95 6 13	96 44 18	98 22 35	100 1 5
29	101 39 46	103 18 40	104 57 44	106 37 0	108 16 27	109 56 5	111 35 53	113 15 50
30	114 55 57	116 36 14	118 16 39	119 57 12	121 37 53	123 18 41	124 59 36	126 40 37

The Sun's Right Ascension is given in time to the nearest second for Greenwich mean noon, and with the table of the right ascension of the principal fixed stars, given in page 29, is useful to find the time by the meridian distance of those stars.

The Sun's Declination is given to the nearest second for the instant of *apparent* noon at Greenwich, and may be reduced to any other meridian by applying the proportional part of the daily difference.

PHASES OF THE MOON.
- FULL MOON, 5th day, at 6h. 44m. morning.
- LAST QUARTER, 12th day, at 6h. 58m. evening.
- NEW MOON, 20th day, at 6h. 28m. evening.
- FIRST QUARTER, 27th day, at 7h. 46m. evening.

M D.	Day brek.	Twil. ends	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.
1	0m31	10a28	15 54	4m 2	10m20	0m 6	3 a 6	1m 9	4m46	1m11	4 a 44	2m32	6 a 49
8	0 45	11 16	15 52	3 46	10 23	0 8	3 9	0 52	4 31	0 47	4 21	2 5	6 22
15	noreal night.	noreal night.	15 51	3 33	10 32	0 9	3 11	0 35	4 14	0 23	3 58	1 38	5 56
22			15 50	3 22	10 50	0 3	3 11	0 18	3 56	11a55	3 35	1 11	5 30
29			15 49	3 17	11 16	11a48	3 8	11a56	3 36	11 32	3 13	0 44	5 4

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Tu	St. Philip & St. James	7 35	14 7	8 9	14 0	3 5
2	W	Camden born, 1551	8 35	16 0	9 1	15 5	3 12
3	Th	Inven. of the Cross	9 26	17 3	9 51	16 9	3 19
4	F	Seringapatam taken	10 13	18 2	10 36	17 9	3 25
5	S	Bonaparte died, 1821	10 58	18 7	11 20	18 2	3 30
6	G	4 Sun. after Easter	11 41	18 3	— —	— —	3 35
7	M	[Deut. vi; Matthew iv. — vii; Rom. v.	0 2	18 1	0 23	17 7	3 40
8	Tu	Easter Term ends	0 45	17 7	1 6	16 5	3 44
9	W	Battle of Acre, 1799	1 29	16 7	1 52	15 0	3 47
10	Th	Battle of Lodi, 1778	2 15	15 5	2 37	13 6	3 49
11	F	Lord Chatham d. 1778	3 1	14 1	3 26	12 3	3 51
12	S	Strafford behd. 1641	3 51	12 11	4 18	11 3	3 53
13	G	Rogation Sunday	4 52	12 2	5 28	10 8	3 54
14	M	Proper Lessons. [Deut. viii; Matthew xi. — ix; Rom. xii.	6 2	11 11	6 36	11 0	3 54
15	Tu	Cuvier died, 1832	7 7	12 4	7 36	11 7	3 54
16	W	O'Connell died, 1847	8 3	13 0	8 30	12 6	3 53
17	Th	Ascension Day	8 53	13 10	9 13	13 8	3 51
18	F	Franklin died, 1790	9 32	14 7	9 52	14 7	3 49
19	S	Dunstan, Archbishop	10 11	15 3	10 31	15 5	3 46
20	G	Sun. af. Ascens. Day	10 49	15 10	11 9	16 2	3 43
21	M	Proper Lessons. [Deut. xii; Mat. xviii. — xiii; 1 Cor. iii.	11 27	16 2	11 45	16 8	3 39
22	Tu	Trinity Term begins	— —	— —	0 4	16 4	3 35
23	W	Linnæus born, 1707	0 25	16 11	0 47	16 2	3 30
24	Th	Queen Victoria born	1 9	16 10	1 31	15 8	3 25
25	F	Princess Helena born	1 54	16 4	2 19	14 9	3 19
26	S	Oxford Term ends	2 45	15 9	3 13	14 3	3 13
27	G	Whit Sunday	3 42	15 0	4 12	13 6	3 6
28	M	Pro. Les. [Deut. xvi. to v. 18; Acts x, v. 34. Isaiah xi; Acts xix to v. 21.	4 46	14 6	5 19	13 1	2 59
29	Tu	Whit Tuesday	5 53	14 5	6 27	13 3	2 52
30	W	Sir H. Davy d., 1829	6 58	14 8	7 29	13 6	2 44
31	Th	A. Pope died, 1744	8 0	15 2	8 29	14 8	2 35

Equation of Time. Clock after Sun. Add to Mean Time, or subtract from Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt.ascen. H. M. S.	declin. N ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	3 4	3 41	27 2	4 25	7 30	2 35 27	15 13 52	2m37	8a57	1s34	10	1	*The*
2	4 8	4 35	29 10	4 23	7 31	2 39 16	15 31 46	2 48	9 47	8 14	11	2	☾ in Perigee
3	5 2	5 29	31 10	4 21	7 33	2 43 6	15 49 24	3 1	10 39	14 26	12	3	*month*
4	5 53	6 18	32 7	4 19	7 35	2 46 57	16 6 46	3 15	11 34	19 43	13	4	*will probably*
5	6 43	7 7	33 3	4 17	7 37	2 50 48	16 23 53	rises.	morn	— —	F	5	*begin with*
6	7 30	7 53	33 0	4 15	7 39	2 54 39	16 40 43	10a15	0 31	23 41	15	6	*wind*
7	8 14	8 35	32 1	4 13	7 41	2 58 32	16 57 17	11 21	1 30	26 2	16	7	*and*
8	8 55	9 15	30 6	4 11	7 43	3 2 24	17 13 34	morn	2 28	26 38	17	8	*rain,*
9	9 36	9 53	28 4	4 9	7 45	3 6 18	17 29 33	0 10	3 24	25 36	18	9	☿ gr. elon. E.
10	10 15	10 35	26 2	4 7	7 47	3 10 12	17 45 16	0 43	4 17	23 10	19	10	☌ ☌ ☾, 8 m 34
11	10 58	11 19	23 8	4 5	7 49	3 14 6	18 0 40	1 4	5 6	19 38	20	11	*which will*
12	11 42	— —	21 8	4 4	7 50	3 18 1	18 15 47	1 19	5 51	15 18	21	12	*be followed*
13	0 12	0 43	20 3	4 2	7 52	3 21 57	18 30 35	1 31	6 33	10 24	22	13	☿ gr. H. L. S.
14	1 14	1 47	20 9	4 0	7 54	3 25 53	18 45 5	1 42	7 13	5 9	23	14	☾ in Apogee
15	2 25	3 1	22 3	3 59	7 56	3 29 50	18 59 16	1 52	7 53	N0 16	24	15	*by fine*
16	3 33	4 3	24 3	3 57	7 57	3 33 48	19 13 8	2 1	8 33	5 44	25	16	*and*
17	4 27	4 48	26 0	3 55	7 58	3 37 46	19 26 40	2 10	9 14	11 4	26	17	*warm*
18	5 8	5 28	27 5	3 54	8 0	3 41 44	19 39 52	2 21	9 58	16 2	27	18	*weather*
19	5 50	6 12	28 0	3 52	8 1	3 45 44	19 52 45	2 38	10 46	20 24	28	19	☿ ☌ ☾, 8 m 34
20	6 32	6 55	28 10	3 51	8 3	3 49 43	20 5 17	sets.	11 37	23 49	N	20	*for the*
21	7 14	7 34	29 7	3 49	8 4	3 53 44	20 17 29	9a43	0a32	25 59	1	21	*season;*
22	7 55	8 16	30 0	3 48	8 6	3 57 45	20 29 19	10 42	1 30	26 35	2	22	♅ ☌ ☾, 9m 28
23	8 37	8 58	31 1	3 47	8 8	4 1 46	20 40 49	11 24	2 29	25 28	3	23	*still*
24	9 18	9 38	29 5	3 46	8 9	4 5 48	20 51 57	11 53	3 27	22 41	4	24	♀ ☌ ☾, 8 m 20
25	9 59	10 23	28 3	3 44	8 11	4 9 50	21 2 44	morn	4 22	18 27	5	25	*fair*
26	10 47	11 13	27 2	3 43	8 12	4 13 53	21 13 9	0 14	5 14	13 6	6	26	♄ ☌ ☾, 5 a 36
27	11 40	— —	25 10	3 42	8 14	4 17 56	21 23 12	0 30	6 4	7 0	7	27	*and*
28	0 9	0 37	24 8	3 40	8 15	4 22 0	21 32 53	0 43	6 52	0 30	8	28	*warm with*
29	1 6	1 37	24 10	3 39	8 16	4 26 4	21 42 11	0 53	7 41	s6 2	9	29	♅ ☌ ☉, 1 m 48
30	2 16	2 55	26 4	3 38	8 18	4 30 9	21 51 7	1 5	8 31	12 15	10	30	*light showers*
31	3 32	4 3	28 1	3 37	8 19	4 34 14	21 59 40	1 20	9 23	17 46	11	31	♀ ☌ ♃, 11 a 44

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ″
1w	128 21 42	130 2 53	131 44 7	133 25 24	135 6 43	136 48 4	138 29 24	140 10 44
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. .
8E	138 58 18	137 28 15	135 58 32	134 29 7	133 0 2	131 31 16	130 2 49	128 34 40
9	127 6 51	125 39 21	124 12 8	122 45 14	121 18 38	119 52 19	118 26 17	117 0 33
10	115 35 4	114 9 52	112 44 56	111 20 14	109 55 48	108 31 35	107 7 36	105 43 51
11	104 20 19	102 56 59	101 33 50	100 10 53	98 48 6	97 25 30	96 3 3	94 40 45
12	93 18 35	91 56 33	90 34 39	89 12 51	87 51 10	86 29 34	85 8 3	83 46 36
13	82 25 14	81 3 54	79 42 37	78 21 22	77 0 9	75 38 57	74 17 46	72 56 34
14	71 35 22	70 14 8	68 52 53	67 31 35	66 10 15	64 48 52	63 27 24	62 5 53
15	60 44 17	59 22 36	58 0 49	56 38 56	55 16 57	53 54 51	52 32 38	51 10 17
16	49 47 48	48 25 11	47 2 25	45 39 31	44 16 28	42 53 15	41 29 53	40 6 21
17	38 42 40	37 18 49	35 54 48	34 30 38	33 6 19	31 41 50	30 17 12	28 52 26
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
22w	21 25 58	22 57 51	24 30 10	26 2 54	27 35 59	29 9 24	30 43 7	32 17 7
23	33 51 23	35 25 55	37 0 40	38 35 38	40 10 50	41 46 13	43 21 48	44 57 34
24	46 33 31	48 9 37	49 45 54	51 22 19	52 58 54	54 35 37	56 12 29	57 49 28
25	59 26 36	61 3 50	62 41 12	64 18 41	65 56 16	67 33 58	69 11 45	70 49 39
26	72 27 38	74 5 43	75 43 53	77 22 8	79 0 28	80 38 53	82 17 21	83 55 54
27	85 34 31	87 13 12	88 51 57	90 30 44	92 9 35	93 48 29	95 27 26	97 6 24
28	98 45 26	100 24 29	102 3 34	103 42 40	105 21 48	107 0 56	108 40 5	110 19 15
29	111 58 24	113 37 34	115 16 43	116 55 50	118 34 57	120 14 2	121 53 5	123 32 5
30	125 11 2	126 49 57	128 28 47	130 7 34	131 46 15	133 24 52	135 3 22	136 41 46

The Sun's Rising and Setting, and the Moon's Rising, Southing, and Setting are given, as stated in the title-page, for Latitude 54° 10′ N., and Longitude 4° 30′ W.

The Moon's Declination is given to the nearest minute for her transit over the meridian of Greenwich.

PHASES OF THE MOON.

FULL MOON,	3rd day, at	4h. 28m. afternoon.
LAST QUARTER,	11th day, at	0h. 46m. afternoon.
NEW MOON,	19th day, at	5h. 5m. morning.
FIRST QUARTER,	26th day, at	0h. 18m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.
1	no real ni. this mon.	no real ni. this mon.	15 48	3m17	11m31	11a41	3 a 5	11a50	3m27	11a22	3 a 4	0m33	4 a 53
8			15 47	sets.	0 a 8	11 20	2 56	11 29	3 4	10 58	2 42	0 6	4 27
15			15 47	9 a 35	0 46	10 53	2 42	11 7	2 39	10 34	2 20	11a36	4 2
22			15 46	9 57	1 18	10 22	2 22	10 44	2 11	10 10	1 59	11 10	3 37
29			15 46	9 58	1 40	9 44	1 55	10 19	1 41	9 47	1 37	10 43	3 12

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. Sun. fast from Mean Time.
1	F	Nicomede, Martyr	8 58	15 9	9 27	15 7	2 2
2	S	Lyra souths 1 m 55	9 55	16 1	10 20	16 3	2 1
3	G	**Trinity Sunday**	10 45	16 5	11 7	16 11	2
4	M	*Proper Lessons.* [Genesis i; Matthew iii. — xviii; 1 John v.	11 29	16 6	11 49	17 1	1 5
5	Tu	Boniface, Bishop	— —	— —	0 10	16 2	1 4
6	W	J. Bentham died, 1832	0 32	17 0	0 53	15 9	1 3
7	Th	Corpus Christi	1 14	16 6	1 35	14 10	1 2
8	F	Antares souths 11 a 13	1 56	15 9	2 18	14 1	1 1
9	S	Dr. Rees died, 1825	2 38	15 0	2 57	13 4	1
10	G	**1 Sun. after Trinity**	3 18	14 2	3 41	12 7	0 5
11	M	*Pro. Les.* [Joshua x; Mark xi. — xxiii; 2 Cor. viii.	4 5	13 1	4 28	11 7	0 3
12	Tu	Regulus sets 11 a 52	4 55	12 6	5 24	11 6	0 2
13	W	Antares souths 10 a 50	5 54	12 4	6 25	11 8	0 1
14	Th	Battle Marengo, 1800	6 54	12 5	7 25	12 0	0 2
15	F	Libra souths 9 a 5	7 55	12 8	8 24	12 9	0 1
16	S	J. Wesley born, 1703	8 51	13 3	9 16	13 8	0 2
17	G	**2 Sun. after Trinity**	9 41	14 0	10 5	14 8	0 3
18	M	[Judges iv; Luke i. — v; Galat. i.	10 26	14 11	10 48	15 10	0 5
19	Tu	B. of Waterloo, 18th	11 9	15 9	11 31	16 9	1
20	W	Queen's Accession	11 52	16 4	— —	— —	1 1
21	Th	Queen Victoria Procl.	0 14	17 6	0 37	16 7	1 2
22	F	Cambridge T. ends	1 1	17 8	1 24	16 6	1 4
23	S	Hampden died, 1643	1 48	17 7	2 12	16 2	1 5
24	G	**3 Sun. after Trinity**	2 37	17 2	3 1	15 7	2
25	M	*Proper Lessons.* [1 Sam. ii; Matthew iii. — iii; — xiv to v, 13	3 26	16 7	3 52	14 10	2 2
26	Tu	Geo. IV. died, 1830	4 18	15 7	4 47	14 0	2 3
27	W	Dr. Dodd execu, 1774	5 18	14 6	5 51	13 4	2 4
28	Th	Lord Raglan d. 1855	6 25	13 11	7 0	13 3	2 5
29	F	**St. Peter, Apostle**	7 35	13 8	8 10	13 10	3 1
30	S	Antares souths 9 a 43	8 43	13 11	9 15	14 4	3 2

Add Mean Time. Subtract from Mean Time.



D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
1	4 34	5 3	29 3	3 36	8 20	4 38 19	22 7 50	1m38	10a18	22s11	12	1	☿ in ♌, 10 a 40
2	5 32	6 0	29 10	3 35	8 21	4 42 25	22 15 37	2 0	11 15	25 10	13	2	*Fair*
3	6 28	6 53	30 2	3 34	8 22	4 46 31	22 23 1	rises.	morn	— —	F	3	☿ ☌ ♅, 1 m 54
4	7 17	7 39	30 4	3 33	8 23	4 50 37	22 30 2	10a 1	0 14	26 30	15	4	*and*
5	8 1	8 22	30 0	3 33	8 24	4 54 44	22 36 39	10 39	1 11	26 9	16	5	*warm*
6	8 42	9 2	29 8	3 32	8 25	4 58 51	22 42 52	11 5	2 6	24 16	17	6	☿ in Perihel.
7	9 21	9 40	28 2	3 32	8 26	5 2 59	22 48 41	11 23	2 57	21 7	18	7	☌ ☌ ☾, 8 m 4
8	10 0	10 17	27 1	3 31	8 27	5 7 7	22 54 7	11 37	3 44	17 1	19	8	*the former*
9	10 32	10 51	25 10	3 31	8 28	5 11 15	22 59 8	11 48	4 27	12 17	20	9	*part*
10	11 11	11 32	24 2	3 30	8 29	5 15 23	23 3 45	11 58	5 9	7 8	21	10	*of the*
11	11 52	— —	22 10	3 30	8 30	5 19 32	23 7 58	morn	5 48	1 44	22	11	♀ at grt. bril.
12	0 15	0 40	21 6	3 29	8 30	5 23 40	23 11 47	0 7	6 28	N3 42	23	12	*month.*
13	1 6	1 35	21 5	3 29	8 31	5 27 49	23 15 10	0 17	7 9	9 4	24	13	*Now expect*
14	2 9	2 47	22 4	3 28	8 31	5 31 59	23 18 10	0 28	7 51	14 9	25	14	*some*
15	3 24	3 56	24 5	3 28	8 32	5 36 8	23 20 44	0 42	8 37	18 44	26	15	*wet*
16	4 25	4 51	25 7	3 28	8 32	5 40 17	23 22 54	1 1	9 26	22 34	27	16	☿ gr. H. L. N.
17	5 17	5 44	26 10	3 28	8 32	5 44 29	23 24 39	1 28	10 20	25 16	28	17	♅ ☌ ☾, 8 a 37
18	6 6	6 31	27 9	3 28	8 33	5 48 36	23 25 59	2 8	11 18	26 31	29	18	☌ stationary
19	6 55	7 19	29 2	3 28	8 33	5 52 46	23 26 55	sets.	0a18	26 4	N	19	*weather;*
20	7 41	8 5	30 4	3 28	8 33	5 56 56	23 27 25	9a55	1 17	23 50	1	20	☿ ☌ ☾, 9 m 46
21	8 27	8 50	31 0	3 28	8 34	6 1 5	23 27 31	10 19	2 15	19 58	2	21	☉ en. ♋ Sum.
22	9 12	9 34	31 2	3 29	8 34	6 5 15	23 27 12	10 37	3 9	14 49	3	22	[com.
23	9 56	10 17	30 10	3 29	8 34	6 9 25	23 26 28	10 50	4 1	8 48	4	23	♄ ☌ ☾, 3 m 24
24	10 38	11 0	30 1	3 29	8 34	6 13 34	23 25 20	11 1	4 50	2 18	5	24	*then*
25	11 23	11 45	28 4	3 30	8 34	6 17 43	23 23 46	11 14	5 39	s4 15	6	25	*more*
26	— —	0 10	26 5	3 30	8 34	6 21 52	23 21 48	11 28	6 28	10 33	7	26	♀ stationary
27	0 37	1 5	24 8	3 31	8 34	6 26 1	23 19 26	11 44	7 18	16 12	8	27	*fair*
28	1 35	2 16	24 4	3 32	8 34	6 30 10	23 16 38	morn	8 11	20 55	9	28	*at the*
29	3 0	3 41	25 4	3 32	8 34	6 34 19	23 13 27	0 3	9 7	24 20	10	29	☿ ☌ ♃, 2 m 15
30	4 17	4 50	26 6	3 33	8 34	6 38 27	23 9 51	0 29	10 4	26 14	11	30	*end.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
7	134 35 17	133 10 11	131 45 18	130 20 38	128 56 11	127 31 56	126 7 53	124 44 2
8	123 20 22	121 56 53	120 33 35	119 10 27	117 47 28	116 24 39	115 1 59	113 39 27
9	112 17 3	110 54 46	109 32 35	108 10 31	106 48 33	105 26 40	104 4 52	102 43 8
10	101 21 28	99 59 50	98 38 15	97 16 42	95 55 10	94 33 39	93 12 8	91 50 37
11	90 29 5	89 7 31	87 47 55	86 24 16	85 2 34	83 40 47	82 18 57	80 57 1
12	79 35 0	78 12 52	76 50 38	75 28 16	74 5 47	72 43 9	71 20 22	69 57 25
13	68 34 19	67 11 2	65 47 34	64 23 54	63 0 2	61 35 58	60 11 41	58 47 10
14	57 22 26	55 57 27	54 32 13	53 6 45	51 41 1	50 15 1	48 48 46	47 22 14
15	45 55 25	44 28 19	43 0 57	41 33 17	40 5 20	38 37 5	37 8 32	35 39 42
16	34 10 35	32 41 9	31 11 27	29 41 28	28 11 11	26 40 39	25 9 50	23 38 47
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
21w	29 45 11	31 24 39	33 4 16	34 44 0	36 23 51	38 3 48	39 43 51	41 23 58
22	43 4 8	44 44 22	46 24 39	48 4 57	49 45 16	51 25 37	53 5 57	54 16 17
23	56 26 37	58 6 55	59 47 11	61 27 26	63 7 38	64 47 47	66 27 52	68 7 55
24	69 47 53	71 27 46	73 7 35	74 47 19	76 26 58	78 6 32	79 45 59	81 25 21
25	83 4 36	84 43 46	86 22 48	88 1 44	89 40 32	91 19 14	92 57 48	94 36 15
26	96 14 34	97 52 46	99 30 49	101 8 45	102 46 32	104 24 11	106 1 41	107 39 4
27	109 16 17	110 53 22	112 30 18	114 7 5	115 43 42	117 20 11	118 56 30	120 32 40
28	122 8 40	123 44 31	125 20 12	126 55 42	128 31 3	130 6 14	131 41 14	133 16 4

THE MOON'S SEMI-DIAMETER is given to the nearest second for Greenwich mean noon and midnight on page 26, and the HORIZONTAL PARALLAX on page 27.

THE LUNAR DISTANCES FROM THE SUN are given with a view to assist those who may not have an opportunity of using the Nautical Almanack, and are given for every three hours of Greenwich astronomical mean time. As the rest of the Almanack is adapted to CIVIL time, this distinction must be kept in mind; the *Civil*

PHASES OF THE MOON.
- FULL MOON, 3rd day, at 3h. 49m. morning.
- LAST QUARTER, 11th day, at 5h. 40m. morning.
- NEW MOON, 18th day, at 2h. 1m. afternoon.
- FIRST QUARTER, 25th day, at 5h. 22m. morning.

M D.	Day brek.	Twil end.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus* sets.	♀ *Venus* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 46	9 a 55	1 a 45	9 a 32	1 a 46	10a12	1m32	9 a 40	1 a 31	10a36	3 a 5	1
8			15 46	9 40	1 54	8 48	1 8	9 45	0 59	9 17	1 10	10 9	2 40	8
15			15 46	9 16	1 53	7 59	0 25	9 17	0 24	8 53	0 49	9 43	2 16	15
22			15 47	8 45	1 40	rises.	11m 39	sets.	11a43	8 29	0 28	9 17	1 51	22
29			15 47	8 9	1 13	3m31	10 56	2 m9	11 7	8 4	0 7	8 51	1 27	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	G	4 Sun. after Trinity	9 44	14 3	10 10	15 3	3 33
2	M	[1 Samuel xii; Luke xiii. — xiii; Phil, i.	10 35	14 10	10 56	16 0	3 44
3	Tu	Dog Days begin	11 18	15 3	11 41	16 7	3 55
4	W	Trans. St. Martin	— —	— —	0 1	15 6	4 6
5	Th	Chusan taken, 1840	0 19	16 9	0 39	15 6	4 16
6	F	Old Midsummer Day	0 57	16 8	1 15	15 4	4 26
7	S	Oxford Term ends	1 34	16 5	1 52	15 0	4 36
8	G	5 Sun. after Trinity	2 10	16 0	2 28	14 7	4 45
9	M	Proper Lessons. [1 Samuel xv; Luke xx. — xvii; Coloss. iv.	2 44	15 3	3 3	13 10	4 54
10	Tu	Columbus born, 1447	3 21	14 4	3 41	13 1	5 3
11	W	Lalande born, 1732	3 59	13 4	4 22	12 4	5 11
12	Th	Erasmus died, 1536	4 46	12 5	5 17	11 9	5 19
13	F	Dr. Bradley died, 1752	5 51	11 9	6 25	11 6	5 26
14	S	Bastile destroyed, 1789	7 0	11 6	7 34	11 10	5 33
15	G	6 Sun. after Trinity	8 11	12 1	8 44	13 0	5 39
16	M	Proper Lessons. [2 Samuel xii; John iii. — xix; 2 Thess. ii.	9 14	13 2	9 40	14 5	5 45
17	Tu	Dr. Watts born, 1674	10 8	14 5	10 34	16 0	5 50
18	W	Dr. Hooke born, 1635	10 57	15 10	11 19	17 6	5 55
19	Th	B. Hallidon Hill, 1333	11 42	16 11	— —	— —	5 59
20	F	Margaret, V. & M.	0 3	18 8	0 25	17 10	6 3
21	S	Ld. Russel behd. 1683	0 48	19 4	1 11	18 1	6 6
22	G	7 Sun. after Trinity	1 34	19 3	1 57	18 0	6 9
23	M	[2 Saml. xxi; John x. — xxiv; 2 Tim. i.	2 18	18 8	2 41	16 11	6 11
24	Tu	Gibraltar taken 1804	3 5	17 6	3 28	15 8	6 12
25	W	St. James, Apostle	3 52	15 11	4 17	14 3	6 13
26	Th	St. Anne	4 45	14 2	5 17	13 0	6 13
27	F	Fren. Revolution, 1830	5 54	12 8	6 34	12 1	6 12
28	S	Wilberforce d. 1833	7 14	12 0	7 56	12 7	6 11
29	G	8 Sun. after Trinity	8 36	12 2	9 9	13 5	6 10
30	M	Proper Lessons. [1 Kings xiii; John xvii. — xvii; Heb. i.	9 38	13 0	10 5	14 7	6 8
31	Tu	Igna. Loyola d. 1556	10 30	13 11	10 51	15 8	6 5

Equation of Time. Clock before Sun. Subtract from Mean Time. Add to do Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. asc. H. M. S.	declin. ° ′	N. ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
1	5 20	5 48	27 6	3 33	8 33	6 42 35	23 5	51	1 m 9	11 a 1	26 s 30	12	1	☿ ☌ ♀, 6 a 1
2	6 16	6 40	28 0	3 34	8 33	6 46 43	23 1	26	2 11	11 56	25 11	13	2	*Frequent*
3	7 4	7 29	28 8	3 35	8 32	6 50 51	22 56	38	rises.	morn	— —	F	3	*showers*
4	7 51	8 10	29 2	3 36	8 32	6 54 58	22 51	25	9 a 28	0 48	22 30	15	4	☌ ☌ ☾, 2 a 2
5	8 30	8 47	29 3	3 37	8 31	6 59 4	22 45	49	9 44	1 37	18 44	16	5	*may*
6	9 4	9 21	29 1	3 38	8 31	7 3 11	22 39	49	9 56	2 22	14 12	17	6	*now*
7	9 37	9 54	28 6	3 39	8 30	7 7 18	22 33	25	10 6	3 4	9 9	18	7	♀ ☌ ♃, 10 a 1
8	10 10	10 23	27 11	3 40	8 29	7 11 23	22 26	38	10 15	3 45	3 49	19	8	*be*
9	10 39	10 55	26 6	3 41	8 29	7 15 29	22 19	28	10 24	4 24	N 1 38	20	9	*expected,*
10	11 12	11 27	24 10	3 42	8 28	7 19 34	22 11	55	10 34	5 4	7 1	21	10	☿ in ♉, 7 m 5
11	11 48	— —	23 0	3 43	8 27	7 23 39	22 3	58	10 46	5 45	12 11	22	11	*and*
12	0 8	0 35	21 5	3 44	8 26	7 27 43	21 55	39	11 3	6 29	16 57	23	12	☿ gr. elon. E
13	1 5	1 36	20 7	3 45	8 25	7 31 47	21 46	57	11 27	7 16	21 4	24	13	*changeable*
14	2 15	2 57	21 5	3 47	8 24	7 35 50	21 37	52	11 59	8 7	24 16	25	14	*weather*
15	3 42	4 17	23 11	3 48	8 22	7 39 53	21 28	26	morn	9 3	26 12	26	15	♅ ☌ ☾, 8 m 3
16	4 48	5 16	26 2	3 50	8 21	7 43 55	21 18	37	0 48	10 2	26 32	27	16	*for*
17	5 46	6 14	28 7	3 51	8 20	7 47 57	21 8	27	1 56	11 2	25 6	28	17	☌ ☍ ☉, 0 a 5
18	6 40	7 5	29 8	3 52	8 19	7 51 59	20 57	55	sets.	0 a 2	21 52	N	18	☉ eclip., inv
19	7 30	7 54	31 9	3 54	8 18	7 56 0	20 47	2	8 a 41	0 59	17 7	1	19	*some*
20	8 16	8 38	33 4	3 55	8 16	8 0 0	20 35	48	8 56	1 53	11 13	2	20	☿ ☌ ☾, 10 m
21	9 0	9 21	34 0	3 57	8 15	8 3 59	20 24	13	9 10	2 45	4 40	3	21	*time;*
22	9 42	10 2	33 7	3 58	8 13	8 7 59	20 12	17	9 23	3 35	s 2 6	4	22	*and*
23	10 22	10 43	32 3	4 0	8 12	8 11 57	20 0	1	9 35	4 25	8 40	5	23	*now*
24	11 3	11 23	29 11	4 1	8 10	8 15 55	19 47	26	9 50	5 15	14 38	6	24	*more*
25	11 45	— —	26 10	4 3	8 9	8 19 52	19 34	31	10 10	6 8	19 40	7	25	*inclined*
26	0 9	0 36	23 8	4 4	8 7	8 23 49	19 21	16	10 36	7 2	23 29	8	26	☿ stationary
27	1 8	1 44	21 5	4 6	8 6	8 27 45	19 7	42	11 11	7 58	25 51	9	27	♀ in Aphel.
28	2 32	3 24	22 8	4 7	8 4	8 31 41	18 53	49	morn	8 54	26 37	10	28	*to much*
29	4 8	4 43	24 4	4 9	8 2	8 35 35	18 39	38	0 2	9 50	25 50	11	29	♃ ☌ ☉, 11 m 1
30	5 13	5 42	26 1	4 10	8 1	8 39 30	18 25	8	1 7	10 42	23 37	12	30	*rain.*
31	6 10	6 33	26 9	4 12	7 59	8 43 23	18 10	21	2 21	11 32	20 14	13	31	☌ ☌ ☾, 7 m 3

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	5 Hours. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
7 E	130 57 19	129 35 5	128 12 57	126 50 54	125 28 56	124 7 2	122 45 13	121 23 27
8	120 1 44	118 40 3	117 18 25	115 56 48	114 35 12	113 13 37	111 52 1	110 30 25
9	109 8 48	107 47 10	106 25 29	105 3 46	103 41 59	102 20 8	100 58 13	99 36 13
10	98 14 7	96 51 55	95 29 36	94 7 10	92 44 36	91 21 53	89 59 1	88 36 0
11	87 12 48	85 49 26	84 25 52	83 2 6	81 38 7	80 13 55	78 49 29	77 24 49
12	75 59 55	74 34 44	73 9 18	71 43 36	70 17 36	68 51 19	67 24 44	65 57 50
13	64 30 38	63 3 6	61 35 14	60 7 3	58 38 30	57 9 37	55 40 22	54 10 46
14	52 40 47	51 10 26	49 39 43	48 8 37	46 37 8	45 5 16	43 33 1	42 0 22
15	40 27 19	38 53 53	37 20 4	35 45 50	34 11 14	32 36 13	31 0 50	29 25 3
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
20 W	26 5 28	27 49 8	29 32 49	31 16 29	33 0 7	34 43 43	36 27 15	38 10 43
21	39 54 6	41 37 24	43 20 35	45 3 39	46 46 35	48 29 22	50 12 1	51 54 30
22	53 36 48	55 18 56	57 0 52	58 42 36	60 24 9	62 5 28	63 46 34	65 27 27
23	67 8 6	68 48 31	70 28 41	72 8 37	73 48 18	75 27 44	77 6 54	78 45 50
24	80 24 29	82 2 53	83 41 1	85 18 54	86 56 30	88 33 51	90 10 56	91 47 45
25	93 24 18	95 0 35	96 36 37	98 12 22	99 47 52	101 23 7	102 58 6	104 32 50
26	106 7 18	107 41 31	109 15 29	110 49 13	112 22 41	113 55 55	115 28 55	117 1 40
27	118 34 11	120 6 28	121 38 31	123 10 20	124 41 55	126 13 18	127 44 26	129 15 22

day commences at *Midnight*, and the *Astronomical day* at the following *Noon*, being twelve hours later; thus the hours named 15, 18, and 21, on the 1st January, are according to Civil reckoning, 3, 6, and 9 in the morning of the 2nd of January, and

PHASES OF THE MOON.

Full Moon,	1st day, at	5h. 15m. evening.
Last Quarter,	9th day, at	9h. 5m. evening.
New Moon,	16th day, at	10h. 1m. night.
First Quarter,	23rd day, at	0h. 31m. afternoon.
Full Moon	31st day, at	8h. 39m. morning.

M D.	Day brek.	Twil. ends.	⊙'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	no	night	15 48	7 a 52	0 a 57	3 m 9	10 m 40	1 m 53	10 a 53	4 m 0	11 m 57	8 a 40	1 a 17	1
8	1 m 17	10 a 49	15 49	rises.	0 11	2 33	10 7	1 19	10 20	3 41	11 36	8 14	0 53	8
15	1 52	10 15	15 50	4 m 9	11 m 25	2 7	9 42	0 50	9 50	3 23	11 15	7 48	0 29	15
22	2 18	9 45	15 51	3 22	10 56	1 46	9 24	0 25	9 22	3 4	10 54	rises.	0 4	22
29	2 41	9 17	15 53	3 17	10 51	1 33	9 11	0 4	8 58	2 56	10 32	4 m 25	14 m 40	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	W	Lammas Day	11 12	14 11	11 30	16 6	6	1
2	Th	Battle of Nile, 1798	11 46	15 7	— —	— —	5	57
3	F	E. Baines died, 1848	0 2	17 1	0 16	16 0	5	52
4	S	Pil. Fathers sail. 1620	0 32	17 5	0 46	16 3	5	47
5	G	9 Sun. after Trinity	1 2	17 3	1 18	16 1	5	41
6	M	Pro. Less. [1 Kings xviii; Acts iii. — xix; Heb. viii.	1 34	16 10	1 50	15 9	5	34
7	Tu	Name of Jesus	2 6	16 1	2 22	15 0	5	27
8	W	G. Canning died, 1827	2 38	15 1	2 54	14 1	5	20
9	Th	Dryden born, 1631	3 11	13 10	3 31	13 0	5	12
10	F	St. Laurence	3 53	12 7	4 21	12 1	5	3
11	S	Dog Days end	4 53	11 5	5 30	11 4	4	53
12	G	10 Sun. after Trinity	6 14	10 9	6 58	11 6	4	44
13	M	[1 Kings xxi; Acts x. — xxii; James ii.	7 43	11 4	8 21	12 8	4	33
14	Tu	Printing invend., 1437	8 54	12 8	9 24	14 7	4	22
15	W	Bonaparte I. b. 1769	9 52	14 6	10 19	16 6	4	11
16	Th	Bomarsund tkn., 1854	10 41	16 5	11 3	18 5	3	59
17	F	Duchess of Kent born	11 24	18 1	11 45	19 11	3	46
18	S	J. Flamstead b., 1646	— —	— —	0 5	19 1	3	33
19	G	11 Sun. after Trinity	0 27	20 7	0 48	19 4	3	20
20	M	Proper Lessons. [2 Kings v; Acts xvii. — ix; I Peter iv.	1 8	20 5	1 29	18 10	3	6
21	Tu	C. Rumford d., 1485	1 51	19 4	2 14	17 7	2	51
22	W	Battle Bosworth, 1485	2 37	17 7	2 59	16 0	2	36
23	Th	Herschell died, 1822	3 22	15 4	3 47	14 3	2	12
24	F	St. Batholomew	4 14	13 1	4 48	12 6	2	5
25	S	Cæsar landed, B.C. 55	5 29	11 4	6 14	11 7	1	49
26	G	12 Sun. after Trinity	6 59	10 9	7 43	11 10	1	32
27	M	Proper Lessons. [2 Kings x; Acts xxiv. — xviii; 1 John iii.	8 24	11 3	8 58	13 0	1	15
28	Tu	St. Augustine, Bp.	9 27	12 5	9 53	14 4	0	58
29	W	St. John Baptist bhd.	10 11	13 9	10 30	15 8	0	40
30	Th	Paley born, 1743	10 47	15 0	11 6	16 8	0	22
31	F	John Bunyan d. 1688	11 21	15 11	11 35	17 4	0	3

Equation of Time. Clock before Sun.—Subtract from Mean Time, or add to Apparent Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin ° ′	☾ age	M. D.	ASPECTS AND WEATHER
1	6 57	7 16	28 3	4 13	7 57	8 47 16	17 55 15	7a52	morn	— —	F	1	☾ eclip, inv.
2	7 35	7 52	29 5	4 15	7 55	8 51 9	17 39 52	8 4	0 18	15s58	15	2	*Expect*
3	8 7	8 23	30 0	4 17	7 53	8 55 1	17 24 12	8 14	1 1	11 5	16	3	*fine*
4	8 36	8 51	30 6	4 19	7 51	8 58 52	17 8 14	8 23	1 42	5 50	17	4	*and*
5	9 6	9 20	30 2	4 21	7 49	9 2 43	16 52 0	8 32	2 22	0 24	18	5	☾ in Apogee
6	9 35	9 50	29 5	4 22	7 47	9 6 33	16 35 30	8 42	3 1	N5 1	19	6	*fair*
7	10 5	10 18	28 2	4 24	7 45	9 10 22	16 18 43	8 54	3 42	10 15	20	7	*weather*
8	10 31	10 45	26 5	4 26	7 43	9 14 11	16 1 41	9 8	4 24	15 8	21	8	*for*
9	11 2	11 21	24 2	4 28	7 41	9 17 59	15 44 23	9 27	5 9	19 29	22	9	♀ stationary
10	11 46	— —	21 11	4 30	7 39	9 21 47	15 26 49	9 55	5 57	23 1	23	10	☿ in Inf. ☌ ☉
11	0 14	0 46	19 9	4 32	7 37	9 25 34	15 9 1	10 36	6 49	25 30	24	11	♅ ☌ ☾, 7 a 38
12	1 25	2 12	20 1	4 34	7 35	9 29 21	14 50 58	11 35	7 46	26 34	25	12	*the*
13	3 6	3 52	22 9	4 35	7 33	9 33 7	14 32 41	morn	8 44	26 1	26	13	*harvest.*
14	4 28	4 59	26 3	4 37	7 31	9 36 53	14 14 9	0 49	9 44	23 41	27	14	♀ ☌ ☾, 10m10
15	5 28	5 58	29 6	4 39	7 29	9 40 38	13 55 25	2 16	10 42	19 41	28	15	*Now*
16	6 23	6 48	31 1	4 41	7 27	9 44 23	13 36 26	sets.	11 38	14 15	N	16	♃ ☌ ☾, 0 m 21
17	7 10	7 34	33 10	4 42	7 24	9 48 7	13 17 15	7a17	0a32	7 51	1	17	♄ ☌ ☾, 7 m 48
18	7 56	8 18	35 7	4 44	7 22	9 51 50	12 57 51	7 28	1 25	0 56	2	18	♀ gr. H.L.S.
19	8 38	8 58	36 2	4 46	7 20	9 55 33	12 38 15	7 41	2 16	s5 58	3	19	☿ stationary
20	9 16	9 36	35 3	4 48	7 17	9 59 16	12 18 27	7 57	3 8	12 25	4	20	*more*
21	9 58	10 18	33 1	4 50	7 15	10 2 58	11 58 27	8 17	4 2	17 59	5	21	*changeable,*
22	10 37	10 56	30 0	4 51	7 13	10 6 39	11 38 16	8 41	4 57	22 20	6	22	♄ ☌ ☉, 11m17
23	11 18	11 41	26 2	4 53	7 10	10 10 21	11 17 54	9 11	5 53	25 13	7	23	♀ at grt. bril.
24	— —	0 9	22 4	4 55	7 8	10 14 1	10 57 21	9 57	6 50	26 30	8	24	*and*
25	0 44	1 25	20 0	4 57	7 6	10 17 42	10 36 38	10 58	7 46	26 11	9	25	*incline*
26	2 14	3 8	20 11	4 59	7 3	10 21 22	10 15 45	morn	8 39	24 24	10	26	*to rain*
27	3 55	4 32	23 0	5 0	7 1	10 25 1	9 54 43	0 10	9 29	21 24	11	27	♂ ☌ ☾, 9 m 51
28	5 2	5 29	25 7	5 2	6 59	10 28 40	9 33 31	1 27	10 16	17 26	12	28	☿ in ♌, 9 a 55
29	5 49	6 10	27 7	5 4	6 56	10 32 19	9 12 10	2 43	10 59	12 47	13	29	*near*
30	6 29	6 51	28 6	5 6	6 54	10 35 57	8 50 40	rises.	11 41	7 40	14	30	*the*
31	7 7	7 23	29 11	5 8	6 51	10 39 35	8 29 1	6a33	morn	— —	F	31	*end.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
5E	138 22 26	137 0 57	135 39 29	134 18 1	132 56 54	131 35 7	130 13 39	128 52 10
6	127 30 40	126 9 8	124 47 34	123 25 57	122 4 17	120 42 33	119 20 45	117 58 52
7	116 36 54	115 14 50	113 52 40	112 30 23	111 7 59	109 45 27	108 22 46	106 59 57
8	105 36 57	104 13 48	102 50 29	101 26 57	100 3 15	98 39 20	91 15 12	95 50 50
9	94 26 14	93 1 24	91 36 19	90 10 58	88 45 20	87 19 26	85 53 14	84 26 45
10	82 59 56	81 32 49	80 5 22	78 37 35	77 9 28	75 41 0	74 12 10	72 42 58
11	71 13 24	69 43 27	68 13 7	66 42 23	65 11 15	63 39 43	62 7 46	60 35 25
12	59 2 38	57 29 26	55 55 48	54 21 45	52 47 16	51 12 20	49 36 59	48 1 12
13	46 24 59	44 48 20	43 11 15	41 33 45	39 55 49	38 17 29	38 38 43	34 59 33
14	33 19 59	31 40 2	29 59 42	28 19 0	26 37 57	24 56 34	23 14 51	21 32 50
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
18W	22 28 23	24 13 56	25 59 26	27 44 50	29 30 8	31 15 17	33 0 17	34 45 7
19	36 29 44	38 14 9	39 58 21	41 42 18	43 26 0	45 9 25	46 52 34	48 35 25
20	50 17 59	52 0 13	53 42 8	55 23 44	57 5 0	58 45 55	60 26 29	62 6 42
21	63 46 33	65 26 3	67 5 11	68 43 57	70 22 21	72 0 23	73 38 2	75 15 20
22	76 52 15	78 28 47	80 4 58	81 40 47	83 16 13	84 51 18	86 26 1	88 0 23
23	89 34 24	91 8 3	92 41 22	94 14 21	95 46 59	97 19 17	98 51 15	100 22 54
24	101 54 14	103 25 15	104 55 58	106 26 22	107 56 29	109 26 18	110 55 50	112 25 5
25	113 54 4	115 22 47	116 51 13	118 19 25	119 47 21	121 15 2	122 42 29	124 9 42
26	125 36 40	127 3 26	128 29 58	129 56 17	131 22 24	132 48 18	134 14 0	135 39 30

in any other part of the Almanack would be set down as such. The letters E. and W. inserted in the first column refer to the position of the Sun; E. East, W. West

The Planets

Mercury [☿] will be visible in the mornings about the 4th January, 30th April, 27th August, and 16th December, and in the evenings about the 16th March, 13th July, and 7th November. The most favourable time for seeing this beautiful

PHASES OF THE MOON.
- LAST QUARTER, 8th day, at 10h. 49m. morning.
- NEW MOON, 15th day, at 5h. 51m. morning.
- FIRST QUARTER, 21st day, at 11h. 6m. night.
- FULL MOON, 30th day, at 1h. 21m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	2m 52	9 a 6	15 54	3 m 24	10m 56	1 m 27	9m 8	11a 54	8 a 48	2m 38	10 m 33	4m 15	11m 30	1
8	3 10	8 44	15 55	4 3	11 15	1 22	9 1	11 39	8 27	2 18	10 1	3 53	11 6	8
15	3 27	8 21	15 57	4 52	11 36	1 22	8 57	11 28	8 9	1 59	9 39	3 31	10 42	15
22	3 45	8 0	15 59	sets.	11 56	1 26	8 56	11 18	7 52	1 39	9 17	3 8	10 17	22
29	3 58	7 40	16 1	5 a 52	0 a 12	1 34	8 55	11 11	7 37	1 20	8 54	2 46	9 53	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	S	Giles, Abbot	11 48	16 8	— —	— —	0 16
2	G	13 Sun. after Trinity	0 2	17 9	0 17	16 10	0 35
3	M	*Proper Lessons.* [2 Kings xix; Mat. iii. — xxii; Rom. iii.	0 32	17 8	0 46	16 9	0 54
4	Tu	John Horne d., 1808	1 1	17 3	1 15	16 5	1 14
5	W	1st Amer. Con. 1774	1 30	16 5	1 45	15 8	1 34
6	Th	Hannah More d. 1823	2 2	15 4	2 21	14 8	1 54
7	F	Enurchas, Bishop	2 38	14 2	2 58	13 7	2 14
8	S	Nativity B. V. Mary	3 12	12 7	3 45	12 4	2 34
9	G	14 Sun. after Trinity	4 15	11 3	4 56	11 5	2 55
10	M	*Proper Lessons.* [Jeremiah v; Mat. x. — xxii; Rom. x.	5 44	10 6	6 32	11 6	3 15
11	Tu	Mahomed born, 569	7 17	11 2	8 8	12 10	3 36
12	W	Day 12h. 55m. long	8 35	12 10	9 3	15 0	3 57
13	Th	Battle Quebec, 1759	9 31	15 0	9 57	17 3	4 18
14	F	Holy Cross Day	10 17	16 11	10 37	19 3	4 39
15	S	Moscow burnt, 1812	10 57	18 9	11 19	20 7	5 0
16	G	15 Sun. aft. Trinity	11 39	19 6	11 59	21 1	5 21
17	M	*Proper Lessons.* [Jer. xxxv; Matt. xvii. — xxxvi; 1 Cor. i.	— —	— —	0 20	19 10	5 42
18	Tu	Battle Alma, 1854	0 42	20 6	1 3	19 1	6 3
19	W	Battle Poictiers, 1356	1 25	19 1	1 47	17 9	6 24
20	Th	Mnx.H.Flet.lost,1787	2 10	17 0	2 33	16 1	6 45
21	F	St. Matthew, Ap.	2 56	14 7	3 22	14 0	7 6
22	S	Battle Katcha, 1854	3 53	12 4	4 28	12 3	7 27
23	G	16 Sun. after Trinity	5 9	10 7	5 55	11 3	7 48
24	M	*Proper Lessons.* [Ezek. ii; Mat. xiv. — xiii; 1 Cor. viii.	6 40	10 2	7 23	10 6	8 8
25	Tu	Castor rises, 8 a 53	8 1	11 0	8 35	12 11	8 29
26	W	St. Cyprian, Abp.	9 2	12 5	9 25	14 4	8 49
27	Th	Jesuits founded, 1540	9 45	13 8	10 4	15 6	9 9
28	F	G. Buchanan d. 1592	10 20	15 0	10 34	16 6	9 29
29	S	*Proper Lessons.* [Ezekiel xiv; Matt. iii. — xviii; 1 Cor. xv.	10 49	15 11	11 2	17 2	9 49
30	G	17 Sun. after Trinity	11 16	16 7	11 29	17 6	10 9

Equation of Time. Clock after Sun.—Add to Mean Time, or Subtract from Apparent Time.



	Bristol Tides.				SUN.							MOON.				M	ASPECTS AND WEATHER.
	morn.	even.	height		rises.	sets.	rt. ascen.			declin.	N.	rises.	souths	declin.		age.	D.	
	H. M.	H. M.	F.	I.	H	M	H.	M.	S.	°	′	H. M.	H. M.	°	′			
1	7 37	7 53	30	11	5	10	6	49	10	43	13	8	7	15	6a42	0m21	2 s 18	16	1	☿ in Perihel.
2	8 8	8 22	31	4	5	11	6	46	10	46	50	7	45	20	6 52	1 0	3N 7	17	2	*Still*
3	8 35	8 49	31	1	5	13	6	44	10	50	28	7	23	18	7 3	1 40	8 25	18	3	*changeable*
4	9 2	9 16	30	3	5	15	6	42	10	54	4	7	1	9	7 16	2 22	13 25	19	4	♅ □ ☉, 8 m 52
5	9 30	9 46	28	9	5	17	6	39	10	57	41	6	38	52	7 33	3 5	17 56	20	5	*weather.*
6	10 2	10 16	27	1	5	19	6	37	11	1	18	6	16	29	7 57	3 52	21 43	21	6	☿ ☌ ♌, Regulus
7	10 33	10 51	24	11	5	21	6	35	11	4	54	5	54	0	8 33	4 41	24 34	22	7	☿ ☌ ♄, 2 m 30
8	11 13	11 39	22	1	5	22	6	32	11	8	30	5	31	25	9 20	5 35	26 11	23	8	♅ ☌ ☾, 4 m 26
9	— —	0 15	19	10	5	24	6	30	11	12	6	5	8	43	10 25	6 31	26 20	24	9	*Now*
10	0 57	1 43	19	11	5	26	6	27	11	15	42	4	45	57	11 46	7 28	24 52	25	10	*more*
11	2 37	3 30	22	11	5	27	6	25	11	19	18	4	23	5	morn	8 25	21 45	26	11	♀ ☌ ☾, 11 a 11
12	4 8	4 38	26	10	5	29	6	22	11	22	54	4	0	9	1 15	9 21	17 8	27	12	♃ ☌ ☾, 8 a 57
13	5 7	5 35	30	10	5	31	6	20	11	26	29	3	37	9	2 48	10 16	11 17	28	13	*fair,*
14	5 57	6 20	32	5	5	32	6	17	11	30	5	3	14	4	4 22	11 9	4 37	29	14	♄ ☌ ☾, 0 m 31
15	6 42	7 6	35	1	5	34	6	15	11	33	40	2	50	56	sets.	0 a 2	s2 25	N	15	*but*
16	7 28	7 50	36	5	5	36	6	12	11	37	16	2	27	45	6 a 2	0 55	9 16	1	16	♂ in Perihel.
17	8 11	8 32	36	10	5	38	6	10	11	40	51	2	4	30	6 17	1 49	15 27	2	17	♅ stationary
18	8 52	9 13	35	4	5	39	6	7	11	44	27	1	41	13	6 39	2 46	20 32	3	18	*still*
19	9 32	9 52	32	9	5	41	6	5	11	48	2	1	17	55	7 11	3 44	24 7	4	19	*unsettled*
20	10 12	10 31	29	5	5	43	6	2	11	51	38	0	54	34	7 55	4 42	26 3	5	20	*weather,*
21	10 53	11 20	25	4	5	45	6	0	11	55	13	0	31	11	8 51	5 40	26 16	6	21	*may*
22	11 51	— —	21	6	5	47	5	57	11	58	49	0	7	48	10 0	6 35	24 57	7	22	☉ enters ♎
23	0 25	1 6	19	4	5	49	5	55	12	2	25	s0	15	36	11 16	7 26	22 19	8	23	[Aut. com.
24	1 53	2 45	20	3	5	51	5	52	12	6	1	0	39	1	morn	8 14	18 39	9	24	♂ ☌ ☾, 7 m 6
25	3 31	4 8	23	1	5	53	5	50	12	9	37	1	2	25	0 32	8 58	14 14	10	25	*be*
26	4 36	5 0	25	6	5	55	5	47	12	13	13	1	25	50	1 48	9 40	9 18	11	26	*now*
27	5 21	5 42	27	7	5	56	5	45	12	16	49	1	49	14	3 2	10 20	4 3	12	27	*expected.*
28	6 0	6 16	28	6	5	58	5	42	12	20	26	2	12	37	4 13	11 0	N1 20	13	28	♀ gr. elon. W
29	6 33	6 48	29	11	6	0	5	40	12	24	3	2	35	59	rises.	11 40	6 40	14	29	♀ ☌ ♃, 1 m 44
30	7 3	7 18	30	10	6	2	5	37	12	27	40	2	59	19	5 a 12	morn	— —	F	30	

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. °	′	″	3 Hours. °	′	″	6 Hours. °	′	″	9 Hours. °	′	″	Midn. °	′	″	15 Hour. °	′	″	18 Hour. °	′	″	21 Hour. °	′	″
4	134	45	38	133	23	41	132	1	37	130	39	26	129	17	8	127	54	42	126	32	8	125	9	26
5	123	46	34	122	23	34	121	0	24	119	37	3	118	13	32	116	49	50	115	25	57	114	1	51
6	112	37	33	111	13	1	109	48	17	108	23	18	106	58	5	105	32	37	104	6	53	102	40	53
7	101	14	37	99	48	4	98	21	14	96	54	5	95	26	38	93	58	52	92	30	47	91	2	22
8	89	33	36	88	4	30	86	35	2	85	5	13	83	35	2	82	4	28	80	33	31	79	2	11
9	77	30	27	75	58	19	74	25	47	72	52	50	71	19	29	69	45	42	68	11	30	66	36	52
10	65	1	49	63	26	21	61	50	26	60	14	6	58	37	20	57	0	8	55	22	30	53	44	27
11	52	5	59	50	27	6	48	47	48	47	8	6	45	28	0	43	47	30	42	6	38	40	25	24
12	38	43	49	37	1	54	35	19	39	33	37	7	31	54	18	30	11	13	28	27	56	26	44	27
..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..
16w	18	25	3	20	8	57	21	53	1	23	37	8	25	21	15	27	5	16	28	49	11	30	32	55
17	32	16	27	33	59	44	35	42	46	37	25	31	39	7	58	40	50	5	42	31	52	44	13	18
18	45	54	22	47	35	3	49	15	21	50	55	16	52	34	46	54	13	52	55	52	33	57	30	49
19	59	8	40	60	46	5	62	23	4	63	59	38	65	35	46	67	11	29	68	46	46	70	21	38
20	71	56	4	73	30	5	75	3	41	76	36	52	78	9	39	79	42	2	81	14	0	82	45	35
21	84	16	47	85	47	36	87	18	2	88	48	6	90	17	49	91	47	10	93	16	10	94	44	50
22	96	13	9	97	41	9	99	8	50	100	36	13	102	3	17	103	30	3	104	56	32	106	22	45
23	107	48	41	109	14	21	110	39	45	112	4	55	113	29	50	114	54	32	116	18	59	117	43	14
24	119	7	16	120	31	6	121	54	44	123	18	10	124	41	25	126	4	30	127	27	24	128	50	8
25	130	12	43	131	35	9	132	57	25	134	19	33	135	41	32	137	3	23	138	25	7	139	46	42

planet will be the middle of March, being then in the best position for observation in the evening sky.

Venus [♀] will be a evening star until the 19th July, then a morning star to the end of the year; its greatest brilliancy will be on the 11th June, as an evening star, and on the 23rd August, as a morning star.

PHASES OF THE MOON.

Last Quarter,	7th day, at	10h. 46m. night.
New Moon,	14th day, at	2h. 19m. afternoon.
First Quarter,	21st day, at	1h. 52m. afternoon.
Full Moon,	29th day, at	6h. 31m. evening.

M D.	Day brek.	Twil. end.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	4 m 3	7 a 36	16 1	5 a 58	0 a 17	1m37	8m56	11a10	7 a 33	1m14	8m28	2m35	9m45	1
8	4 18	7 19	16 3	5 33	0 30	1 49	8 57	11 5	7 19	0 53	8 25	2 14	9 21	8
15	4 30	7 0	16 5	5 19	0 43	2 3	8 58	11 2	7 7	0 33	8 2	1 52	8 56	15
22	4 44	6 46	16 7	5 6	0 55	2 19	9 0	11 0	6 55	0 12	7 39	1 29	8 32	22
29	4 56	6 31	16 9	4 55	1 7	2 36	9 3	10 59	6 43	11a50	7 15	1 5	8 6	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	M	Cambridge T. begins	11 44	17 0	12 0	17 6	10 28
2	Tu	F. Arago died, 1853	— —	— —	0 14	16 11	10 47
3	W	R. Barclay died, 1690	0 30	17 0	0 44	16 7	11 5
4	Th	Sir J. Rennie d. 1821	1 0	16 3	1 18	16 0	11 23
5	F	Battle of Cadiz, 1804	1 35	15 3	1 54	15 1	11 41
6	S	Faith, V. & M.	2 16	14 0	2 38	13 11	11 59
7	☩	18 Sun. after Trinity	3 2	12 7	3 28	12 9	12 16
8	M	*Pro.* Ezekiel xx; Matt, x. *Less.* — xxiv; 2 Cor. vi.	4 0	11 4	4 40	11 11	12 32
9	Tu	St. Denys, Archbishop	5 23	10 10	6 10	12 1	12 48
10	W	Oxford Term begins	6 54	11 7	7 36	13 6	13 4
11	Th	Old Michaelmas Day	8 12	13 3	8 40	15 6	13 19
12	F	Wat Tyler died, 1381	9 4	15 4	9 25	17 7	13 34
13	S	Trans. King Edward	9 45	17 3	10 8	19 2	13 48
14	☩	19 Sun. after Trinity	10 30	18 7	10 51	20 1	14 2
15	M	*Proper Lessons.* Daniel iii; Luke i to v. 39 — vi; 2 Cor. xiii.	11 12	19 5	11 33	20 3	14 15
16	Tu	Battle of Leipsic, 1813	11 55	19 3	— —	— —	14 27
17	W	Ethelreda, V. Q.	0 18	19 6	0 41	18 9	14 39
18	Th	St. Luke Evangelist	1 5	18 1	1 27	17 7	14 50
19	F	Dean Swift died, 1745	1 51	16 1	2 14	15 10	15 1
20	S	Battle Navarino, 1827	2 39	14 0	3 5	14 1	15 11
21	☩	20 Sun. after Trinity	3 33	12 0	4 5	12 6	15 20
22	M	*Pro.* Joel ii; Luke vii. *Les.* Micah vi; Ephes. i.	4 42	10 8	5 21	11 9	15 29
23	Tu	R. Exch. found. 1667	6 1	10 3	6 41	10 6	15 37
24	W	Chaucer died, 1400	7 20	10 11	7 56	12 8	15 45
25	Th	St. Crispin Martyr	8 21	12 0	8 45	13 8	15 51
26	F	Hogarth died, 1764	9 6	13 3	9 24	14 9	15 57
27	S	Servetus burnt, 1553	9 42	14 10	10 0	15 8	16 3
28	☩	21 Sun. after Trinity	10 16	15 5	10 31	16 3	16 7
29	M	*Proper Lessons.* Habakkuk ii; Luke xiv. Proverbs i; Phil. ii.	10 45	16 1	11 1	16 8	16 11
30	Tu	St. Marcellus	11 17	16 7	11 32	16 9	16 14
31	W	All-hallow Eve	11 48	16 9	— —	— —	16 16

Equation of Time. Clock after Sun, Add to Mean Time, or Subtract from Apparent Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. H. M. rises.	souths H. M.	declin. ° ′	age.	M. D.	ASPECTS AND WEATHER
1	7 35	7 51	31 3	6 4	5 34	12 31 17	3 22 38	5a25	0m21	11 N 46	16	1	*Fair*
2	8 5	8 20	31 0	6 6	5 31	12 34 55	3 45 54	5 41	1 4	16 26	17	2	*and*
3	8 33	8 48	30 3	6 8	5 29	12 38 33	4 9 8	6 2	1 49	20 27	18	3	*frosty*
4	9 4	9 19	29 10	6 10	5 26	12 42 11	4 32 19	6 33	2 38	23 36	19	4	*weather*
5	9 37	9 56	27 3	6 11	5 24	12 45 50	4 55 27	7 16	3 29	25 35	20	5	♅ ☌ ☾, 10m 2
6	10 14	10 35	25 3	6 13	5 21	12 49 29	5 18 31	8 15	4 24	26 14	21	6	☿ in ♍, 7m 1
7	10 57	11 25	22 7	6 15	5 19	12 53 9	5 41 32	9 27	5 19	25 22	22	7	*may*
8	— —	0 0	20 8	6 17	5 17	12 56 49	6 4 28	10 49	6 14	22 59	23	8	*now*
9	0 38	1 20	20 8	6 19	5 14	13 0 29	6 27 19	morn	7 9	19 7	24	9	*be*
10	2 12	3 2	23 9	6 21	5 12	13 4 10	6 50 6	0 17	8 2	14 0	25	10	♃ ☌ ☾, 3 a 2
11	3 43	4 14	27 8	6 23	5 9	13 7 51	7 12 47	1 49	8 54	7 55	26	11	♀ ☌ ☾, 10m 2
12	4 39	5 1	31 5	6 25	5 7	13 11 33	7 35 22	3 21	9 46	1 13	27	12	*expected,*
13	5 23	5 49	34 1	6 26	5 4	13 15 16	7 57 51	4 52	10 38	s5 39	28	13	*succeeded*
14	6 13	6 37	35 0	6 28	5 2	13 18 59	8 20 13	sets.	11 32	12 13	N	14	♀ in ♎, 4 m 5
15	7 0	7 23	35 11	6 30	5 0	13 22 42	8 42 28	4a42	0a28	17 57	1	15	☿ ☌ ☾, 7 a
16	7 46	8 9	35 7	6 32	4 57	13 26 26	9 4 36	5 8	1 27	22 23	2	16	☿ in Apheli.
17	8 31	8 53	34 2	6 34	4 55	13 30 11	9 26 36	5 46	2 27	25 10	3	17	*by*
18	9 13	9 35	31 7	6 36	4 53	13 33 56	9 48 28	6 40	3 28	26 8	4	18	*changeable*
19	9 54	10 15	28 6	6 38	4 51	13 37 42	10 10 11	7 46	4 25	25 23	5	19	*and*
20	10 37	11 1	25 0	6 40	4 49	13 41 29	10 31 45	9 2	5 19	23 10	6	20	*showery;*
21	11 30	— —	21 9	6 42	4 46	13 45 16	10 53 9	10 19	6 9	19 48	7	21	*then*
22	0 1	0 36	19 9	6 44	4 44	13 49 4	11 14 24	11 36	6 55	15 36	8	22	♂ ☌ ☾, 6 a 4
23	1 12	1 56	20 0	6 46	4 42	13 52 52	11 35 28	morn	7 38	10 49	9	23	*fair*
24	2 43	3 26	22 4	6 48	4 40	13 56 41	11 56 22	0 51	8 19	5 41	10	24	*and*
25	3 53	4 19	24 8	6 50	4 38	14 0 31	12 17 5	2 2	8 59	0 23	11	25	*mild*
26	4 41	4 59	26 7	6 52	4 36	14 4 21	12 37 36	3 13	9 39	N 4 56	12	26	☾ in Apogee
27	5 18	5 38	28 2	6 54	4 33	14 8 13	12 57 56	4 23	10 19	10 6	13	27	*for*
28	5 56	6 13	29 0	6 56	4 31	14 12 5	13 18 3	5 35	11 2	14 55	14	28	*the*
29	6 29	6 47	29 8	6 58	4 29	14 15 58	13 37 58	rises.	11 47	— —	F	29	*season.*
30	7 5	7 22	30 2	7 0	4 27	14 19 51	13 57 40	4a9	morn	19 9	16	30	☿ ☌ Del. Scor
31	7 39	7 55	30 3	7 2	4 25	14 23 45	14 17 8	4 35	0 35	22 35	17	31	

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ″ ′	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ′
4 E	130 40 47	129 16 1	127 51 2	126 25 51	125 0 27	123 34 49	122 8 58	120 42 5
5	119 16 34	117 50 0	116 23 11	114 56 7	113 28 47	112 1 11	110 33 19	109 5 1
4	107 36 44	106 8 1	104 39 0	103 9 41	101 40 3	100 10 6	98 39 51	97 9 1
7	95 38 20	94 7 5	92 35 29	91 3 33	89 31 15	87 58 36	86 25 35	84 52 1
8	83 18 28	81 44 21	80 9 52	78 35 0	76 59 45	75 24 8	73 48 7	72 11 4
9	70 34 57	68 57 48	67 20 16	65 42 21	64 4 4	62 25 24	60 46 21	59 6 5
10	57 27 12	55 47 5	54 6 37	52 25 49	50 44 42	49 3 15	47 21 30	45 39 2
11	43 57 10	42 14 35	40 31 46	38 48 44	37 5 30	35 22 5	33 38 31	31 54 5
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. .
16 W	26 50 10	28 30 26	30 10 31	31 50 22	33 29 58	35 9 15	36 48 13	38 26 5
17	40 5 9	41 43 4	43 20 36	44 57 44	46 34 29	48 10 49	49 46 44	51 22 1
18	52 57 20	54 32 0	56 6 14	57 40 3	59 13 26	60 46 24	62 18 56	63 51 4
19	65 22 46	66 54 4	68 24 57	69 55 27	71 25 32	72 55 14	74 24 32	75 53 2
20	77 22 2	78 50 14	80 18 4	81 45 33	83 12 42	84 39 31	86 6 0	87 32 1
21	88 58 2	90 23 35	91 48 51	93 13 51	94 38 34	96 3 1	97 27 13	98 51 1
22	100 14 54	101 38 23	103 1 40	104 24 44	105 47 36	107 10 16	108 32 46	109 55
23	111 17 15	112 39 15	114 1 6	115 22 49	116 44 24	118 5 52	119 27 13	120 48 2
24	122 9 36	123 30 40	124 51 38	126 12 31	127 33 20	128 54 5	130 14 47	131 35 2

Mars [♂] will be a morning star until its opposition on the 17th July, at which time it will appear as a very large star, of a reddish colour, and rather larger than Jupiter; from the 17th of July to the end of the year it will be an evening star.

PHASES OF THE MOON.
- LAST QUARTER, 6th day, at 8h. 58m. morning.
- NEW MOON, 13th day, at 0h. 18m. morning.
- FIRST QUARTER, 20th day, at 8h. 35m. morning.
- FULL MOON, 28th day, at 11h. 20m. morning.

M. D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5 m 2	6 a 24	16 10	4 a 52	1 a 11	2m44	9 m 3	10a59	6 a 39	11a36	7 m 5	0 55	7m56	1
8	5 13	6 13	16 11	4 45	1 17	3 2	9 6	10 59	6 28	11 13	6 40	0 31	7 30	8
15	5 24	6 5	16 13	4 37	1 7	3 22	9 10	10 59	6 17	10 50	6 15	0 6	7 4	15
22	5 34	5 58	16 14	rises.	0 37	3 42	9 13	11 0	6 6	10 25	5 50	11a36	6 38	22
29	5 44	5 53	16 15	7m30	11 m35	4 4	9 17	11 0	5 56	10 0	5 24	11 11	6 12	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Th	All Saints' Day	0 4	16 6	0 21	16 7	16 18
2	F	Michael. Term begins	0 40	16 0	1 0	16 3	16 18
3	S	Holywell Day	1 19	15 3	1 40	15 7	16 18
4	G	22 Sun. after Trinity	2 3	14 3	2 26	14 8	16 17
5	M	Proper Lessons [Prov. ii; Luke xx. — iii; Coloss. iv.	2 51	13 1	3 16	13 9	16 15
6	Tu	Leonard, Confessor	3 48	12 3	4 23	13 2	16 13
7	W	1st English Paper, 1665	5 2	11 10	5 43	13 2	16 9
8	Th	Milton died, 1674	6 22	12 3	6 58	14 1	16 5
9	F	P. of Wales born, 1841	7 35	13 7	8 5	15 5	15 59
10	S	Luther born, 1483	8 30	15 0	8 56	16 9	15 53
11	G	23 Sun. after Trinity	9 21	16 6	9 47	17 11	15 46
12	M	Proper Lessons. [Prov. xi; John iii. — xii; 2 Thess. ii.	10 10	17 8	10 32	18 4	15 38
13	Tu	Britius, Bishop	10 55	18 7	11 20	18 7	15 29
14	W	Leibnitz died, 1716	11 41	18 7	— —	— —	15 20
15	Th	Machutus, Bishop	0 3	18 1	0 27	18 2	15 9
16	F	Ferguson died, 1776	0 50	17 0	1 12	17 4	14 58
17	S	Hugh, Bishop	1 35	15 8	1 59	16 2	14 46
18	G	24 Sun. after Trinity	2 24	14 3	2 48	14 10	14 33
19	M	Proper Lessons. [Prov. xiii; John x, — xiv; 2 Tim. i.	3 11	12 10	3 35	13 7	14 19
20	Tu	Edward, King	4 2	11 9	4 32	12 8	14 5
21	W	Princess of Prussia b.	5 6	11 1	5 42	12 2	13 49
22	Th	Cecilia, V. & M.	6 14	11 1	6 47	12 3	13 33
23	F	St. Clement	7 18	11 7	7 46	12 9	13 16
24	S	John Knox died, 1572	8 14	12 4	8 38	13 5	12 59
25	G	25 Sun. after Trinity	9 1	13 10	9 21	14 2	12 40
26	M	Pro. Les. [Prov. xv; John xvii. — xvi; Heb. i,	9 41	14 4	10 2	14 10	12 21
27	Tu	Arietes souths, 9 a 30	10 20	15 2	10 36	15 4	12 2
28	W	Wolsey died, 1530	10 56	15 10	11 13	15 9	11 41
29	Th	Sirius rises 9 a 40	11 31	16 5	11 48	16 1	11 20
30	F	St. Andrew, Apostle	— —	— —	0 6	16 9	10 58

Equation of Time. Clock after Sun. Add to Mean Time, or Subtract from Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height. F. I.	SUN. rises. H M	sets. H M	rt ascen. H. M. S.	declin. ° ′	S. ″	MOON. rises. H. M.	ssouth H. M.	declin. ° ′	☽ age	M D.	ASPECTS AND WEATHER.
1	8 11	8 29	30 10	7 4	4 23	14 27 40	14 36	23	5a16	1m26	24N56	18	1	♅ ☌ ☾, 2 a 3
2	8 48	9 5	28 11	7 6	4 21	14 31 36	14 55	24	6 10	2 20	25 59	19	2	*Showers*
3	9 24	9 44	27 10	7 8	4 19	14 35 33	15 14	10	7 18	3 15	25 33	20	3	*with*
4	10 4	10 25	26 3	7 10	4 17	14 39 31	15 32	42	8 36	4 10	23 38	21	4	*changeable*
5	10 47	11 15	24 4	7 12	4 15	14 43 29	15 50	58	10 1	5 3	20 18	22	5	☿ ☍gr. H.L.S
6	11 45	— —	22 9	7 14	4 13	14 47 29	16 8	57	11 27	5 55	15 44	23	6	*weather,*
7	0 19	0 55	22 6	7 16	4 12	14 51 29	16 26	43	morn	6 46	10 11	24	7	♃ ☌ ☾, 5 m4
8	1 33	2 18	24 6	7 17	4 10	14 55 30	16 44	10	0 54	7 35	3 57	25	8	♄ ☌ ☾, 5 m
9	3 2	3 37	27 8	7 19	4 8	14 59 31	17 1	21	2 22	8 25	s2 37	26	9	*ending*
10	4 4	4 31	30 3	7 21	4 6	15 3 34	17 18	14	3 52	9 17	9 8	27	10	♀ ☌ ☾, 4 m3
11	4 57	5 25	32 3	7 23	4 4	15 7 38	17 34	50	5 25	10 11	15 9	28	11	*with*
12	5 51	6 15	33 0	7 25	4 2	15 11 42	17 51	7	6 59	11 8	20 13	29	12	*frost,*
13	6 41	7 8	33 7	7 27	4 0	15 15 48	18 7	6	sets.	0 a 8	23 50	N	13	*unless*
14	7 31	7 54	33 6	7 29	3 59	15 19 54	18 22	45	4a24	1 9	25 43	1	14	☿ ☌ ☾, 2 a 2
15	8 17	8 39	32 0	7 31	3 58	15 24 1	18 38	5	5 29	2 10	25 45	2	15	*the wind*
16	8 59	9 20	30 8	7 33	3 56	15 28 9	18 53	5	6 41	3 7	24 7	3	16	♀ in Perihel
17	9 42	10 3	28 7	7 35	3 55	15 32 17	19 7	45	7 59	4 0	21 8	4	17	*be southerly.*
18	10 23	10 43	26 3	7 37	3 53	15 36 27	19 22	4	9 19	4 49	17 9	5	18	♃ □ ☉, 3 m
19	11 3	11 28	23 8	7 39	3 52	15 40 37	19 36	3	10 35	5 34	12 30	6	19	*Now*
20	11 53	— —	21 9	7 41	3 50	15 44 48	19 49	40	11 48	6 16	7 26	7	20	☌ ☌ ☾, 2 a 4
21	0 23	0 55	20 8	7 43	3 49	15 49 0	20 2	55	morn	6 56	2 10	8	21	*expect*
22	1 24	2 2	21 5	7 44	3 48	15 53 13	20 15	48	1 0	7 36	N3 8	9	22	*sleet*
23	2 40	3 14	22 10	7 46	3 47	15 57 26	20 28	18	2 10	8 16	8 20	10	23	☌ □ ☉, 2 a 1
24	3 46	4 12	24 6	7 48	3 46	16 1 40	20 40	26	3 21	8 58	13 16	11	24	*or*
25	4 35	4 56	26 1	7 49	3 45	16 5 55	20 52	11	4 34	9 42	17 43	12	25	*snow.*
26	5 17	5 40	27 3	7 51	3 44	16 10 11	21 3	32	5 48	10 29	21 27	13	26	☌ ☌ ♂Aquar.
27	6 0	6 19	27 10	7 53	3 43	16 14 27	21 14	30	7 4	11 20	24 12	14	27	*Cold and*
28	6 41	6 59	28 6	7 54	3 42	16 18 44	21 25	3	rises.	morn	— —	15	28	☿ in Inf. ☌ ☉
29	7 20	7 39	29 4	7 56	3 41	16 23 2	21 35	12	4 a 4	0 14	25 42	F	29	☿ in Perihel.
30	7 57	8 17	29 8	7 57	3 40	16 27 20	20 44	57	5 18	1 9	25 44	17	30	*windy.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
2E	137 21 57	135 54 15	134 26 18	132 58 8	131 29 43	130 1 5	128 32 13	127 3 6
3	125 33 45	124 4 11	122 34 22	121 4 18	119 34 0	118 3 27	116 32 39	115 1 36
4	113 30 18	111 58 45	110 26 56	108 54 51	107 22 31	105 49 55	104 17 2	102 43 54
5	101 10 29	99 36 47	98 2 49	96 28 35	94 54 3	93 19 14	91 44 9	90 8 46
6	88 33 6	86 57 9	85 20 55	83 44 24	82 7 35	80 30 29	78 53 6	77 15 27
7	75 37 30	73 59 16	72 20 46	70 42 0	69 2 57	67 23 38	65 44 4	64 4 15
8	62 24 10	60 43 51	59 3 18	57 22 32	55 41 32	54 0 20	52 18 56	50 37 20
9	48 55 35	47 13 39	45 31 35	43 49 22	42 7 3	40 24 38	38 42 8	36 59 34
10	35 16 58	33 34 22	31 51 46	30 9 14	28 26 46	26 44 26	25 2 16	23 20 20
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
14W	20 7 6	21 43 17	23 19 25	24 55 27	26 31 20	28 6 59	29 42 24	31 17 33
15	32 52 24	34 26 57	36 1 9	37 35 1	39 8 32	40 41 42	42 14 29	43 46 55
16	45 18 58	46 50 38	48 21 56	49 52 51	51 23 24	52 53 34	54 23 21	55 52 47
17	57 21 50	58 50 32	60 18 52	61 46 50	63 14 29	64 41 46	66 8 43	67 35 21
18	69 1 40	70 27 39	71 53 21	73 18 44	74 43 50	76 8 39	77 33 12	78 57 29
19	80 21 31	81 45 18	83 8 51	84 32 10	85 55 17	87 18 10	88 40 52	90 3 23
20	91 25 43	92 47 53	94 9 54	95 31 45	96 53 28	98 15 4	99 36 32	100 57 54
21	102 19 10	103 40 20	105 1 26	106 22 27	107 43 25	109 4 20	110 25 12	111 46 2
22	113 6 51	114 27 38	115 48 25	117 9 13	118 30 0	119 50 49	121 11 40	122 32 32
23	123 53 28	125 14 26	126 35 27	127 56 32	129 17 42	130 38 56	132 0 14	133 21 39

Jupiter [♃] will be in opposition on the 11th January, and from thence an evening star until the 29th July, then a morning star to the end of the year.

Saturn [♄] will be a morning star to the 12th February, then an evening star

PHASES OF THE MOON.
- Last Quarter, 5th day, at 5h. 42m. evening.
- New Moon, 12th day, at 0h. 30m. afternoon.
- First Quarter, 20th day, at 5h. 52m. morning.
- Full Moon, 28th day, at 2h. 59m. morning.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5m48	5 a50	16 16	7 m 6	11m18	4m10	9m18	11 a 0	5 a 53	9 a 52	5m16	11 a 3	6m 4	1
8	5 53	5 50	16 17	6 14	10 37	4 33	9 23	11 1	5 43	9 25	4 49	10 37	5 38	8
15	6 1	5 51	16 17	6 10	10 26	4 55	9 29	11 2	5 32	8 58	4 22	10 10	5 11	15
22	6 4	5 53	16 18	6 31	10 31	5 17	9 36	11 3	5 22	8 29	3 54	9 42	4 43	22
29	6 6	5 58	16 18	6 58	10 43	5 39	9 44	11 4	5 12	8 0	3 25	9 14	4 15	29

M D	W D	Remarkable Days	HIGH WATER. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	S	Leo X. died, 1521	0 27	16 1	0 49	16 10	10 35
2	☩	**Advent Sunday**	1 11	15 10	1 33	16 9	10 12
3	M	*Proper Lessons.* [Isaiah i; Acts iii. — ii; Heb. viii.	1 55	15 4	2 19	16 0	9 48
4	Tu	♅ souths 11 a 37	2 44	14 6	3 8	15 4	9 24
5	W	Bible translated, 1611	3 33	13 10	4 2	14 9	8 59
6	Th	Nicholas, Bishop	4 34	13 4	5 9	14 4	8 33
7	F	Mars. Ney shot, 1815	5 44	13 2	6 18	14 3	8 7
8	S	Conception V. Marv	6 53	13 5	7 27	14 7	7 41
9	☩	**2 Sunday in Advent**	7 59	14 2	8 30	15 2	7 14
10	M	*Proper Lessons.* [Isaiah v; Acts ix. — xxiv; James ii.	9 0	15 3	9 28	15 11	6 46
11	Tu	Chas. XII. died, 1718	9 56	16 3	10 23	16 6	6 18
12	W	Cromwell Protec. 1653	10 48	17 1	11 10	16 10	5 50
13	Th	Lucy, V. & M.	11 32	17 8	11 54	16 11	5 21
14	F	Washington d., 1799	— —	— —	0 16	18 0	4 53
15	S	Day 7h. 17m. long	0 38	17 1	0 59	17 4	4 23
16	☩	**3 Sunday in Advent**	1 20	15 10	1 43	16 8	3 54
17	M	*Proper Lessons.* [Isaiah xxv; Acts. xvi. — xxvi; 1 Peter iv.	2 4	14 10	2 24	15 9	3 25
18	Tu	Thos. Guy died, 1724	2 44	14 1	3 2	14 11	2 55
19	W	Capella souths 11 a 10	3 21	13 3	3 42	13 11	2 25
20	Th	♅ souths 10 a 31	4 5	12 4	4 28	12 11	1 55
21	F	**St. Thomas.** Sh. day	4 57	11 8	5 26	12 1	1 25
22	S	Pleiades souths 9 m 32	5 58	11 4	6 32	11 9	0 55
23	☩	**4 Sunday in Advent**	7 4	11 5	7 38	11 11	0 25
24	M	[Isaiah xxx; Acts xxiii. — xxxii; 1 John iii.	8 9	12 0	8 40	12 5	0 5
25	Tu	**Christmas Day**	9 5	13 0	9 30	13 3	0 35
26	W	**St. Stephen**	9 53	14 1	10 16	14 3	1 4
27	Th	**St. John**	10 37	15 4	10 58	15 2	1 34
28	F	**Innocents' Day**	11 20	16 6	11 39	16 1	2 3
29	S	Wickliff died, 1348	11 59	17 5	— —	— —	2 32
30	☩	**1 Sun. after Christ.**	0 19	16 7	0 41	17 10	3 1
31	M	[Isaiah xxxvii; Acts xxvii. — xxxviii; 3 John.	1 2	16 9	1 22	17 11	3 30

Equation of Time. Add to Mean Time, or Subtract from Clock after Sun. Apparent Time. Clock before Sun.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M. D.	ASPECTS AND WEATHER.
1	8 38	8 58	29 8	7 59	3 39	16 31 40	21 54 16	6a34	2m5	24N14	18	1	♅ ☌ ☉, 10m42
2	9 18	9 39	29 10	8 1	3 38	16 35 59	22 3 11	7 52	3 0	21 15	19	2	*Fair*
3	9 59	10 21	28 6	8 2	3 37	16 40 20	22 11 39	9 14	3 52	17 0	20	3	*and*
4	10 42	11 3	27 2	8 4	3 37	16 44 41	22 19 42	10 39	4 43	11 45	21	4	♃ ☌ ☾, 2 a 56
5	11 29	11 57	25 10	8 5	3 36	16 49 2	22 27 20	morn	5 32	5 48	22	5	*frosty;*
6	— —	0 27	24 9	8 7	3 36	16 53 24	22 34 30	0 5	6 20	s0 31	23	6	*this will*
7	0 57	1 28	24 8	8 8	3 35	16 57 47	22 41 14	1 32	7 9	6 52	24	7	☿ stationary
8	2 10	2 52	26 0	8 9	3 35	17 2 10	22 47 32	3 0	8 0	12 54	25	8	♀ gr. H. L. N.
9	3 30	4 4	27 10	8 11	3 35	17 6 34	22 53 22	4 30	8 54	18 13	26	9	☿ gr. H. L. N.
10	4 34	5 4	29 5	8 12	3 35	17 10 58	22 58 46	6 1	9 51	22 23	27	10	*change*
11	5 34	6 3	30 5	8 13	3 34	17 15 22	23 3 42	7 26	10 51	25 1	28	11	☿ ☌ ☾, 2 m 6
12	6 32	6 56	30 9	8 14	3 34	17 19 47	23 8 10	sets.	11 52	25 55	N	12	*to*
13	7 20	7 44	31 4	8 15	3 34	17 24 12	23 12 11	4a16	0a51	25 2	1	13	♃ stationary
14	8 7	8 28	31 8	8 16	3 34	17 28 38	23 15 44	5 37	1 47	22 36	2	14	*snow or*
15	8 48	9 7	30 4	8 17	3 34	17 33 3	23 18 50	6 56	2 39	18 57	3	15	*rain.*
16	9 28	9 48	29 3	8 18	3 34	17 37 29	23 21 27	8 14	3 26	14 29	4	16	☿ gr. elon. W
17	10 5	10 22	27 11	8 19	3 35	17 41 55	23 23 36	9 30	4 10	9 29	5	17	*Probably*
18	10 37	10 53	26 5	8 19	3 35	17 46 22	23 25 17	10 43	4 51	4 13	6	18	*stormy*
19	11 11	11 32	24 6	8 20	3 35	17 50 48	23 26 29	11 54	5 31	N1 8	7	19	♂ ☌ ☾, 2 a 37
20	11 51	— —	22 7	8 21	3 36	17 55 15	23 27 14	morn	6 11	6 23	8	20	♄ stationary
21	0 16	0 41	21 1	8 21	3 36	17 59 41	23 27 30	1 5	6 52	11 25	9	21	☉ enters Cap.
22	1 10	1 43	20 8	8 22	3 36	18 4 8	23 27 18	2 17	7 35	16 3	10	22	[Win. com.
23	2 21	3 2	21 6	8 22	3 37	18 8 34	23 26 37	3 30	8 21	20 4	11	23	*weather about*
24	3 39	4 12	23 3	8 22	3 37	18 13 1	23 25 29	4 44	9 10	23 14	12	24	*this time*
25	4 38	5 5	25 1	8 22	3 38	18 17 27	23 23 52	5 57	10 3	25 17	13	25	*and to*
26	5 29	5 54	26 9	8 23	3 39	18 21 53	23 21 46	7 6	10 58	25 55	14	26	♅ ☌ ☾, 1 m 34
27	6 18	6 42	27 6	8 23	3 40	18 26 19	23 19 13	8 2	11 55	25 0	15	27	*the end*
28	7 6	7 27	29 1	8 23	3 41	18 30 45	23 16 12	rises.	morn	— —	F	28	*of the*
29	7 49	8 10	30 7	8 23	3 42	18 35 11	23 12 42	5a35	0 52	22 29	17	29	♀ ☌ ♐ Ophi.
30	8 31	8 51	31 3	8 23	3 43	18 39 37	23 8 45	6 59	1 46	18 33	18	30	*year.*
31	9 10	9 31	31 6	8 23	3 44	18 44 2	23 4 20	8 26	2 39	13 28	19	31	☉ in Perigee

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	1 Hour. ° ′ ″
2	131 28 5	129 54 29	128 20 42	126 46 45	125 12 36	123 38 17	122 3 48	120 29 8
3	118 54 18	117 19 18	115 44 8	114 8 48	112 33 18	110 57 39	109 21 50	107 45 51
4	106 9 42	104 33 24	102 56 57	101 20 20	99 43 35	98 6 40	96 29 36	94 52 23
5	93 15 1	91 37 30	89 59 51	88 22 3	86 44 7	85 6 3	83 27 50	81 49 30
6	80 11 2	78 32 26	76 53 42	75 14 52	73 35 54	71 56 50	70 17 40	68 38 23
7	66 59 0	65 19 32	63 39 58	62 0 20	60 20 37	58 40 50	57 0 59	55 21 5
8	53 41 8	52 1 9	50 21 8	48 41 5	47 1 2	45 20 59	43 40 56	42 0 54
9	40 20 54	38 40 56	37 1 2	35 21 11	33 41 25	32 1 44	30 22 11	28 42 45
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..	.. .. ..	.. .. ..	.. .. ..
14w	24 40 40	26 11 48	27 42 39	29 13 13	30 43 29	32 13 27	33 43 6	55 12 27
15	36 41 30	38 10 13	39 38 38	41 6 44	42 34 32	44 2 1	45 29 12	46 56 4
16	48 22 39	49 48 57	51 14 57	52 40 40	54 6 7	55 31 17	56 56 12	58 20 51
17	59 45 15	61 9 24	62 33 19	63 57 0	65 20 29	66 43 44	68 6 48	69 29 39
18	70 52 20	72 14 50	73 37 10	74 59 20	76 21 21	77 43 14	79 5 0	80 26 38
19	81 48 10	83 9 35	84 30 55	85 52 11	87 13 22	88 34 30	89 55 35	91 16 37
20	92 37 38	93 58 38	95 19 37	96 40 36	98 1 36	99 22 37	100 43 40	102 4 46
21	103 25 55	104 47 8	106 8 24	107 29 46	108 51 13	110 12 46	111 34 26	112 56 13
22	114 18 7	115 40 10	117 2 21	118 24 42	119 47 12	121 9 52	122 32 44	123 55 46
23	125 19 0	126 42 27	128 6 5	129 29 57	130 54 2	132 18 20	133 42 53	135 7 40

to the 22nd August; then a morning star to the years end.

Uranus [♅] will be best observed in the evenings of January, February, March, and April, and in the mornings from June to November, and in the evenings thence to the end of the year.

M D.	JANUARY. Noon.	Midn.	FEBRUARY Noon.	Midn.	MARCH. Noon.	Midn.	APRIL. Noon.	Midn.	MAY. Noon.	Midn.	JUNE. Noon.	Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	15 1	15 6	15 35	15 43	15 46	15 53	16 20	16 25	16 23	16 24	16 3	15 59	1
2	15 12	15 18	15 51	15 59	16 1	16 8	16 29	16 33	16 24	16 24	15 55	15 51	2
3	15 25	15 32	16 7	16 15	16 16	16 23	16 36	16 37	16 23	16 20	15 46	15 42	3
4	15 39	15 46	16 22	16 29	16 29	16 35	16 38	16 37	16 17	16 14	15 36	15 31	4
5	15 54	16 2	16 35	16 39	16 39	16 43	16 35	16 32	16 9	16 4	15 26	15 21	5
6	16 9	16 15	16 43	16 45	16 45	16 46	16 28	16 23	15 58	15 52	15 16	15 11	6
7	16 22	16 27	16 46	16 46	16 46	16 44	16 17	16 11	15 46	15 39	15 6	15 2	7
8	16 31	16 34	16 44	16 41	16 41	16 36	16 4	15 56	15 33	15 26	14 58	14 55	8
9	16 36	16 37	16 36	16 31	16 31	16 25	15 49	15 41	15 20	15 14	14 53	14 51	9
10	16 37	16 35	16 25	16 18	16 18	16 10	15 34	15 27	15 9	15 4	14 50	14 49	10
11	16 33	16 29	16 11	16 3	16 2	15 54	15 20	15 14	15 0	14 56	14 49	14 50	11
12	16 25	16 20	15 56	15 48	15 46	15 38	15 8	15 3	14 53	14 51	14 52	14 54	12
13	16 15	16 9	15 41	15 34	15 31	15 24	14 59	14 55	14 49	14 49	14 57	15 0	13
14	16 3	15 57	15 28	15 21	15 18	15 11	14 52	14 49	14 48	14 49	15 4	15 9	14
15	15 51	15 45	15 16	15 11	15 6	15 1	14 48	14 47	14 50	14 52	15 14	15 19	15
16	15 40	15 34	15 6	15 2	14 57	14 53	14 46	14 46	14 54	14 57	15 25	15 31	16
17	15 29	15 24	14 58	14 55	14 51	14 48	14 47	14 48	15 0	15 4	15 36	15 42	17
18	15 19	15 15	14 52	14 50	14 46	14 45	14 50	14 52	15 8	15 12	15 48	15 53	18
19	15 11	15 7	14 48	14 46	14 45	14 44	14 55	14 58	15 17	15 22	15 58	16 2	19
20	15 3	15 0	14 45	14 44	14 44	14 45	15 1	15 4	15 26	15 31	16 6	16 10	20
21	14 57	14 55	14 44	14 44	14 46	14 47	15 7	15 11	15 36	15 40	16 12	16 14	21
22	14 52	14 50	14 44	14 45	14 49	14 51	15 15	15 19	15 44	15 48	16 16	16 16	22
23	14 48	14 47	14 46	14 47	14 53	14 56	15 23	15 27	15 52	15 55	16 17	16 16	23
24	14 46	14 45	14 49	14 51	14 59	15 2	15 31	15 35	15 58	16 1	16 15	16 14	24
25	14 44	14 44	14 52	14 57	15 5	15 9	15 40	15 44	16 4	16 6	16 12	16 10	25
26	14 45	14 46	15 0	15 4	15 13	15 18	15 48	15 52	16 8	16 9	16 8	16 5	26
27	14 47	14 49	15 9	15 14	15 22	15 27	15 57	16 1	16 11	16 12	16 2	15 59	27
28	14 52	14 55	15 19	15 25	15 33	15 38	16 5	16 9	16 12	16 13	15 56	15 52	28
29	14 59	15 4	15 32	15 39	15 44	15 50	16 12	16 16	16 13	16 12	15 49	15 45	29
30	15 9	15 15	.. ..	.. ..	15 56	16 2	16 19	16 21	16 11	16 10	15 41	15 37	30
31	15 21	15 28	.. ..	.. ..	16 8	16 14	.. ..	.. ..	16 8	16 5	.. ..	.. ..	31

M D.	JULY. Noon.	Midn.	AUGUST. Noon.	Midn.	SEPT. Noon.	Midn.	OCTOBER. Noon.	Midn.	NOVEMBER Noon.	Midn.	DECEMBER Noon.	Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	15 33	15 29	14 59	14 57	14 44	14 44	14 48	14 50	15 13	15 17	15 40	15 44	1
2	15 25	15 20	14 54	14 52	14 44	14 45	14 53	14 55	15 21	15 25	15 47	15 51	2
3	15 16	15 12	14 50	14 48	14 46	14 48	14 58	15 2	15 29	15 34	15 54	15 58	3
4	15 8	15 4	14 47	14 46	14 50	14 52	15 6	15 10	15 39	15 44	16 1	16 4	4
5	15 1	14 57	14 46	14 46	14 56	14 59	15 16	15 20	15 49	15 54	16 7	16 9	5
6	14 55	14 52	14 47	14 48	15 4	15 8	15 25	15 31	16 0	16 5	16 11	16 14	6
7	14 50	14 49	14 50	14 53	15 14	15 20	15 38	15 44	16 10	16 15	16 15	16 16	7
8	14 48	14 48	14 56	15 0	15 26	15 33	15 51	15 58	16 20	16 24	16 17	16 17	8
9	14 48	14 49	15 4	15 10	15 40	15 48	16 5	16 12	16 27	16 30	16 17	16 16	9
10	14 51	14 54	15 15	15 22	15 56	16 4	16 19	16 25	16 31	16 32	16 14	16 11	10
11	14 57	15 1	15 29	15 36	16 11	16 19	16 30	16 35	16 32	16 31	16 8	16 4	11
12	15 5	15 11	15 43	15 51	16 26	16 32	16 39	16 42	16 28	16 25	15 59	15 54	12
13	15 16	15 22	15 59	16 6	16 37	16 41	16 43	16 43	16 20	16 15	15 49	15 43	13
14	15 29	15 36	16 14	16 20	16 44	16 46	16 42	16 39	16 9	16 3	15 37	15 31	14
15	15 43	15 50	16 26	16 32	16 46	16 45	16 36	16 31	15 56	15 49	15 25	15 19	15
16	15 56	16 3	16 36	16 39	16 43	16 39	16 25	16 18	15 41	15 34	15 14	15 8	16
17	16 9	16 14	16 41	16 41	16 34	16 28	16 11	16 4	15 27	15 21	15 4	15 0	17
18	16 19	16 23	16 40	16 38	16 22	16 15	15 56	15 48	15 14	15 9	14 56	14 53	18
19	16 26	16 28	16 35	16 31	16 7	15 59	15 40	15 32	15 4	14 59	14 51	14 49	19
20	16 29	16 30	16 26	16 21	15 52	15 44	15 25	15 19	14 55	14 52	14 49	14 48	20
21	16 29	16 27	16 15	16 8	15 37	15 30	15 13	15 7	15 50	14 48	14 49	14 50	21
22	16 25	16 21	16 2	15 55	15 23	15 17	15 2	14 58	14 47	14 47	14 52	14 55	22
23	16 18	16 13	15 48	15 42	15 11	15 6	14 54	14 51	14 48	14 49	14 58	15 2	23
24	16 9	16 4	15 36	15 30	15 2	14 58	14 49	14 47	14 50	14 52	15 6	15 11	24
25	15 59	15 54	15 24	15 19	14 55	14 52	14 46	14 45	14 55	14 58	15 16	15 21	25
26	15 49	15 44	15 14	15 10	14 49	14 47	14 45	14 46	15 1	15 4	15 26	15 32	26
27	15 40	15 35	15 6	15 2	14 46	14 45	14 47	14 48	15 8	15 12	15 37	15 42	27
28	15 30	15 26	14 59	14 56	14 44	14 44	14 50	14 52	15 16	15 20	15 47	15 51	28
29	15 22	15 17	14 53	14 51	14 44	14 45	14 54	14 56	15 24	15 28	15 55	15 59	29
30	15 13	15 10	14 49	14 47	14 46	14 47	14 59	15 2	15 32	15 36	16 2	16 5	30
31	15 6	15 3	14 46	14 45	.. ..	.. ..	15 6	15 9	.. ..	.. ..	16 7	16 9	31

M. D.	JANUARY. Noon.	JANUARY. Midn.	FEBRUARY Noon.	FEBRUARY Midn.	MARCH. Noon	MARCH. Midn.	APRIL. Noon.	APRIL. Midn.	MAY. Noon.	MAY. Midn.	JUNE. Noon.	JUNE. Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	55 1	55 19	57 5	57 34	57 44	58 11	59 47	60 6	59 58	60 3	58 44	58 32	1
2	55 38	56 1	58 3	58 32	58 39	59 6	60 22	60 35	60 4	60 2	58 18	58 3	2
3	56 25	56 51	59 1	59 30	59 33	59 59	60 45	60 51	59 58	59 50	57 46	57 38	3
4	57 18	57 46	59 57	60 21	60 22	60 42	60 54	60 51	59 39	59 25	57 9	56 50	4
5	58 14	58 41	60 42	61 0	60 59	61 12	60 45	60 34	59 8	58 49	56 30	56 11	5
6	59 7	59 32	61 13	61 21	61 21	61 24	60 19	60 0	58 28	58 6	55 52	55 35	6
7	59 54	60 13	61 24	61 22	61 23	61 16	59 39	59 15	57 42	57 18	55 18	55 3	7
8	60 29	60 41	61 15	61 4	61 4	60 48	58 49	58 22	56 54	56 31	54 50	54 38	8
9	60 48	60 51	60 48	60 28	60 28	60 5	57 54	57 26	56 8	55 47	54 29	54 22	9
10	60 50	60 45	60 6	59 41	59 39	59 12	56 59	56 33	55 28	55 10	54 17	54 15	10
11	60 36	60 23	59 15	58 48	58 43	58 13	56 8	55 46	54 55	54 41	54 16	54 19	11
12	60 8	59 50	58 29	57 53	57 44	57 16	55 25	55 7	54 31	54 22	54 25	54 33	12
13	59 30	59 9	57 26	57 1	56 48	56 23	54 50	54 37	54 17	54 14	54 44	54 56	13
14	58 47	58 25	56 37	56 14	55 59	55 37	54 26	54 17	54 13	54 15	55 11	55 28	14
15	58 3	57 41	55 53	55 34	55 17	55 0	54 11	54 7	54 19	54 26	55 46	56 6	15
16	57 20	57 0	55 17	55 2	54 45	54 32	54 5	54 6	54 34	54 45	56 27	56 48	16
17	56 41	56 23	54 48	54 36	54 21	54 12	54 8	54 13	54 57	55 11	57 9	57 30	17
18	56 5	55 50	54 26	54 17	54 6	54 2	54 19	54 27	55 26	55 41	57 50	58 10	18
19	55 35	55 21	54 10	54 4	53 59	53 58	54 36	54 46	55 58	56 15	58 28	58 44	19
20	55 8	54 56	54 0	53 57	53 59	54 1	54 58	55 10	56 32	56 49	58 58	59 10	20
21	54 46	54 36	53 56	53 56	54 4	54 9	55 23	55 36	57 6	57 22	59 20	59 27	21
22	54 27	54 19	53 57	53 59	54 15	54 23	55 50	56 5	57 37	57 51	59 32	59 35	22
23	54 13	54 7	54 2	54 8	54 31	54 41	56 19	56 34	58 5	58 17	59 36	59 34	23
24	54 3	54 0	54 14	54 22	54 51	55 3	56 49	57 5	58 29	58 39	59 31	59 26	24
25	53 58	53 59	54 32	54 43	55 16	55 29	57 20	57 36	58 48	58 57	59 20	59 12	25
26	54 0	54 4	54 56	55 10	55 44	56 0	57 52	58 7	59 4	59 9	59 3	58 54	26
27	54 9	54 17	55 27	55 46	56 17	56 36	58 23	58 38	59 14	59 18	58 43	58 32	27
28	54 27	54 39	56 6	56 28	56 55	57 15	58 53	59 7	59 20	59 21	58 20	58 8	28
29	54 53	55 10	56 52	57 17	57 36	57 58	59 20	59 33	59 21	59 19	57 54	57 41	29
30	55 29	55 50	.. ..	.. ..	58 21	58 43	59 43	59 52	59 16	59 10	57 26	57 12	30
31	56 13	56 38	.. ..	.. ..	59 5	59 27	.. ..	.. ..	59 4	58 55	.. ..	.. ..	31

M. D.	JULY. Noon.	JULY. Midn.	AUGUST. Noon.	AUGUST. Midn.	SEPT. Noon.	SEPT. Midn.	OCTOBER. Noon.	OCTOBER. Midn.	NOVEMBER Noon.	NOVEMBER Midn.	DECEMBER Noon.	DECEMBER Midn.	M D.
	′ ″	′ ″	″ ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	56 57	56 41	54 54	54 43	53 58	53 58	54 13	54 20	55 42	55 56	57 22	57 36	1
2	56 25	56 10	54 34	54 25	53 59	54 1	54 29	54 38	56 11	56 27	57 49	58 2	2
3	55 54	55 39	54 18	54 12	54 5	54 11	54 49	55 2	56 43	57 0	58 15	58 27	3
4	55 25	55 11	54 7	54 4	54 18	54 28	55 16	55 32	57 18	57 37	58 38	58 49	4
5	54 58	54 46	54 3	54 4	54 39	54 53	55 49	56 8	57 56	58 15	59 0	59 9	5
6	54 35	54 27	54 7	54 12	55 8	55 26	56 28	56 50	58 35	58 54	59 18	59 25	6
7	54 20	54 14	54 19	54 28	55 46	56 8	57 13	57 37	59 13	59 31	59 31	59 35	7
8	54 12	54 11	54 40	54 55	56 31	56 57	58 2	58 28	59 47	60 2	59 38	59 38	8
9	54 13	54 17	55 11	55 31	57 23	57 51	58 54	59 19	60 14	60 24	59 36	59 32	9
10	54 23	54 33	55 52	56 15	58 20	58 49	59 43	60 6	60 30	60 33	59 25	59 16	10
11	54 44	54 59	56 40	57 7	59 17	59 44	60 26	60 44	60 32	60 27	59 4	58 49	11
12	55 15	55 34	57 34	58 3	60 9	60 32	60 58	61 7	60 18	60 6	58 32	58 14	12
13	55 55	56 17	58 31	58 59	60 51	61 7	61 13	61 13	59 50	59 31	57 54	57 33	13
14	56 41	57 6	59 25	59 50	61 18	61 24	61 9	61 0	59 9	58 45	57 11	56 49	14
15	57 31	57 57	60 12	60 31	61 25	61 21	60 46	60 28	58 20	57 53	56 27	56 6	15
16	58 22	58 46	60 46	60 57	61 12	60 58	60 7	59 43	57 27	57 0	55 45	55 26	16
17	59 8	59 28	61 4	61 5	60 40	60 19	59 16	58 48	56 35	56 11	55 9	54 54	17
18	59 46	60 0	61 3	60 56	59 55	59 29	58 19	57 50	55 48	55 27	54 41	54 30	18
19	60 11	60 19	60 44	60 30	59 1	58 33	57 22	56 54	55 9	54 53	54 22	54 16	19
20	60 23	60 23	60 12	59 51	58 5	57 37	56 28	56 4	54 39	54 28	54 14	54 13	20
21	60 20	60 14	59 29	59 5	57 10	56 44	55 41	55 21	54 19	54 13	54 16	54 20	21
22	60 5	59 53	58 41	58 17	56 20	55 58	55 3	54 47	54 10	54 9	54 28	54 38	22
23	59 40	59 24	57 52	57 29	55 37	55 19	54 34	54 23	54 10	54 14	54 49	55 3	23
24	59 8	58 50	57 6	56 44	55 2	54 48	54 15	54 8	54 19	54 27	55 19	55 36	24
25	58 32	58 14	56 24	56 5	54 36	54 25	54 4	54 2	54 36	54 46	55 54	56 12	25
26	57 56	57 38	55 47	55 31	54 17	54 10	54 2	54 3	54 58	55 11	56 32	56 51	26
27	57 20	57 3	55 16	55 2	54 4	54 1	54 7	54 11	55 25	55 39	57 10	57 29	27
28	56 46	56 30	54 50	54 39	53 58	53 57	54 17	54 25	55 54	56 9	57 46	58 2	28
29	56 14	55 59	54 30	54 21	53 58	54 0	54 33	54 42	56 24	56 39	58 17	58 31	29
30	55 45	55 31	54 14	54 8	54 3	54 8	54 53	55 4	56 53	57 8	58 42	58 52	30
31	55 18	55 5	54 4	54 0	.. ..	.. ..	55 16	55 28	.. ..	.. ..	59 0	59 6	31

Mean Refraction.

App Alt.	Refr.	App Alt.	Refr	App. Alt	Refr	App. Alt.	Refr	App. Alt.	Refr
° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
0 0	33 0	5 0	9 54	10 0	5 15	20 0	2 35	34 0	1 24
0 5	32 10	5 5	9 46	10 10	5 10	20 10	2 34	34 30	1 23
0 10	31 22	5 10	9 38	10 20	5 5	20 20	2 32	35 0	1 21
0 15	30 35	5 15	9 30	10 30	5 0	20 30	2 31	35 30	1 20
0 20	29 50	5 20	9 23	10 40	4 56	20 40	2 29	36 0	1 18
0 25	29 6	5 25	9 15	10 50	4 51	20 50	2 28	36 30	1 17
0 30	28 23	5 30	9 8	11 0	4 47	21 0	2 27	37 0	1 16
0 35	27 41	5 35	9 1	11 10	4 43	21 10	2 26	37 30	1 14
0 40	27 0	5 40	8 54	11 20	4 39	21 20	2 25	38 0	1 13
0 45	26 20	5 45	8 47	11 30	4 34	21 30	2 24	38 30	1 11
0 50	25 42	5 50	8 41	11 40	4 31	21 40	2 23	39 0	1 10
0 55	25 5	5 55	8 34	11 50	4 27	21 50	2 21	39 30	1 9
1 0	24 29	6 0	8 28	12 0	4 23	22 0	2 20	40 0	1 8
1 5	23 54	6 5	8 21	12 10	4 20	22 10	2 19	41 0	1 5
1 10	23 20	6 10	8 15	12 20	4 16	22 20	2 18	42 0	1 3
1 15	22 47	6 15	8 9	12 30	4 13	22 30	2 17	43 0	1 1
1 20	22 15	6 20	8 3	12 40	4 9	22 40	2 16	44 0	0 59
1 25	21 44	6 25	7 57	12 50	4 6	22 50	2 15	45 0	0 57
1 30	21 15	6 30	7 51	13 0	4 3	23 0	2 14	46 0	0 55
1 35	20 46	6 35	7 45	13 10	4 0	23 10	2 13	47 0	0 53
1 40	20 18	6 40	7 40	13 20	3 57	23 20	2 12	48 0	0 51
1 45	19 51	6 45	7 35	13 30	3 54	23 30	2 11	49 0	0 49
1 50	19 25	6 50	7 30	13 40	3 51	23 40	2 10	50 0	0 48
1 55	19 0	6 55	7 25	13 50	3 48	23 50	2 9	51 0	0 46
2 0	18 35	7 0	7 20	14 0	3 45	24 0	2 8	52 0	0 44
2 5	18 11	7 5	7 15	14 10	3 43	24 10	2 7	53 0	0 43
2 10	17 48	7 10	7 11	14 20	3 40	24 20	2 6	54 0	0 41
2 15	17 26	7 15	7 6	14 30	3 38	24 30	2 5	55 0	0 40
2 20	17 4	7 20	7 2	14 40	3 35	24 40	2 4	56 0	0 38
2 25	16 44	7 25	6 57	14 50	3 33	24 50	2 3	57 0	0 37
2 30	16 24	7 30	6 53	15 0	3 30	25 0	2 2	58 0	0 35
2 35	16 4	7 35	6 49	15 10	3 28	25 10	2 1	59 0	0 34
2 40	15 45	7 40	6 45	15 20	3 26	25 20	2 0	60 0	0 33
2 45	15 27	7 45	6 41	15 30	3 24	25 30	1 59	61 0	0 32
2 50	15 9	7 50	6 37	15 40	3 21	25 40	1 58	62 0	0 30
2 55	14 52	7 55	6 33	15 50	3 19	25 50	1 57	63 0	0 29
3 0	14 36	8 0	6 29	16 0	3 17	26 0	1 56	64 0	0 28
3 5	14 20	8 5	6 25	16 10	3 15	26 10	1 55	65 0	0 26
3 10	14 4	8 10	6 22	16 20	3 12	26 20	1 55	66 0	0 25
3 15	13 49	8 15	6 18	16 30	3 10	26 30	1 54	67 0	0 24
3 20	13 34	8 20	6 15	16 40	3 8	26 40	1 53	68 0	0 23
3 25	13 20	8 25	6 11	16 50	3 6	26 50	1 52	69 0	0 22
3 30	13 6	8 30	6 8	17 0	3 4	27 0	1 51	70 0	0 21
3 35	12 53	8 35	6 5	17 10	3 3	27 15	1 50	71 0	0 19
3 40	12 40	8 40	6 1	17 20	3 1	27 30	1 49	72 0	0 18
3 45	12 27	8 45	5 58	17 30	2 59	27 45	1 48	73 0	0 17
3 50	12 15	8 50	5 55	17 40	2 57	28 0	1 47	74 0	0 16
3 55	12 3	8 55	5 52	17 50	2 55	28 15	1 46	75 0	0 15
4 0	11 51	9 0	5 48	18 0	2 54	28 30	1 45	76 0	0 14
4 5	11 40	9 5	5 45	18 10	2 52	28 45	1 44	77 0	0 13
4 10	11 29	9 10	5 42	18 20	2 51	29 0	1 42	78 0	0 12
4 15	11 18	9 15	5 39	18 30	2 49	29 30	1 40	79 0	0 11
4 20	11 8	9 20	5 36	18 40	2 47	30 0	1 38	80 0	0 10
4 25	10 58	9 25	5 34	18 50	2 46	30 30	1 37	81 0	0 9
4 30	10 48	9 30	5 31	19 0	2 44	31 0	1 35	82 0	0 8
4 35	10 39	9 35	5 28	19 10	2 43	31 30	1 33	83 0	0 7
4 40	10 29	9 40	5 25	19 20	2 41	32 0	1 31	84 0	0 6
4 45	10 20	0 45	5 23	19 30	2 40	32 30	1 30	86 0	0 4
4 50	10 11	9 50	5 20	19 40	2 38	33 0	1 28	88 0	0 2
4 55	10 2	9 55	5 18	19 50	2 37	33 30	1 26	90 0	0 0

Dip of The Horizon.

Height of the Eye.	Dip of the Horizon.	Height of the Eye.	Dip of the Horizon.
ft.	′ ″	ft.	′ ″
1	0 59	19	4 17
2	1 24	20	4 24
3	1 42	21	4 31
4	1 58	22	4 37
5	2 12	23	4 43
6	2 25	24	4 49
7	2 36	25	4 55
8	2 47	26	5 1
9	2 57	27	5 7
10	3 7	28	5 13
11	3 16	29	5 18
12	3 25	30	5 24
13	3 33	31	5 29
14	3 41	32	5 34
15	3 49	33	5 39
16	3 56	34	5 44
17	4 4	35	5 49
18	4 11	38	6 4

Dip at Different Distances.

Miles.	Height of the Eye in Feet.					
	5	10	15	20	25	30
	′	′	′	′	′	′
¼	11	23	34	45	57	68
½	6	12	17	23	28	34
¾	4	8	12	15	19	23
1	3	6	9	12	15	17
1¼	3	5	7	10	12	14
1½	3	4	6	8	10	12
2	2	4	5	7	8	9
2½	2	3	4	6	7	8
3	2	3	4	5	6	7
3½	2	3	4	5	6	6
4	2	3	4	5	5	6
5	2	3	4	4	5	6
6	2	3	4	4	5	5

Table Of Corrections

To be applied to the Rising and Setting of the Sun, Moon, and Planets, when viewed from elevations above the sea level—Subtract from Rising, add to Setting.

ft	s.	ft.	m.s.	ft.	m.s.
5	16	50	0 51	120	1 18
10	23	60	0 56	140	1 26
15	28	70	1 1	160	1 32
20	30	80	1 5	180	1 38
30	38	90	1 8	200	1 43
40	46	100	1 10	300	2 5

Right Ascensions, and Declinations, and Semi-diurnal Arcs,

FOR LATITUDE 54° 10′,

Of the Principal Fixed Stars

NAMES.	Magnitude.	Right Ascension. H. M. S.	Annual Variations ″	Declination. ° ′ ″	Annual Variations ″	Semi-diurnal Arcs. H. M.
α Andromedæ	2	0 1 9	+ 3·08	N 28 19 3	+19·90	9 19
γ Pegasi (Algenib)	3·2	0 6 2	+ 3·08	14 24 18	+20·03	7 27
α Cassiopeæ	Var.	0 32 35	+ 3·36	55 46 8	+19·81	sets not
β Ceti	2	0 36 33	+ 3·01	S 18 45 21	+19·82	4 12
α Ursæ Minor.(Polaris)	2	1 8 3	+18·84	N 88 33 47	+19·18	sets not
α Eridani (Achernar)	1	1 32 30	+ 2·24	S 57 56 56	+18·43	rises not
α Arietes	2	1 59 17	+ 3·36	N 22 47 54	+17·25	8 27
α Ceti	2·3	2 54 58	+ 3·13	3 32 16	+14·38	6 23
α Persei	2	3 14 21	+ 4·24	49 21 33	+13·22	sets not
η Tauri	3	3 39 10	+ 3·55	23 40 8	+11·50	8 34
α Tauri (Aldebaran)	1	4 27 53	+ 3·43	16 13 28	+ 7·67	7 39
α Aurigæ (Capella)	1	5 6 21	+ 4·42	45 51 3	+ 4·22	sets not
β Orionis (Rigel)	1	5 7 49	+ 2·88	S 8 22 0	+ 4·50	5 17
β Tauri	2	5 17 27	+ 3·79	N 28 29 6	+ 3·50	9 21
δ Orionis	2	5 24 51	+ 3·06	S 0 24 23	+ 3·02	6 1
α Leporis	3	5 26 33	+ 2·64	17 55 31	+ 2·92	4 10
ε Orionis	2	5 29 7	+ 3·04	1 17 41	+ 2·68	5 57
α Columbæ	2	5 34 35	+ 2·18	34 9 2	+ 2·22	sets not
α Orionis	Var.	5 47 36	+ 3·25	N 7 22 38	+ 1·08	6 45
α Argus (Canopus)	1	6 20 51	+ 1·33	S 52 37 14	− 1·82	rises not
α Canis Majoris (Sirius)	1	6 38 59	+ 2·64	16 31 38	− 4·62	4 27
α Geminorum (Castor)	2·1	7 25 40	+ 3·84	N 32 11 29	− 7·40	10 13
α Canis Minoris (Proc.)	1	7 31 58	+ 3·14	5 34 51	− 8·87	6 35
β Geminorum (Pollux)	1·2	7 36 45	+ 3·68	28 21 39	− 8·28	9 20
α Hydræ	2	9 20 42	+ 2·95	S 8 3 14	−15·37	6 49
α Leonis (Regulus)	1·2	10 0 55	+ 3·20	N 12 38 59	−17·40	7 17
α Ursæ Majoris	2	10 55 3	+ 3·77	62 30 21	−19·34	sets not
δ Leonis	2·3	11 6 39	+ 3·20	21 17 24	−19·66	8 16
β Leonis	2	11 41 55	+ 3·06	15 21 16	−20·09	7 34
γ Ursæ Majoris	2·3	11 46 27	+ 3·19	54 28 23	−20·02	sets not
α¹ Crucis	1	12 18 50	+ 3·26	S 62 19 19	−19·94	rises not
β Corvi	2·3	12 27 2	+ 3·13	22 37 20	−19·98	3 44
α Virginis(Spica)	2	13 17 49	+ 3·15	10 25 46	−18·95	5 5
β Centauri	1	13 53 59	+ 4·15	59 41 43	−17·69	rises not
α Bootis (Arcturus)	1	14 9 17	+ 2·73	N 19 54 47	−18·93	8 5
α² Centauri	1	14 30 8	+ 4·03	S 60 15 9	−15·06	rises not
ε Bootis	2·3	14 38 52	+ 2·62	N 27 39 58	−15·42	9 13
α² Libræ	2·3	14 43 8	+ 3·30	S 15 27 27	−15·24	4 34
β Ursæ Minoris	2	14 51 9	− 0·26	N 74 43 39	−14·75	sets not
β Libræ	2	15 9 29	+ 3·22	S 8 51 49	−13·60	5 14
α Coronæ Borealis	2	15 28 45	+ 2·54	N 27 11 17	−12·36	9 8
α Serpentis	2·3	15 37 22	+ 2·95	6 52 7	−11·63	6 42
α Scorpii (Antares)	1·2	16 20 49	+ 3·67	S 26 7 3	− 8·44	3 15
α Trianguli Australis	2	16 33 53	+ 6·27	68 45 50	− 7·44	rises not
α Herculis	Var.	17 8 16	+ 2·73	N 14 33 10	− 4·44	7 29
β Draconis	3·2	17 27 16	+ 1·35	52 24 23	− 2·85	sets not
α Lyræ (Vega)	1	18 32 12	+ 2·03	38 39 20	+ 3·10	sets not
β Lyræ	Var.	18 44 55	+ 2·21	33 12 8	+ 3·88	10 31
γ Aquilæ	3	19 39 36	+ 2·85	10 16 30	+ 8·45	7 2
α Aquilæ (Altair)	1·2	19 43 57	+ 2·93	8 30 5	+ 9·17	6 51
β Aquilæ	4	19 48 26	+ 2·94	6 3 35	+ 8·66	6 37
α Pavonis	2	20 14 33	+ 4·80	S 57 10 45	+11·08	rises not
α Cygni	2·1	20 36 40	+ 2·04	N 44 46 54	+12·66	sets not
α Cephei	3·	21 15 14	+ 1·44	61 59 35	+15·10	sets not
β Aquarii	3	21 24 11	+ 3·16	S 6 11 6	+15·60	5 29
β Cephei	3	21 26 50	+ 0·80	N 69 56 47	+15·70	sets not
α Aquarii	3	21 58 35	+ 3·08	S 0 59 55	+17·29	5 58
α Gruis	2	21 59 24	+ 3·82	47 38 12	+17·16	rises not
α Piscium Australis	1·2	22 49 54	+ 3·33	30 21 48	+19·95	2 29
α Pegasi (Markab)	2	22 57 47	+ 2·98	N 14 27 10	+19·30	7 27

General Tide Table,

By which the times of High Water may be CORRECTLY FOUND *on* ANY *Day.*

N.B.—ADD to the time of High Water in the Tide Table in this Almanack, the Ho and Minutes in the Column opposite the Place required.

ENGLAND	H.	M.
Alderney Pier.	7	45
Alne River	3	45
Barnstaple Bar .. .	6	30
Berwick	3	18
Blakeney	7	50
Blythe	3	45
Boston..	8	15
Bridgewater	7	45
Bridlington..	5	30
Bridport	7	0
Carlisle	1	0
Chatham	1	54
Christchurch . ..	9	50
Dartmouth..	7	5
Exmouth Bar	7	25
Falmouth	6	30
Flamboro' Head ..	5	30
Flatholm	7	28
Fowey	6	30
Gravesend	2	30
Guernsey (Eng.Chan)	7	30
Hartlepool	4	45
Hull	7	0
Humber River	6	30
Ilfracombe	6	30
Ipswich	1	0
Jersey (En. Ch.) ..	7	10
Land's End	5	30
London Bridge.. ..	3	7
Longships	5	30
Lyme Regis	7	30
Needles Point	10	45
Newcastle	5	0
Penzance	5	30
Plymouth Dock.. ..	6	30
Poole	10	0
Portsmouth Dock ..	0	40
Ramsgate	0	46
Robin Hood's Bay ..	4	45
Scarborough	5	25
Scilly Islands	5	10
Sheerness	1	39
Shields	4	0
Southampton	0	40
Spithead	10	30
St. Ives	5	30
Sunderland	4	0
Tees River	4	30
Torbay..	7	0
Tynemouth Bar ..	3	50
Weymouth..	7	30
Whitby	4	45
Wisbeach	8	30
Yarmouth Roads ..	9	40
Yarmouth, IsleWight	10	30

WALES.	H.	M.
Aberdovey	8	30
Aberystwith	8	30
Barmouth	8	55
Bardsey Island	9	15
Burrey Harbour.. ..	7	0
Cardiff	7	0
Cardigan Bar	8	0
Caermarthen Bar ..	7	10
Carnarvon Bar . ..	10	0
Denbigh	3	15
Fisgard Bay	7	30
Milford Haven.. ..	6	45
Newport	7	45
Pembroke	7	4
Skerries	10	45
Smalls and Swansea..	6	50
Strumble Head	7	15

IRELAND.		
Arklow	10	15
Baltimore	4	45
Bantry Bay	4	46
Broadhaven .. .	7	0
Cork Harbour	5	30
Crookhaven	4	30
Donaghadee.	10	15
Donegal Bar	6	5
Downing Bay	6	20
Dungarvon..	5	30
Foyn's Island	5	0
Galway Bay	5	30
Kinsale..	5	30
Limerick	7	0
Lough Swilly	8	30
Londonderry . ..	7	0
Malbay	5	0
Newry	1	0
Port Rush	6	45
Saltees..	6	40
Shannon	4	45
Skerries	5	45
Sligo Bay	5	45
Tory Island..	7	0
Tralee Bay..	4	45
Valentia Harbour ..	4	30
Waterford	6	50
Wexford	8	30
Wicklow	10	0
Youghal	6	0

SCOTLAND.		
Aberdeen	2	12
Banff	0	30
Buchanness	1	0
Burnt Island	3	30

	H
Cromarty	0
Dee (River)	1
Dunbar	3
Dundee	3
Eyemouth	3
Leith Pier	3
Montrose	2
Tay Bar	2
Wick	10

SHETLANDS.	
Balta	4
Brassa Sound	11
Lerwick Harbour ..	10
Westra	1

ORKNEYS.	
Cairston	10
Fair Isle	11
Pomona	4
Ronaldsha	10

FOREIGN PORTS.		
Amsterdam	4	
Antwerp	7	
Bahia, Brazil	5	1
Bilboa, Spain	4	1
Biscay, Spain	5	3
Bonny River, Africa..	6	
Bordeaux	4	
Bremen, Germany ..	7	
Brest, France . ..	4	4
Cadiz, Spain . ..	3	3
Calabar, Africa .	6	
Calcutta	4	
Carthagena, S. Amer	3	
Charleston Bar, U.S.	8	
Charante, France ..	5	
Cape Coast, Africa..	4	3
Cape Good Hope town	3	2
Fort St. John, N.A..	10	
Funchal, Madeira ..	1	1
Hamburg	7	
Rio Janeiro, Brazil..	3	4
St. John's, N.Foundl.	8	5
Lisbon	5	
L'Orient, France .	4	3
New York E. River..	9	5
Oporto, Portugal ..	4	1
Panama, S. A.	4	
Pernambuca, S. A ..	8	1
Philadelphia, U. S..	4	
Quebec, Canada ..	7	4
Rotterdam . ..	4	
Santa Cruz, S.A. ..	9	4
Whampoa, China ..	3	3

The Tides at the following places are nearly the same as the Tide-Table:—

Ardglass,	Chester	Dublin	Hastings	Mull of Galloway	St. Helen
Arran Island	Conway	Dumfries	Kingstown	Newhaven	Strangford
Bangor	Cowes	Dundalk	Killough	Pargate	Stromness
Balbriggan	Copeland Island	Dundrum	Kirkcudbright	Preston	Troon
Belfast	Deal	Folkstone	Lancaster	Pentland Frith	Warren's Point
Beaumaris	Dover	Glasgow	Liverpool	Ramsgate	Ulverston, and
Carlingford	Downs	Greenock	Maryport	Rothsay	Whitehaven.
Carrickfergus	Drogheda	Harwich	Margate	Roseness	

ISLE OF MAN INFORMATION.

Manx Legislature

The Hon. Charles Hope, Lieut.-Governor
Sec. to his Excellency.... James Burman

COUNCIL.

Hon.&Rt.Rev.H.Powys,D.D.,Lord Bishop
Charles R. Ogden .... Attorney-General
Hon. W. L. Drinkwater, South. Deemster
Hon. J. C. Stephen, Northern Deemster
Wm. W. Christian ..... Water-Bailiff
Hon. Mark H. Quayle, Clerk of the Rolls
Ven. Joseph C. Moore ..... Archdeacon
Thomas Arthur Corlett.... Vicar General
James Burman ..... Clerk of Council

HOUSE OF KEYS.

Edw. Moore Gawne, Speaker, Kentraugh
Robert John Moore, Secretary ..... Peel
John F. Crellin ..... Orrisdale
Evan Gell .... Whitehouse
Frederick J. D. Lamothe ..... Ramsey
Alexander Spittall .... Laureston
Richard Quirk ..... . Rheaby, Patrick
Frank Matthews ..... Glenmoore
Henry Murray..... Thornton
William Callister ..... Thornhill
J. G. Bennett ..... Willaston
Edward Curphey Farrant.. Ballakillingan
Patrick T. Cuningham..... . Ballanorris
George Goldie .. .. Marown
John Gell .... Kennaa
Philip Killey ..... . Douglas
John M. Jeffcott ..... Castletown
Ridgway Harrison..... Douglas
William Harrison ..... German
W. F. Moore .. .. Cronkbourne
William Haslam ..... Ballaglass
William Farrant ..... Ballamoore
J. S. G. Taubman..... Nunnery
Edward Faulder..... Ellerslie

Committee of the Legislature

FOR REGULATING ALL MATTERS RELATIVE TO HIGHWAYS, BRIDGES, &c.

F. J. D. Lamothe, Evan Gell, W. Callister, P. Cuninghame, and Ridgway Harrison
Surveyor-General, R. Anderson, Douglas

Constituted Authorities

HIGH BAILIFFS.

James Gell..... Castletown
Senhouse Wilson ..... Douglas
Robert J. Moore ..... Peel
Frederick Tellett..... ..... Ramsey

Coroner-General for holding Inquests of Death.... W. W. Christian, Andreas
Registrar of Deeds .. S. Wilson, Douglas
Registrar General of Births and Marriages ...James Burman, Castletown
Deputy Registrars do.—R. Harrison, Douglas; James Gell, Castletown; Robert J. Moore, Peel; F. Tellett, Ramsey
Episcopal Registrar, Rev. J. Brown M.A.
Deputy Episc. Registrar / Archdeacon's Registrar } R. H. L. Brown
Archdeacon's Official ..... T. A. Corlett
Seneschal ..... L. Adamson, Douglas
Crown Solicitor .. A. W. Adams, Douglas
Visiting Magistrate for Gaol of Castle Rushen ..... James Gell, Castletown
Regulator of Weights and Measures .. F. L. Gelling, Castletown
Agent for Woods and Forests ... F. C. Skrimshire, Douglas
Tithe Agent..... S. Harris, Douglas
Southern Deemster's Clerk, R. Harrison
Northern Deem. do., ... F. B. Clucas

Magistrates

The Members of the Council.... / The High Bailiff of Castletown.. / The High Bailiff of Douglas .... / The High Bailiff of Ramsey .... / The High Bailiff of Peel ..... } For the time being.

Thomas Moore ..... Ballown
Mark H. Quayle, C.R. ..... Castletown
Wm. Watson Christian ..... Ballacurry
James Campbell ..... New Zealand
Samuel Pollock ..... Strathallan Lodge
Evan Gell ..... Whitehouse
Richard Quirk .... Rheaby
Cesar Bacon .... Seafield
William Callister..... Thornhill
Ewan Cameron..... Ballatessen
Clarence Horatio Cary .... Beach House
John Frissell Crellin .... Orrisdale
Edward Moore Gawne.... ... Kentraugh
Alexander Taubman Goldie . .. Douglas
John Berkely Harrison .... Douglas
Richard Simpson ..... The Cliff
J. G. Bennett.. ..... Williston
P. T. Cunningham..... Ballanorris
William Farrant .... Ballamoar
John Gell..... ..... Kennaa
William Haslam .. . . Ballaglass
F. Matthews .... Glenmoore
W. F. Moore ..... Cronkbourne
G. H. Newton .... Westham

CLERKS—James Spittall..... Douglas
Henry C. Gill.... Castletown
F. J. D. Lamothe .. Ramsey
John Kelly ..... Peel

Members of Manx Bar

* Members of the House of Keys.

William Corlett .... Ballamona
Thomas Arthur Corlett ..... Ramsey
Frederick Tellett, H.B. ..... Ramsey
Frederick L. Gelling .. .. Castletown

James Quirk ....Douglas
William W. Christian .....Andreas
William Clague . .....Peel
Edmund G. Head .....Douglas
Mark H. Quayle, C.R.....Castletown
George Wm. Dumbell ... .Douglas
* Frederick J. D. Lamothe .. . .Ramsey
Henry B. Watts ....Douglas
J. C. Stephen, Deemster .....Ramsey
Frederick B. Clucas ... .Ramsey
John D. Gelling .....Castletown
Edward Frizelle .. .. .Peel
Senhouse Wilson, H.B. .....Douglas
Robert J. Kelly .....Ramsey
* Robert J. Moore, H.B.. ... . . .Peel
Thomas C. Howard.....New Zealand
*John M. Jeffcott ....Castletown
Laurence Craigie ....Douglas
Edward C. Fleetwood .....Douglas
*Ridgway Harrison .. ..Douglas
Samuel Harris ....Douglas
Edward Callow .... Manchester
Charles J. Stewart .. ..
Chas. R. Ogden ....Clifton
John Kelly .....Peel
Thomas C. Callow .....Douglas
James Gell, H.B.....Castletown
Daniel F. Wilson ..... .Ramsey
J. G. M'Hutchin .. ..Australia
James Spittall .....Douglas
Alfred Walter Adams ..... .Douglas
Frederick Call .....Australia
James Burman ....Castletown
A. N. Laughton ....Douglas
Thomas A. Corlett, jun. .....Ramsey
Laurence W. Adamson .....Douglas
Henry C. Gill ....Castletown
J. C. Tobin Harrison .....Douglas
Richard Tuton ... . Peel
John Thomas Clucas .....Castletown
Arthur Bluett .... .Douglas
Richard Sherwood .....Douglas
Alured Dumbell ....Douglas
Henry Evans Gelling..... Castletown

Notaries Public

DOUGLAS. — John Moore, Henry B. Watts, J.C.T. Harrison, Senhouse Wilson, James Spittall, Ridgway Harrison, T. C. Callow, A. N. Laughton

CASTLETOWN.—Frederick L. Gelling, H. C. Gill.

RAMSEY.—Fred. B. Clucas, Robt. J. Kelly

PEEL.—J. Kelly

Commissioner

To take Affidavits for Courts of Queen's Bench, Exchequer, and Common Pleas, Ireland—R. J. Kelly, Ramsey

Coroners

Glenfaba.....William Quayle
Michael ....John Stephen
Garff ..... .Thomas Looney
Ayre ..... .John Chrystal
Middle ....John Cannel
Rushen ....John Cosnahan

Sumners

Sumner-General .... S. Harris
Kirk Maughold ..... John Bridson
—— Lonan . .....Jas. Cannon
—— Onchan .... John Moore
—— Braddan .....John Moore
—— Marown .....T. Christian
—— Santon.....Wm. Corlett
—— Malew ....Wm. Corlett
—— Arbory ..... .Robert Shimmin
—— Christ Rushen.....John Hodsun
—— Patrick .... .P. Clucas
—— German .....Robert Kewin
—— Michael ..... Edward Cannell
—— Andreas .....Matthias Curphey
—— Bride ....John Kneale
Ballaugh .....John Stephen
Jurby .....J. Moughtin
Lezayre..... ....John Cain

Chief Constables

Robert Rhodes .... .Castletown
John Sayle .....Douglas
James Coole ..... Peel
Claude Bennett ... .Ramsey

Officers of Customs

PORT DOUGLAS.

Collector.....David Williams
Collector's First Clerk ....N. W. Walker
Collector's Second Clerk G. A. M'Cammon
Searcher, Landing-waiter & Coast-wtr. } James Bertram.
Tide Surveyor ....R. J, Weaver
Locker and Weigher .. Terence Carroll
Tide Waiters and Boatmen..Wm. Kirkbride, J. Quine, R. Quine, John Kelly, R. Gelling, and G. Wainman.

PORT RAMSEY.

Collector .....Robert Hicks
Landing-waiter, Searcher, Coast-waiter, and Tide Surveyor .. .. } G. A. Adams
Tide Waiters and Boatmen..Thos. Corlett, S. Farrington, and J. Quayle

CREEK OF DERBYHAVEN.

Principal Coast Officer ....R. Q. Crellin
Tide Waiters and Boatmen, W. Archer, J. Watterson, W. Bell, and Jas. Lawson

CREEK OF PEEL.

Principal Coast Officer ..Leslie Lockhart
Tide Waiters and Boatmen .. J. Cowley and J. J. Corlett

Harbour Masters

Castletown .....J. Mylchreest
Douglas..... {.... .... John Clague
Deputy, Robert Gelling
Peel ....R. Kerruish
Port St. Mary .....Thomas Qualtrough
Ramsey ....Charles Teare

Commissioners of Harbours

R. Quirk, Receiver General

David Williams	Henry Graves
William Callister	James Gell
James Corlett	Robert J. Moore
James Bertram	R. J. T. Quayle
William F. Moore	

Customs Brokers

H. Johnson ....Market Place, Douglas
W. Berey ..... North Quay, Douglas

Vice Consuls

Danish ..... W. F. Moore
Swedish and Norwegian ....H. B. Noble

Receiver of Droits of Admiralty

David Williams ... .Douglas

Agents for Lloyd's

Southern District, R. Boardman, Douglas, *Also for the Underwriters of Glasgow and Liverpool*
Northern District .. Hugh Brown, Ramsey

Bankers

Bank of Mona, Douglas—(Draw on Prescott, Grote, & Co., London) — J. S. Jackson, Manager
Douglas and Isle of Man Bank—(Draw on Carr, Glynn, & Co., London)—Dumbell, Son, & Howard.
Bank for Savings, Atholl-street, Douglas —J. Spittall, Secretary

Law Courts

COMMON LAW.— *Castletown*, Feb. 7.—May 8—July 3—October 9—*Ramsey*, Feb. 14—May 15—July 10—October 16.
CHANCERY AND EXCHEQUER.—At Castle Rushen, on the first THURSDAY in each month; the months of Jan., August, and Sept. excepted; besides which, SPECIAL COURTS are held as occasion may require.
ADMIRALTY, OR WATER-BAILIFF'S.—At Castletown, weekly.
DEEMSTERS' SUMMARY.—At Castle-Rushen, Douglas, Ramsey, and Peel, every fortnight.
VICAR'S GENERAL.—At Douglas, Castletown, Peel, and Ramsey once monthly.
CHAPTER.—Half-yearly, in Spring and Autumn.
HIGH BAILIFFS'.—At Castletown, Douglas, Peel, and Ramsey, weekly.
BARON.—Held in April and October.
MAGISTRATES'.—Fortnightly.

Isle of Man Post-Office

Atholl Street, Douglas.... Miss Macadam

SUB-POST-OFFICES & RECEIVING HOUSES

Duke Street, Douglas .....
Pillar Letter Box, Osborne Terrace, Douglas
Shore Road, near Douglas .. W. Christian
Crescent, near Douglas .. Geo. M. Jones
Ballaughton, near Douglas.. .. J. Aspell
Ballasalla .....H. Caugherty
CASTLETOWN .... .George Duck
Wall Box, the Green, Castletown..
Port St. Mary .....Miss Harley
Union Mills .... .W. Dalrymple
Crosby .....R. Kelly
St. John's .....Mary Quayle
PEEL.....John Morrison
Onchan .....J. Lewin
Laxey .....J. Kinley
RAMSEY .... John Hampton
Wall Box, Sandy Road, Ramsey ..
Kirk Andreas..... ..Fred. Radcliffe
Sulby .....W. H. Ward
Ballaugh .....J. C. Bishop
Michael..... .....J. Cannan
Jurby ....A. Joughin
St. Mark's..... ..... .P. Mylrea
Foxdale .....E. Buzzo
Glenmay ....W. Quayle
Maughold .....D. Kinrade
Bride ....R. Pass
Colby ....H. Moore
Port Erin .....H. McComb

LIVERPOOL INFORMATION.

Pilot Boat Stations

NOTICE.—From the Liverpool Pilot Boats is shown a single Light at the Mast Head, with a Flash Light every 15 minutes.

The boat having the turn to board displays a red and white flag at the masthead by day; by night, a white light, and exhibits a flare-up light every 15 minutes; the other boats a green light.

The TWO western boats cruise off Point Lynas, and as far to the westward as the Middle Mouse, and to the eastward until Priestholm Island bears S.S.W.

The THIRD western boat cruises from Point Lynas to S.S.W. of West end of Great Ormshead, to board any vessels that may pass the first and second boats.

The FOURTH western boat cruises from eastern limit of third boat's station, and eastward to N.N.E. from west end of Bar Land.

The FIFTH, or first Hoylake boat, cruises to the westward so as to keep sight of the Northwest Light-Ship from the deck.

The SIXTH, or second Hoylake boat, to board vessels after they pass the line of the Northwest Light-Ship and Point of Air, when the first boat is not within a reasonable distance, and after high water to take pilots from vessels outward bound.

Rates of Pilotage

For British Vessels trading Foreign.

INWARD. PER FOOT.	s.	d.
From the length of the west end of the Great Ormshead, bearing S. by W., or before Penman Bachan be shut in with the Great Ormshead, at the rate of	9	0
From the eastward of the Great Ormshead, as above	8	0
From the only House now on Great Hilbre Island, bearing S.S.W. by the compass, or shall be piloted from the road of Hoylake only, or from the Buoy of the Fairway in Formby Channel	4	0

OUTWARD.	s.	d.
Whether through the Rock or Formby Channel	4	0

No British vessel, trading to Foreign Parts, inward or outward bound, is to refuse a Pilot; but if such vessel has passed the Brazil Buoy in the Rock Channel, or the Middle Patch Buoy in Formby Channel, or if a Pilot-boat falls in with a vessel in the narrows of the Channels in stormy weather, that she cannot board her without eminent danger, the pilot shall then lead the way, and in either case be entitled to such Pilotage as shall be awarded by the Committee at their next meeting.

For Alien Ships and Vessels.

INWARD.	s.	d.
From the length of the Great Ormshead, as above, at the rate of....	12	0
From the eastward of the Great Ormshead, as above....	11	0
From the only House now on Great Hilbre Island, &c. as above	5	6

OUTWARD.	s.	d.
Whether through the Rock or Formby Channel	7	0

An Alien vessel, inward or outward bound, is not to refuse a Pilot, as circumstances are described for English-Foreign vessels as above.

For coasting Vessels, and those trading to and from Ireland, the Islands of Faro or Ferro, Jersey, Guernsey, Alderney, Sark, and Man.

INWARDS.	s.	d.
From the length of the Great Ormshead, as above, at the rate of	4	6
From the eastward of the Great Ormshead, as above.....	4	0
From the only House now on Great Hilbre Island, &c. as above	3	0

OUTWARD. PER FOOT	s.	d.
Whether through the Rock or Formby Channel	2	0

No coasting vessel to pay for less than eight feet of water, nor any vessel to pay for odd inches under half a foot. No coasting vessel, inward or outward bound of the burthen of one hundred tons or upwards, (unless she be in ballast,) is to refuse a Pilot, as the master or owner &c. must pay the full Pilotage, if one is offered. No vessel to be deemed a coaster unless she has been six months in the trade.

EXTRA PAY. PER DAY	s.	d.
For every day of attendance whilst in the River, except the day of going to sea with such ships or vessels as shall be outward bound, and the day of returniag from sea and the day of docking for such as shall be inward bound	5	
And if the attendance of a Pilotboat be requested	42	

Though the Pilot or Boat be not employed a whole day, to be paid for a day.

CHARGES ON THE MERSEY.—For taking a vessel from one dock to another, £1 from Liverpool to Birkenhead, £1 10s. from Liverpool to Garston, £2, and vice versa.

Pilots' Rules and Regulations

Any person acting as Pilot without license, to forfeit £20.

Pilots rafusing to conduct or assist ships in distress, to forfeit £10, and license.

Masters of vessels forcibly taking Pilots beyond the limits of port, to forfeit not more than £20, nor less than £5.

Pilots misbehaving to have their license recalled, and if they act afterwards the same penalties as if they were not Pilots.

Vessels liable to pay pilotage coming into port, to display signal for a Pilot, under a penalty of £5.

Reward for Pilots assisting ships in distress to be settled by the Committee.

Compensation to be made to Pilots for taking vessels out of port which have been forced back, to be fixed by the Committee.

When, in stormy weather, a vessel cannot be boarded with Pilots' small boat, the vessel should be steered with the wind on the quarter, the yards braced by, when the large boat sheers under the lee quarter and the Pilot jumps on board.

Pilot Boats, Masters, &c.

NAMES.	FIRST AND SECOND MASTERS.
Queen (schooner)..	Wm. Hughes, Fairfield-crescent, Fairfield R. Taggert, 8, Eagle-terrace, Upper Hill-street
Leader (schooner)..	Joseph Powell, Stafford-st.; John Currin, 173, Duke-st.
The Duke (schooner)	J. Williams, Liscard, Cheshire; Thomas Parry, Field-st.
Auspicious (cutter) .	J. Shepherd, 40, Wesley-st.; C. Christie, Upper Warwick-st.
Victoria and Albert .	Isaac Williams, 29, Roscommon-street; Hugh Jones, 66, Everton-brow
Pioneer (schooner)..	T. Parry, 18, Stafford-st.; T. Davies, 133, Field-st.
George Canning ..	W. Rowlands, Gt. Mersey-st. North; T. Thompson.
Albert Edward, Prince of Wales	John Bark, Stanley-crescent, North-shore; John Blackley, Sidney-road, Tranmere
River (cutter)....	T. Crane, 3, Gt. Oxford-st.; W. Lancaster, Rock View, Bootle
Criterion (sch.) ..	J. Wilson, 146, Falkner-st.; H. Williams, 54, St. James'-pl.
Mersey (cutter)..	Richard Parry, Cazneau-st.; R. Williams, 102, Field-st.
Perseverance (cut)..	H. Woodward, Woodside, Cheshire; G. Bark, 37, Bevington Hill

Superintendent of Pilots, Robert J. Simpson, Holt Hill, Cheshire.

The Pilot Committee meet for the transaction of business, every Monday, at 12 o'clock, at the Committee Room, 2, Old Church-yard.

Life-Boats

All masters and others, entering or leaving the port, and requiring the assistance of the Life Boats are requested to hoist the Distress Signal, in order that they may be dispatched to their assistance as soon as possible. Vessels aground on the Banks, and not hoisting the Distress Signal, will be supposed not to require the assistance of the Life Boats.

Life Boat Stations

At Liverpool, Waterloo Pierhead, two boats; the key kept at the Marine Surveyor's Office, New Custom House. Hoylake, two boats: the key kept at the Lower Hoylake Lighthouse. Magazines, two boats; the key kept by Mr. Leay, at the Magazines' Gunpowder Office. Point of Ayr, two boats; the key kept at Mr. Robert Beck's, the Master's House. Formby, two boats; the key kept at Joseph Formby's, the Master's house. Ellesmere Port, two boats; the key kept at Mr. William Rawcliff's, the Master's house, and Mr. Cæsar Lawson's, Assistant Receiver of Droits.

Bidston Hill Signals

SIGNALS OF DISTRESS.—For vessels in distress or on shore in the Rock Channel, or about Hoyle — Coming in: On the oblique pole to the southward of the lighthouse—for every ship, a ball with a flag half mast; for every snow, a cone broad end up and a flag half-mast; for every brig or small vessel a cone small end up and a flag half-mast. Going out: the same as above, but a broad pendant instead of flag.

N.B. For vessels in distress to the southward, when on shore to the main, the ball or cone to be put on the outside of the flag or pendant; but if on shore on Hoyle Bank, then the ball or cone to be put on the inside of the flag or pendant.

In Formby Channel.—The same signals to the northward of the Lighthouse.

Mersey Docks and Harbour Board.

OFFICERS.

Mr. John North, Solicitor.—Office, Dock Office.

Mr. Jesse Hartley and Mr. John Bernard Hartley, Engineers of the Docks, &c.—Office, south side of Coburg Dock.

Mr. Daniel Mason, Secretary.

Mr. G. J. Jefferson, Treasurer.

Capt. M. T. Parks, R.N., Marine Surveyor and Water Bailiff.—Office, Dock Office.

Mr. Wm. Marrow, Receiver of Duties on Tonnage.

Mr. John Evans, Receiver of Duties on Goods Inwards.

Mr. Joseph E. Owen, Receiver of Duties on Goods Outwards.

Mr. Richard Jones, Receiver of the Duties at Runcorn.

Mr. R. Cowan, Superintendent of Albert and Wapping Dock Warehouses.

Mr. W. D. Turner, Superintendent of Stanley Dock Warehouses.

OFFICERS CONTINUED.

Thomas Hodgson, Harbour Master.—Office, George's Dock Passage.

Henry T. Cox, North Assistant Harbour Master.
John Garniss, South ditto ditto
James Hookey, ditto ditto Birkenhead.

Dock Masters

Canada ..... John Corley
Huskisson ..... J. H. Henrichson
Sandon..... ..... H. T. Barnes
Wellington & Half-tide .. Shad. Williams
Nelson and Bramley-Moore.. Wm. Foyl
Sailsbury, Collingwood, and Stanley ..... John Ashton
Clarence Half-tide, Clarence, and Trafalgar .... Thomas Stirzaker
Waterloo and Victoria ..... Henry Rae
Prince's .. .. William Asbridge
George's..... Charles Purnell
Canning and Half-tide.... Thos. Prenton
Albert and Salthouse Docks, and Wapping Basin .....Thomas Herbert
King's and Wapping .....Joseph Curry
Queen's and Half-tide ....Joseph Wood
Cobourg ..... John Curry
Brunswick ..... Thomas Chamley
Toxteth and Harrington ..Thomas King

The Dock Masters' Offices are at the entrance of the respective Docks.

Dock and Basin Signals

All vessels are allowed to enter the docks, when signals are not hoisted at the respective pierheads. All owners, masters, and consignees are, however, recommended to register their vessels as expeditiously as possible, in order the better to secure their right of turn to accommodation at the dock quays.

DOCK SIGNALS.

HUSKISSON—Flag on N. pier of Sandon Basin entrance
SANDON—Flag on N. side of gateway
WELLINGTON AND HALF-TIDE — Flag on S. pier of Sandon Basin entrance
NELSON AND BRAMLEY-MOORE—Flag on N. pier of Salisbury Dock entrance
SALISBURY, COLLINGWOOD, AND STANLEY—Flag on S. pier of Salisbury Dock entrance
CLARENCE AND HALF-TIDE—Flag on N. pier of Clarence Half-tide entrance
TRAFALGAR.—Flag on S. pier of Clarence Half-tide Dock entrance
WATERLOO AND VICTORIA — Flag on N. pier of Prince's Basin entrance
PRINCE'S, NORTH ENTRANCE—Flag on S. pier of Prince's Basin entrance
PRINCE'S, SOUTH ENTRANCE—Flag on N. pier of George's Basin entrance
GEORGE'S—Flag on S. pier of George's Basin entrance
CANNING AND HALF-TIDE—Flag on N. pier of Canning Half-tide entrance
ALBERT AND SALTHOUSE—Flag on S pier of Canning Half-tide entrance
KING'S—Flag on N. pier of King's and Queen's Basin entrance
WAPPING—Flag on N. end of the King's Parade
QUEEN'S—Flag on S. pier of King's and Queen's Basin entrance
COBOURG—Flag on S. pier of Cobourg entrance
BRUNSWICK—Flag on S. side of entrance
TOXTETH—Flag on N. side of entrance
HARRINGTON—Flag on S. side of entrance

BASIN SIGNALS.

SANDON—Ball on the north side
PRINCE'S—Ball on S. pier of entrance
GEORGE'S—Ball on S. pier of entrance

Abstract of Dock Laws

Goods causing obstruction on the Dock quays, may be removed by the Trustees at expense of owners.

Such a quantity of cargo or ballast to be kept on board each vessel as to enable it to be safely removed; penalty £50.

Harbour and Dock Masters may remove vessels in dock, or from one dock to another, at owners' expense; penalty for obstructing them, disobeying their orders, or using abusive or offensive language to them, £10.

Vessels on which dues, &c., are owing, may be detained until such are paid.

Shipowners have a lien for freight and all other lawful claims on goods discharged into dock warehouses.

Manifests of all goods imported or exported to be delivered at the dock Office within 14 days after the discharge inwards or clearance outwards: penalty £20.

Collector, &c. not to receive entry of any vessel until the dock and light duties are paid; penalty £20.

No ballast to be thrown into the docks; penalty £2.

After ballast is discharged, to be carted away as the trustees of the docks shall appoint; penalty £2.

Vessels not to come into dock under sail; penalty £5.

Persons wilfully & maliciously damaging docks, &c. adjudged guilty of felony.

Water-bailiff empowered to remove vessels lying in the river; penalty for obstructing him £10.

Persons firing cannon, &c, within the port, (except signal guns of distress) to forfeit £10 for every offence.

Width of the various Dock Entrances at Liverpool and Birkenhead, with the Depth of Water at their respective Sills below the Old Dock Sill.

Names of Docks, &c.		Width of Entrance. ft.	in.	pts.	Sill BELOW Old Dk. Sill ft.	in.	pts.
Canada Dock Gates (500 feet Lock)	.. ..	100	0	0	7	9	0
Ditto, South Entrance ..	East Gates	50	0	0	6	6	0
Ditto ditto ..	West Gates	80	0	0	6	6	0
Huskisson Dock . ..	East Lock Gates	80	0	0	6	6	0
Ditto	West Lock Gates..	45	0	0	6	0	0
Sandon Dock Gates ..	.. ..	70	0	0	6	6	0
Wellington half-tide Dock	East Gates..	70	0	0	6	9	0
Ditto	West Gates	50	0	0	6	6	0
Wellington Dock Gates	.. ..	70	0	0	6	0	0
Bramley Moore Dock ..	North and South Gates	60	0	0	6	0	0
Nelson Dock	South Gates	60	0	0	6	6	0
Stanley Dock Gates ..	.. ..	51	0	0	5	8	0
Collingwood Dock Gates	.. ..	60	0	0	6	9	0
Salisbury Dock	North Gates	60	0	0	6	1	0
Ditto	South Gates	50	0	0	6	11	0
Clarence Graving Dk. Basin	North Gates	45	0	0	4	19	0
Ditto	South Gates	45	0	0	4	6	0
Ditto half-tide Dock ..	West Gates	50	0	0	5	6	0
Ditto Dock Gates ..	.. ..	47	0	0	3	2	0
Trafalgar Lock	North and South Gates..	45	0	0	6	7	0
Ditto Dock	South Gates	45	0	0	4	1	0
Victoria Dock	South Gates	40	0	0	4	11	0
Waterloo Lock	North Gates	45	0	0	6	15	0
Ditto	South Gates	45	0	0	6	8	0
Prince's Dock	North Gates	45	0	0	5	1	0
Ditto	South Gates	44	1	0	5	11	0
George's Dock	North Gates	41	11	0	4	16	0
Ditto	South Gates	40	11	0	4	6	0
Canning Dock	West Gates	45	0	0	6	3	0
Ditto half-tide Dock ..	North and South Gates	45	0	0	6	4	0
Albert Dock	North Gates	45	0	0	6	4	0
Ditto	East Gates	45	0	0	6	0	0
Salthouse Dock .. .	North Gates	45	0	0	6	0	0
Ditto	South Gates	50	0	0	6	0	0
Wapping Basin	West Gates	40	0	0	6	0	0
Ditto Dock	North and South Gates	50	0	0	6	0	0
King's Dock	East Gates	50	0	0	6	0	0
Ditto	South Gates	42	0	0	5	0	0
Queen's half-tide Dock	North Gates	70	0	0	6	9	0
Ditto	South Gates	50	0	0	6	9	0
Queen's Dock	West Gates	50	0	0	6	0	0
Ditto	South Gates	60	0	0	6	6	0
Cobourg Dock	West Gates	70	1	0	6	0	0
Brunswick Dock	North Gates	60	0	0	6	6	0
Ditto	West Gates	42	0	0	5	6	0
Ditto half-tide	West Gates	45	0	0	6	0	0
Toxteth Dock Gates ..	.. ..	40	0	0	5	0	0
Harrington Dock Gates	.. ..	29	9	0	1	2	0
BIRKENHEAD DOCKS.							
Morpeth Dock	East Gates	50	0	0	5	0	0
Ditto	West Gates	70	0	0	5	0	0
Egerton Dock	West Gates	70	0	0	5	6	0

GRAVING DOCKS.	ft.	in.	ft.	in.	GRAVING DOCKS.	ft.	in.	ft.	in.	pts
Canada (500 feet Lock) ..	100	0	7	9	Queen's, No. 1,.. ..	42	0	1	8	0
Huskisson Lock	80	0	6	6	Ditto No. 2, Bottom..	42	0	1	8	0
Sandon, No. 1, East	60	0	3	6	Ditto No. 2, Top .	70	1	1	8	0
Ditto No. 2,.. ..	70	0	3	6	Canning, No. 1, ...	35	9			
Ditto No. 3, ...	60	0	3	6	Ditto No. 2, ..	35	9	0	0	7
Ditto No. 4,.. ..	70	0	3	6	Clarence, No. 1, Old Part..	45	0	3	0	0
Ditto No. 5, ...	45	0	3	6	Ditto No. 1, New Part	45	0	0	6	0
Ditto No. 6,.. ..	45	0	3	6	Ditto No. 2, Old Part..	45	0	3	0	0
Brunswick, Nos. 1 and 2	42	0	2	6	Ditto No. 2, New Part	32	10	0	6	0

(Width of Entrance. / Sill below Old Dock)

The Sill of Canning Graving Dock, No. 1, is 1ft. 8in. 8pts. *above* the Old Dock Sill.

Extent of the Liverpool Docks

Total Water Area of the Liverpool Docks and Basins ..... 225 Acres, 4274 yards
Total Quay Space .... 16 miles, 1732 yards

Graving Dock Rates

FOR	Vessels under 50 tons. £	s.	50 and under 100. £	s.	For every progressive 50 tons. £	s.
2 Tides, the tide in & next tide out	1	16	2	2	0	6
3 ——, includ. going in & coming out	2	2	2	9	0	7
4 ——	2	8	2	16	0	8
5 ——	2	14	3	3	0	9
6 ——	3	0	3	10	0	10
7 ——	3	6	3	17	0	11
8 ——	3	12	4	4	0	12
9 ——	3	18				
10 ——	4	4				
11 ——	4	10				
12 ——	4	16				
2 Neaps	12	0	16	0	2	0
3 ——	18	0	24	0	3	0
4 ——	24	0	32	0	4	0
5 ——	30	0	40	0	5	0
6 ——	36	0	48	0	6	0
7 ——	42	0	56	0	7	0
8 ——	48	0	64	0	8	0

Latitude and Longitude of Liverpool

N. Lat. of Observatory .... 53°24′ 47″·8
W. Lon. ditto .... 0h 12m 0s·11

A Tide-Guage Table for th Entrance of the Mersey,

Adapted to shew the *Height of Wa* above low-water level of ordinary Spri Tides, at any required period.

When it is High Water at or near either of the following times.	H. W.	Last ¼ h. flood, or first ¼ h. ebb.	5 hours' flood, or 1 hour's ebb.	¾ flood, or ¼ ebb.	4 hours' flood, or 2 hours' ebb.	3½ hours' flood, or 2½ hs.' ebb	Half-Tide.	2½ hours' flood, or 3½ hs ' ebb.	2 hours' flood, or 4 hours' ebb.	¼ flood, or 3¼ ebb.	1 hours' flood, or 5 hours' ebb
hour.	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*
12 o'clo	30	29	27	25	22	19	16	13	10	8	5
11 or 1	29	28	27	25	22	19	16	13	10	8	6
10 or 2	27	26	25	24	21	19	16	13	11	9	7
9 or 3	26	25	24	23	21	18	16	13	11	9	8
8 or 6	25	24	23	22	20	18	16	14	12	10	9
7 or 5	24	23	22	21	20	18	16	14	12	11	10
6	23	22	21	20	19	18	16	14	13	12	11

Computed Distances from George's Dock Pier-head to several parts of the River,

	Miles.	Yds.		Miles.	Yds.		
Magazines	2	1050	Woodside.....	0	1500	Egremont	
Rock Perch..	3	150	Hoylake	9	0	Eastham	
Northwest Buoy ..	14	0	Tranmere	1	900	Weston Point	
Floating Light	15½	0	New Ferry	3	0	Runcorn	

CUMBERLAND INFORMATION.

Members of Parliament, &c.

WHITEHAVEN.—George Lyall, Esq., 17, Park Crescent, Regent's Park, London, N.W.

COCKERMOUTH.—John Steel Esq., 13, Bury Street, London. Lord Naas, 79, Eccleston Square, Palmerstown House, London.

EASTERN DIVISION.—Hon. Chas. W. G. Howard, Naworth Castle; 56, Park-street, Grosvenor Square, London. W. Marshall, Esq., Paterdale Hall; 85 Eaton Square, London.

WESTERN DIVISION.—General Wyndham, United Service, 4, Grosvenor Place. H. Lowther, Esq., 21, Wilton Crescent, London.

CARLISLE.—Sir James R. G. Graham, Netherby, 46, Grosvenor Place, London S.W. Wilfred Lawson, Esq., Braytow, Boodles, London, S.W.

Lord Lieutenant ...,.. Earl of Lonsdale.
Clerk of the Peace.. T. H. Hodgson, Esq.
County Treasurer, Mr. Dobinson, Carli
Gov. of Gaol.. Mr. T. H. Redin, Carli
County Coroners.. { Wm. Carrick, Es / W. Lumb, jun., E

Quarterly Sessions

Easter, in the first week after 31st Ma
Midsummer, first week after 24th Jun
Michaelmas, first week after 11th Oct
Christmas, first week after 28th Dec

The Easter, Midsummer, Michaeln and Christmas Sessions for Cumberla are held at Carlisle.

Post Office, Whiteheaven

JOHN GIBSON, POSTMASTER.

November, 18

ARRIVALS.— *Week days.*— London a all parts, 9h. 27m. a.m., 9h. 30m. p. *Sundays.*—London and all parts, 1 40m. a.m.

DESPATCHES.—*Week days.*—Local par 10h. 15m. a.m.; North mail, 3h. 35

and South and North at 6h. 15m. p.m. *Sundays.*—Local parts, 11h. 30m. a.m. London and all parts 7h. 50m. a.m., and 5h. p.m.

The deliveries by letter-carriers commence, during the week, at 7h. 30m., and 9h. 15m., am.; and on Sundays at 12h. 5m. p.m.

For ten minutes after the box is closed for the despatch of the Mails, letters bearing one additional stamp will be forwarded. No postage or fee in money can then be taken.

POST OFFICES IN CONNECTION WITH THE WHITEHAVEN POST OFFICE.

* Empowered to grant and pay Money Orders.

Beckermont ..... J. Gilliot, Receiver
Boote..... William Smith, ditto
Calderbridge..... Mary Moore, ditto
Cleator ..... Jos. Harkness, ditto
Cleator Lane End, Cleator Moor ditto
Distington ..... John Bell, ditto
* Egremont .. Grayson Selkirk, ditto
Eskdale ..... William Russell, ditto
Gosforth..... Peter Leech. ditto
* St. Bees .. William Finlinson, ditto
Heusingham .... Jos. Sumpton. ditto
Holm Rook.. ..... J. Birkett. ditto
Parton ..... E, Lightfoot, ditto
* Ravenglass .. Henry Jackson, ditto
Sandwith ..... J. Fisher, ditto
Waberthwaite..... J. Woodall, ditto
Wasdale ..... O. Pharoah, ditto

Bankers

WHITEHAVEN.—The Whitehaven Joint Stock Banking Company, Peter Cameron, Manager,—London Joint Stock Bank, 5, Prince's Street.

Bank of Whitehaven, G. W. Brown, Manager.—Price, Marryat, & Co., 54, King William Street, City.

J. M. Head & Co.'s (of Carlisle) Branch Bank, W. Miller, Manager,—Masterman & Co,, 35, Nicholas Lane, London.

Savings Bank.—Open Saturdays from 6 to 8, p.m.—F. J. Lowes, Sec.

WORKINGTON. — Cumberland Union Banking Company, W. B. Gordon, Manager.—Barclay, Bevan, & Co., 54, Lombard Street.

MARYPORT.—Branch of the Cumberland Union Banking Company, William Ostle, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

COCKERMOUTH.—Branch of the Cumberland Union Banking Company, Jonathan Cooper, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

WHITEHAVEN AND WEST CUMBERLAND BENEFIT LAND AND BUILDING SOCIETY. —Public-office, Lowther-street; open on Saturdays from six to eight, p.m.—S. Armstrong, Secretary.

The Whitehaven and Furness Junction Railway

Trains leave Bransty Station four times daily (Sundays excepted) for Ravenglass, Broughton, Fleetwood, Preston, Manchester, Liverpool, &c. This is the nearest route to Preston, Manchester, Liverpool, &c.—*(See West Cumberland Railway Guide.)*

The Whitehaven and Maryport Junction Railway

Trains leave Bransty Station four times daily (Sundays excepted) for Workington, Maryport, Wigton. Carlisle, and Cockermouth; three times daily for Edinburgh, London, Birmingham, Liverpool, Manchester, Preston, Newcastle, York, and Darlington.—(*See West Cumberland Railway Guide.*)

The Whitehaven, Cleator, and Egremont Railway

Trains leave Whitehaven three times daily (Sundays excepted,) for Cleator Moor, Frizington, Woodend, and Egremont.—(*See West Cumberland Railway Guide.*)

Steamers and Traders

LIVERPOOL.—The Whitehaven Steam Navigation Company's powerful and commodious first-class steam vessels sail regularly with goods and passengers.—Fares: Cabin, 8s., Deck; 4s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Liverpool at a through fare. Those from Carlisle, &c., arrive at Whitehaven by the last train before the steamer's sailing, and those from Liverpool being forwarded by first train after the vesssel's arrival in Whitehaven.—Fares: Cabin and Second class, 10s.; Deck and Third class, 4s. Agents—Carlisle, Edward Jobling; Liverpool, W. Dowson and Son; Whitehaven. Fisher and Steward.

BELFAST. — The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers.—Fares: Cabin, 10s., Deck, 3s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Belfast, at a through fare. Those from Carlisle, &c., arriving in Whitehaven by the last train before the steamer's sailing, and those from Belfast being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and Second class, 12s., Deck and Third class, 5s. Agents — Belfast, R. Henderson, Donegal Quay; Carlisle Edward Jobling; Whitehaven, Fisher and Steward.

DUBLIN.—The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers. Fares: Cabin 15s., Deck, 6s. Passengers and goods are conveyed between Carlisle, Dalston, and Wigton, to Dublin, at a through fare, arriving in Whitehaven by the last train before the steamer's sailing, and those from Dublin being forwarded by first train after the steamer's arrival in Whitehaven. Agents—Allen Nicholl, Dublin; Fisher and Steward, Whitehaven.

DOUGLAS.—The Whitehaven Steam Navigation Company's steamers sail regularly during the summer months to Dublin, calling at Douglas, Isle of Man, to land and receive passengers (weather permitting). Fares: cabin, 6s.; deck, 3s. Agents:—William Berey, Douglas; Fisher and Steward, Whitehaven.

LONDON. — The Whitehaven Steam Navigation Company, in connection with the Belfast Screw Steam Company, sail a vessel once a week. Agents—Belfast, Robert Henderson; London, Ogilbey and Moore, Ingram Court, Fenchurch Street; Whitehaven, Fisher and Steward.

DUNDRUM. — The "Annsbro'," and "Robert Burns," screw steamers, sail regularly between Dundrum and Whitehaven. Agents—Chas. Fisher & Co., 36, King Street, Whitehaven.

WHITEHAVEN AND DOUGLAS. — The smack "Black Diamond," Capt. Joseph Skelly, sails regularly once a week with goods between Whitehaven and Douglas.

Carriers.

Leave Whitehaven for Harrington, Workington, Cockermouth, Keswick, and Egremont, every Tuesday, Thursday and Saturday; for Wigton, every Wednesday; and for Gosforth, every Tuesday, Thursday, and Saturday.

Rates for the Steam Tug "Prince Albert"

Vessels employed in the Coal or Coasting Trade, shall pay every voyage, on clearing for sea, one half-penny per Ton Register. Vessels arriving from a Foreign Port or from a Discharging Port, one penny per ton register.

Vessels engaged in the Coal or Coasting Trade, pay an additional half-penny per ton when they require the use of the Steam Tug, Outward, and the same, Inwards.

Foreign Vessels as above, one penny per ton.

That the limits for towing vessels into, and out of the harbour for one half-penny and one penny per ton respectively, be as follows, viz.:—say a line drawn from St. Bee's Head to Mickleham Pit, on the Hill north of Parton, and two lines intersecting the above, from Redness Point and Tom Hurd Rock, bearing N.W. by N. and S.E. by S. by compass.

If the vessel first in turn be not afloat, or not ready for the Tug-Boat, then she is to take the first that is.

Vessels wanting the use of the Steam Tug, are to hoist the Union Jack on the Main Top Gallant Mast Head.

Harbour Boat Rates

A boat is stationed at the Old Quay Watch-House to attend on vessels entering the Port, and also to give assistance to those outward bound, charges are as follows, viz.:—

	s. d.
Vessels of 100 waggons and upwards	5 0
Vessels from 90 to 100	4 0
Vessels from 50 to 90	3 6
Vessels from 30 to 50	3 0
Vessels from 20 to 30	2 6
Vessels from 15 to 20	2 0
All vessels less than 15	1 6
FOREIGN LADEN VESSELS,	
Under 120 tons	5 0
Above 120 tons	7 6

The Harbour Boat to be paid as above by all vessels entering the port; but if not employed by those leaving it, no charge to be demanded.

Rates for the Gridiron

Every vessel, previous to going on, must be entered at the Harbour Office, and payment made according to the established rates, for which she may remain on four tides, counting the tide going on and the tide coming off.

	On Entry s d	Every Tide above four s d
Vessels not exc. 100 tons	5 0	1 0
Above 100 & not exc. 150	7 6	2 0
.. 150 200	10 0	2 6
.. 200 250	15 0	3 9
.. 250 300	20 0	5 0
.. 300	26 0	7 0

MISCELLANEOUS INFORMATION.

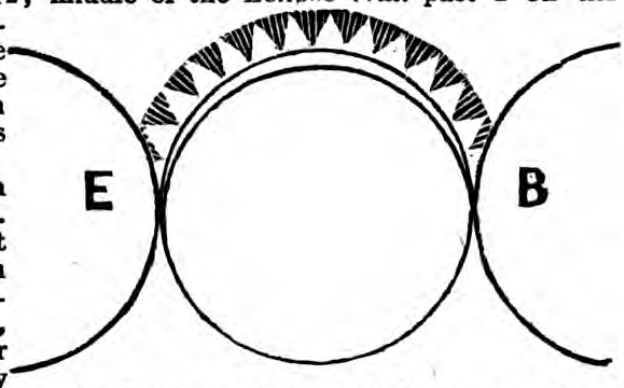
Eclipses, 1860.

There will be four Eclipses in the year 1860; the Sun twice, and twice the Moon.

First—An annual Eclipse of the Sun on the 22nd of January, beginning at 54m. past 9 in the evening, and ending at 3 in the morning, Greenwich mean time. The annular Eclipse will appear only in the Southern Ocean. A partial Eclipse will be visible in part of New Zealand, and at Cape Horn. Invisible here.

Second—A partial Eclipse of the Moon on the 6th February. The contact with the penumbral cone of the Earth's shadow will take place at 42m. past 11 at night; contact with the dark shadow 44m. past 12; middle of the Eclipse 11m. past 2 on the morning of the 7th, when about four-fifths of the Moon's diameter will be in the shadow; last contact with the shadow 38m. past 3; last contact with the penumbra 39m. past 4, Douglas time.

Third—A total Eclipse of the Sun on the 18th of July, beginning at 54m. past 11 in the morning, and ending at 57m. past 4 in the evening, Greenwich mean time. The annexed figure represents the Eclipse at the beginning, middle, and end, as calculated for Douglas. In this kingdom it will only be a partial Eclipse; the following is the result of calculations made for the places mentioned, and for local time, viz.:—



	BEGINNING.	MIDDLE.	ENDING.	MAGNITUDE.
Greenwich	1h. 38m., after.	2h. 48m., after.	3h. 53m., after.	0.830
Liverpool	1h. 20m., ,,	2h. 30m., ,,	3h. 36m., ,,	0·830
Whitehaven	1h. 15m., ,,	2h. 25m., ,,	3h. 31m., ,,	0·829
Edinburgh	1h. 16m., ,,	2h. 25m., ,,	3h. 30m., ,,	0·788
Dublin	1h. 2m., ,,	2h. 14m., ,,	3h. 21m., ,,	0·866
Douglas	1h. 11m., ,,	2h. 21m., ,,	3h. 27m., ,,	0·832

Fourth—A partial Eclipse of the Moon on the 1st of August, invisible here, the Moon being below the horizon. The first contact with the Earth's shadow will take place at 8m. past 4 in the evening; last contact at 41m. past 6, Greenwich mean time.

Quarters of the Year.

Spring Quarter commences on the	20th March,	at 8h. 47m. morning—	☉ enters ♈.
Summer Quarter ,,	21st June,	at 5h. 25m. morning—	☉ enters ♋.
Autumnal Quarter ,,	22nd September,	at 7h. 34m. evening —	☉ enters ♎.
Winter Quarter ,,	21st December,	at 1h. 33m. aftern. —	☉ enters ♑.

Chronological Notes

Lunar Cycle or Golden Number	18	Septuagesima Sunday	February 5
Epact	7	Lent begins	February 22
Solar Cycle	21	Easter Day	April 8
Dominical Letter	A G	Ascension Day	May 17
Roman Indiction	3	Trinity Sunday	June 3
Julian Period	6573	Advent Sunday	December 2

The Revolutions, Distances, &c., of the Planets

Names.	Periodical Revolution.	Mean distance from Sun.	Diameter.	Time of Rotation upon their Axis.	Inclination of Axis to Ecliptic.	Hourly motion in their Orbits.
	Yrs d h m s	English miles.	Eng.miles	d h m s	° ′ ″	Miles.
Sun	.....	.....	887,076	25 7 48 0	.....	.....
Mercury	0 87 23 15 44	36,890,000	2,950	1 0 5 28	.....	111,256
Venus	0 224 16 49 8	68,770,000	7,900	0 23 21 8	.....	81,398
Earth	1 0 5 48 48	95,298,260	7,912	0 23 56 4	23 28 0	75,222
Moon	0 27 7 43 5	95,268,260	2,160	27 7 43 5	1 43 0	2,335
Mars	1 321 22 18 27	145,205,000	4,500	1 0 37 20	28 42 0	56,121
Jupiter	11 315 14 39 2	495,917,000	88,780	0 9 55 21	3 22 0	30,358
Saturn	29 164 7 21 50	909,026,000	77,230	0 10 16 1	30 0 0	22,351
Uranus	83 294 8 39 0	1,828,071,000	35,000	.....	.....	15,846

Isle of Man Fairs

JANUARY.—5. St. Mark's, Malew.
FEBRUARY.—2. Greeba—12. Kirk Bride.—27. Baldwin.
MARCH.—17. St. John's.—25. Ramsey. 28. Peel.
APRIL.—5. Jurby.
MAY.—1. St. John's.—3 Sulby Claddagh.—10. Laxey.—12. St. Mark's.—15 Ballaugh.—26. Kirk Santon.
JUNE.—4. Sulby.—16, Kirk Michael.
JULY.—5. St. John's.—23. Sulby.
AUGUST.—5. Laxey.—12. Ballasalla.—26. Ballaugh.
SEPTEMBER.—29. Ballasalla.
OCTOBER.—10. Michael.—28. Arbory.
NOVEMBER.—1. St. John's.—8. Ramsey.—12. Douglas.—18. St. John's.
DECEMBER.—6. Colby, Kirk Arbory.—11. Kirk Andreas.
Those falling on Sunday, to be held on the following day.

Cumberland— Abbey-Holme, Tuesday before Whitsunday, Oct. 29.—Alston Moor, last Thursday in May, Friday before 27th Sep., 1st Thur. in Nov.—Arclecdon Ap. 24, 1st Fri. in June, 17th Sep.—Bootle, April 5, 26, Aug. 3, Sept. 24.—Brampton, April 22, 2nd Wed. after Whit. 2nd Wed. after 15th Sep.—Carlisle, Sat. next Whit., Aug. 26, Sept. 19, Sat. nearest 11th Nov.—Cockermouth, Feb. 18, Mon. before Easter, 1st & 3rd Wed. in May, Oct. 10.—Egremont, Feb. 18, 3rd Fri. in May, Sept. 18.—Ennerdale, 2nd Tues. in Sep.—Eskdale, 2d Mon. in Sep. Garrigill, 3rd Fri. in May, 1st Fri. in Sep.—Gosforth, April 25, Oct. 18.—Hesket Newmarket, every alternate Fri. from May till Whit., last Thur. in Aug., 2nd Thur. in Oct.—Ireby, Feb. 21, Oct. 18.—Keswick, 3rd Thur. after 1st May, Oct. 11, Sat. after 29th Oct.—Kirkoswald Thur. before Whit. Sun., Aug. 5.—Longtown, Thur. before Whit. Sun., Thur. before Sep. 30.—Nether Wasdale, 1st Mon. in Sep.—Newlands, 1st Fri. in Sep.—Penrith, March 1, April 24, 25, 3rd Tues. in Oct., Tues. after Nov. 11.—Ravenglass, May 6, June 8, Aug. 5.—Rosley Hill, Whit. Mon., and every alter. Mon. till Michael.—Skinburnness, June 24.—Threldkeld, 1st Thur. in Sep.—Uldale, Aug. 22.—Ulpha, Mon. before Easter, July 5.—Whitehaven, Aug. 12.—Wigton, Feb. 20, April 5.—Workington, Wed. before Holy Thursday, Oct. 18.

Cheshire—Altringham, Ap. 29, Aug. 5, Nov. 22.—Budworth, Feb. 13, Ap. 5, Oc. 2.—Congletown, May 12. July 5, Nov 22. Chester, Feb. 23, April 27, July 5, Oct. 2, Nov. 24.—Knutsford, Whit. Tues. July 10, Novem. 8.—Macclesfield, May 6, June 22, July 11, Oct. 4, Nov. 11.—Malpas, Ap. 5, July 25, Dec. 8.—Middlewich, Holy Th., Aug. 6.—Nantwich, Feb. 4, Mar. 15, Sept. 4, Dec. 11.—Northwich, August 2, Dec. 6.—Over, May 16, Sept. 25.—Sandbach, East. Tues., Tues. after Sept. 10.—Stockport, March 4, 25, May 1, Oct 23.—Tarporley, May 1, last Monday in Aug., Dec 11.—Winsford, May 8, Nov. 25.

Lancashire—Blackburn, Easter-Mon., May 12, Oct. 17, every fortnight on Wed. from Feb. till Oc.—Bolton-le-moors 1st Mon. after Jan. 5, and every Mon. fortnight till May 12; July 30, 31, Oct. 13, 14—Burnley, March 6, East. Eve, May 6, 13 July 10, Oct. 11.—Broughton-in-F., Aug 1.—Bury, March 5, May 3, 2d Thursday aft. Whit S., Sept. 18.—Cartmell, Mar. 22 Whit Mon, Oct. 24, Nov. 5.—Chorley Mar 26, May 5, Aug. 20.—Clithero, March 24 25, Aug. 1, 2, the 5th Thurs. and Fri. after St. Michael's Day.—Conistone, 3d Sat. in Sept.—Darwen, Holy Thurs., 1st Thurs in Oc.—Dalton, Ap 28, June 6, Oc. 23.—Gt Harwood, March 3, Aug. 21.—Haslingden May 8, July, 1, Oct. 10.—Hawkshead Mon before Holy Thurs., Whit. Mon. Oct. 2.—Inglewhile, Oct. 5.—Kirkham, June 24.—Lancaster, May 1, July 5, Aug. 11, Oc. 10 Liverpool, July 25, Nov. 11; Horse fair every alternate Wednesday.—Longridge May 13, Nov. 6.—Manchester, Whit Mon Oct. 1, Nov. 6.—Middleton, Thursday aft March 11, Thurs. after April 15, 2d Thurs after Sep. 29.—Newburgh, June 21.—Newbury, June 21.—Newchurch, April 29, Sep 30.—Newton, May 17, July 15, and every Mon. fortnight, Aug. 12.—Oldham, May—Ormskirk, Whit Mon., Sep 8.—Poulton Feb. 6. April 13, Nov. 3.—Prescot, June 12, Aug. 24, 25, Nov. 1.—Preston, 1st. Satur. after Jan. 6, March 27, Aug. 25, lasts 10 days. Nov. 7.—Rufford, May 19.—Radcliff Bridge, April 29, 30, Sept. 28, 2.—Rochdale, May 14, Whit Tues, Nov. 7.—Ulverstone, March 22, Oct. 27.—Warrington, July 18, Nov. 30, each lasts 10 days; every Wed. fortnight.—Wigan, Holy Thursday, June 27, Oct. 28.

Irish Fairs—Antrim

Ahoghill, June 4, Aug. 26, Dec. 5. Antrim, Jan. 1, May 12, Aug. 1, Nov. 12. Armoy, Jan. 25, Feb. 25, Mar. 29, May 25, Aug, 16, Nov. 12, Dec. 25. Ballinagobog, July 26. Ballinderry, second Monday in Feb. May, Aug. and Nov. Ballintoy, June 3, Sept. 4, Oct. 14. Ballacarry, 2nd Mon. in Jan., 3rd Mon. in April, August, and Nov. Ballycastle, Easter Tues., last Tues. in May, Aug., Oct. and Nov., July 26. Ballyclare, last Tues. in Jan., 2nd Tues. in May, July and Nov. *o. s.* Ballymena, July 26, Oct. 21. Ballamoney, May 5, July 10, Oct. 6. Ballanabernice, 1st Tues. after 12th Jan. and Feb. Ballynure, May 15, Sept. 4, 2nd Tues. in Oct. *o. s.* Belfast, 1st Wed. in each month, Aug. 12. Nov. 8. Broughshane, June 17, Sept. 1. Bushsmills, March 28, June 28, Aug. 24, Oct 21, Dec 12. Cairnlough, Feb. 10, East.

Mon., June 12, Aug. 10, Oct. 12, Dec. 12. Carnmoney, 1st Tues. May and Nov. *o.s.* Carrickfergus, May 12, Nov. 1. Clough, May 5, July 5, Sep 5, Nov 22, Frid. before Christmas. Connor, Feb 1, May 1, Aug 2. Craigbilly, June 26, Aug. 21. Crumlin 1st Mon. in month. Cushendall, Feb 14, Mar 17, May 14, June 29, Aug 14, Sept 29, Nov 14, Dec 22. Cushendun, first Wednesday of Feb., April, June, Aug., Oct., and Dec. Dervock, Jan. 12, Feb. 23, May 16, June 22, Aug. 12, Oct. 27. Drimbar, May 21, Drumadoon, June 9, Nov. 26. Dunloy, 15th Feb, May, Aug, and Nov. Dunluce, Nov. 12. Giant's Causeway, Aug. 13.—Glenarm, Jan. 26, May 26, Aug. 30, Oct. 29. Glenavy, 3rd Mon. Feb. May, Aug. & Nov. Kells, Jan. 8, March 1, June 10, Sept. 12. Larne, July 31, Dec. 1. Lisburn, July 21, Oct. 5. Loughgill, 19th of Feb., June, Aug. and Nov. Mosside, Feb. 13, May 21, Nov. 21. Mounthill, July 1, Oct. 1. Newtoncrumlin, Feb 5, May 11, Aug. 9, Nov. 5. Oldstone, June 13, Oct. 22. Parkgate, Feb. 7, May 7, second Monday in June, Aug. 7, Nov. 4. Portglenone, 1st Tues. in each month and 2nd Tues. in May, *o. s.* Randalstown, July 16, Nov. 1. Rasharkan, Nov. 16. Roughfort, 3rd Tues. in May and Nov., *o. s.* Straid, Sep. 4, Oct. 32. Stranocum, Feb. 10, March 16, April 20, June 16, July 14, Aug 8, Sep 28, Nov 6, Dec 29. Tallaght, July 7, Nov 9. Templepatrick, May 11, July 10, last Tues. in Oct. Toome, Easter Monday, Dec. 4. Tullamore, Nov. 17.

Down

Annadoyne, May 14, Nov. 8. Ardmillan 1st of Jan, April, July, Oct. Balloo, first Wednesday in Jan, April, July, & October Ballynahinch, 3rd Thurs. in each month. Ballywalter, June 22, Nov 8 Banbridge, Jan 12, 1st Monday in Feb, March, April, May, July, Sept, October, November and Dec., June 9, Aug. 26. Bangor, Jan. 12, May 1, Aug. 1, Nov. 22. Carrodore, 7th of Feb, May, Aug and Nov. Castlereagh, July 5, Oct. 26, Nov. 20, Castlewellan, 2nd Mon. in Jan, Mar, April, July, Aug, Oct; 1st Feb, May, June, Sep; Nov 13, and Tuesday before Christmas, Clough, May 27, July 5, Nov 22, 3rd Friday in October, and Friday before Christmas. Comber, Jan. 5, April 5, June 28, Oct 19. Crossgar, second Wed. in each month. Donaghadee, last Wednes. in May, *o. s.*, Aug. 16, Oct. 10, last Wednesday in Nov. *o. s.* Donaghmore, 22d of June and Oct. Downpatrick, 1st Sat. in each month. Dromara, 1st Friday in Feb, May Aug, & Nov, and 1st Friday after 15th March, June, Sep and Nov. Dromore, 1st Sat. in March and Aug, May 12, Oct 10, and Sat. but one before Christmas. Dundrum, Jan 5, Thurs. before Candlemas day, *o. s.*, May 12, Thursday before Aug 12, Oct 10, Dec 10. Gilford, 2nd Tues. each month, and 21st of June and Nov. Greencastle, 12th of Jan and Aug. Greyabbey, March 28, June 22, Oct 29, Dec 4. Hillsborough, 3rd Wed. in each month. Hilltown, 2nd Tuesday in each month. Hollywood, 1st Monday in Feb, May, Aug and November. Kilkeel, 1st Wed. in each month. Killileagh, April 10. June 3 and 15, October 11, Dec 11. Killinchy, 1st Wednesday in Feb, May, Aug and Nov. Killough, Feb 15, June 5, Aug 15, Nov 15. Kilmore, Feb 4, March 14, May 1, June 3, Aug 5, Sep 29, Nov 5, Dec 16. Kircubbin, 1st Monday in each Month, and 28th of April, May, Aug and Nov. Loughbrickland, Nov. 12, and 3rd Tues. of remaining months.

Dublin

Ballbriggin. 29th of April and September. Carrickmines, Dec 6, April 14, June 24, Oct. 14. Donnybrook, Aug. 26. Fieldstown, Wit Monday. Garristown, May 15, Aug 15, Nov 1. Kilsallaghan, Ascension day, Sep 8. Lusk, Easter Monday, May 4, June 24, July 13, Nov 25. Naul, March 16, April 26, May 21, Sep 8, Oct 2. Palmerstown, August 21. Rathfarnham, July 10. Rush, May 1, Sep 29. Saggard, June 15, Oct 10, Nov 8, Skerries, April 28. Aug 10. St. Margarets, July 30 and 31. Swords, March 17, May 9.

Fish Table

The following Table shows the months in which the undermentioned Fish is IN or OUT of Season.

KINDS OF FISH.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
Brit	in	in	in	in	in	in	in	in	o	o	in	in
Bret	in	in	in	in	in	o	o	o	o	in	in	in
Cod	in	in	in	in	in	in	o	o	o	in	in	in
Cole Fish	in	in	in	in	in	in	o	o	o	in	in	in
Cockles	in	in	in	in	o	o	o	o	in	in	in	in
Crabs	in	in	in	in	in	in	in	o	o	in	in	in
Dabs	in	in	in	in	in	in	in	o	o	o	o	
Flounders	o	in	in	in	in	in	in	in	in	o	o	o
Haddock	in	in	o	o	o	o	o	o	o	in	in	in
Herrings	o	o	o	in	in	in	in	in	in	o	o	o
Lobsters	in	in	in	in	in	in	o	o	in	in	in	in
Ling	in	in	in	in	in	in	in	o	o	o	in	in
Mackerel	o	o	o	o	in	in	in	in	o	o	o	o
Oysters	in	in	in	in	o	o	o	o	in	in	in	in
Plaice	in	in	in	in	in	in	in	in	in	o	o	in
Salmon	in	in	in	in	in	in	in	in	o	o	in	in
Soles	o	o	o	in	in	in	in	in	in	o	o	o
Shrimps	in	in	in	in	in	o	o	o	in	in	o	in
Sprats	in	in	o	o	o	o	o	o	o	o	o	in
Skate	in	in	in	in	in	in	in	o	o	o	in	in
Turbot	o	o	in	in	in	in	in	in	o	o	o	o
Whiting	in	in	in	o	o	o	o	o	o	in	in	in
Cong. Eel	o	o	in	in	in	in	in	in	in	in	o	o

Royal Family of England

Queen VICTORIA I. born 24 May, 1819
Prince Albert . . . . August 26, 1819
Princess Royal . . . November 21, 1840
Prince of Wales ..... November 9, 1841
Princess AliceMaude Mary, April 25, 1843
Prince Alfred Ernest Albert, Aug. 6, 1844
Princess Helena Augusta V. May 25, 1846
Princess Louisa Caroline A. March 18, 1848
Prince Arthur Wm. Patrick, May 1, 1850
Prince Leopold Geo. Albert, April 7, 1853
Princess Beatrice Mary.. . April 14, 1857
Geo. Fred. King of Hanover, May 27, 1819
Duke of Cambridge ..... March 26, 1819
Duchess of Mecklenburgh, July 19, 1822
Princess Mary of Cambridge, Nov. 27, 1833
Victoria, Duchess of Kent.. Aug. 17, 1786
Duchess of Cambridge..... July 25, 1797

Sovereigns of Europe

KINGDOMS.	TO WHOM SUBJECT.	WHEN BORN.	BEGAN REIGN
England, &c.	Victoria I. ..	1819	1837
France.....	Napoleon III	1808	1852
Russia.. ...	Alexander II.	1818	1855
Spain	Isabella II...	1830	1833
Portugal	Don Pedro V	1837	1855
Prussia.....	Fred. W. IV ..	1795	1840
Netherlands	William III	1817	1849
Denmark . .	FrederickVII	1808	1848
Sweden.....	Oscar II	1799	1844
Austria	Franc.Joseph	1830	1848
Belgium	Leopold . .	1790	1831
Popedom ...	Pius IX ...	1792	1846
Greece.....	Otho I	1815	1833
Naples	Ferdinand II.	1810	1830
Ottoman Em.	Abdul Medjid	1823	1839
Hanover	George V. ..	1819	1851

Her Majesty's Ministers.

THE CABINET.

First Lord of the Treasury..... Viscount Palmerston.
Lord High Chancellor..... Lord Campbell.
Chancellor of the Exchequer ..... Right Hon. W. E. Gladstone.
Lord President of the Council ..... Earl Granville, K.G.
Lord Privy Seal..... Duke of Argyle, K.T.
Home Secretary ..... Sir G. Cornewall Lewis.
Foreign Secretary.. ..... Lord John Russell.
Colonial Secretary ..... Duke of Newcastle.
War Secretary ..... Right Hon. Sydney Herbert.
Indian Secretary ..... Sir C. Wood, Bart.
First Lord of the Admiralty ..... Duke of Somerset.
Chief Commissioner of Works ..... Mr. Fitzroy.
Postmaster General..... Earl of Elgin, K.T.
President of the Board of Trade ..... Right Hon. Milner Gibson.
Secretary for Ireland ..... Mr. Cardwell.
Chancellor of the Duchy of Lancaster ..... Sir George Grey.

NOT IN THE CABINET.

Lord-Lieutenant of Ireland ..... Earl of Carlisle.
Attorney-General ..... Sir R. Bethell.
Solicitor-General ..... Sir H. Keating.
President of the Poor-law Board..... Mr. C. P. Villiers.
Attorney-General for Ireland ..... Mr. J. D. Fitzgerald.
Solicitor-General for Ireland..... Mr. Sergeant Deasy.
Secretaries of the Treasury ..... Mr. F. Peel. / Mr. Brand.
Secretary to the Admiralty ..... Lord Clarence Paget.
Civil Lord of the Admiralty ..... Mr. Whitebread.
Judge Advocate-General ..... Mr. T. C. Headlow.
Secretary to the Poor-law Board.. ..... Mr. Gilpin.
Vice-President of the Privy Council for Education ... Mr. Lowe.
Under Secretaries of State :—
Home..... ..... Mr. G. Clive.
War ..... Lord Ripon.
Foreign..... Lord Wodehouse.
Colonial..... Mr. C. Fortescue.
India..... Mr. Thomas Baring.
Lords of the Treasury ..... Mr. Huggessen. / Mr. Cogan. / Mr. Ellice, junr.

THE ROYAL HOUSEHOLD.

Lord Steward..... Lord St. Germans.
Master of the Horse..... Marquis of Aylesbury.
Master of the Buckhounds..... Earl of Bessborough.
Mistress of the Robes ..... Duchess of Sutherland.

Descriptive List of Principal Lights—Scotch Coast

Name of Light.	Situation.	No. Light	Appearance.	distance visible	Points of Compass within which visible.	North latitude		West longitu.	
INCHKEITH	Summit of Island, Fifeshire	One	Revolving once every minute	—21—	All round the Compass	56°	2′	3°	8′
ISLE OF MAY	Isle of May, in Fifeshire	Two	Fixed. Bear from each other N.N.E. ¼ E. & S.S.W. ¼ W., 250 yds.	22&16	All round Compass. The low light only towards the Carr	56	11	2	33
BELL ROCK	A sunk reef, 11¾ miles S. by E. ¾E. off Arbroath, Forfarshire	One	Revolving, shewing alternately a bright & red light every 2 min.	—15—	All round the Compass	56	26	2	23
GIRDLENESS	Girdleness, Kincardineshire.	Two	Fixed Lights, one above the other	20&16	NNE to WSW½W. by E'ward	57	8	2	3
BUCHANNESS	Buchanness, Aberdeenshire.	One	Flashing once every 5 seconds	—16—	N.b E. to SW.b W. by E'ward	57	28	1	46
KINNAIRDHEAD	Kinnairdhead, Aberdeenshire	One	Fixed	—15—	WNW. to SSE¾E. N'ly & E'ly	57	42	2	1
TARBETNESS	Tarbetness, Cromartyshire	One	Visible 2½ min., then eclipsed ½ a min. To W. of the Ness Fixed	—20—	All round the Compass	57	51	3	48
DUNNETHEAD	On the Head, Caithnesshire.	One	Fixed	—23—	From SE½E to W. by N'ward	58	40	3	22
PENTLAND SKERRIES	On the Island	Two	Fixed N.N.E. & S.S.W., 99 feet	18 &16	All round the Compass	58	41	2	55
START POINT	East point of Sanda Island	One	Fixed	—15—	All round the Compass	59	17	2	22
SUMBURGHHEAD	On S.W. point of Shetlands.	One	Fixed	—21—	NEby E¼E to NW by N¼N by S	59	51	1	16
NORTH RONALDSHA	On North point	One	Flashing once every 10 seconds.	—18—	All round the Compass	59	23	2	24
CAPE WRATH	On the Cape, N.W, point of Scotland	One	Revolving, shewing alternately a bright & red light every 2 min.	—27—	From S. ½ E. to S.W. by W. Northerly	58	37	5	0
ISLAND GLASS	NE. point of Island, Harris Isle	One	Fixed	—17—	W. by S. to E.N.E, ½E. by S.	57	52	6	33
BARRAHEAD	Highest land on Bernera Isle, Southern point of Hebredies	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—33—	From N. by E. to E. N. E. Westerly and Southerly.	56	48	7	38
ARDNAMURCHAN	Ardnamurchan Point, Argyleshire	One	Fixed	—18—	From N.E. by E. ¾ E. to S. W. by S. N'ly and W'ly	56	44	6	13
LISMORE	Mousdale Island	One	Fixed, dark 2¾ point over land	—15—	From E. to N.E. by E.	56	27	5	36
SKERRYVORE	Rock, 12 miles W.S.W. from Tyree Island	One	Revolving every minute	—18—	All round the Compass	56	19	7	7
RHINS OF ISLAY	Oversay Island, off S.W. point of Islay, Argyleshire	One	Flashing once every 5 seconds; disappears ½ a mile off Cul point	—17—	From NNE. to SE. Westerly	55	41	6	29
MULL OF CANTYRE	South western headland of Argyleshire	One	Fixed	—22—	From NNE. ½E. to S by W. ¼ W. Westerly	55	19	5	49
SANDA ISLAND	Ship Rock.	One	Fixed, red light	—15—	NW½W to SE by E½E by S W'ly	54	16	5	35
DEVAR ISLAND	Eastern part	One	Revolves every ½ minute	—17—	N. ¼ W. to E. by S. by N,	55	26	5	32
PLADDA	Pladda Isle, off south east of Arran county of Bute	Two	Fixed, vertical, 25 feet apart	17 &14	From NW. by W. Southerly to N.E. by E.	55	26	5	7
CORSEWALL	W. side of entrance to Loch Ryan, in Wigtonshire	One	Revolving, shewing alternately a bright and red light every 2 min.	—15—	From N.E. by E. Northerly to S.W.	55	0	5	9
MULL OF GALLOWAY	Southern extremity of mainland of Scotland, Wigtonsh.	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—23—	From N.E. to N.W. ¼ W...	54	38	4	51

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
POINT OF AYR	A quarter of a mile S.W. of the Point	54 25	4 22	One	R	—15—	Shewing alternately a Bright and Red Light every 2 min. Visible from S. by W. to W. by N., N. E'ly.
Peel Harbour	East side of entrance	54 13	4 42	One	F	— 8—	
CALF OF MAN	West side of Calf Island	54 3	4 50	Two	R	24&22	Revolving every 2 min. When in one they lead [on the Chicken Rocks.
Port St. Mary	South side of entrance	54 4	4 44	One	F	— 9—	
Castletown Harbour	South side of entrance	54 5	4 39	One	F	— 8—	Red. To be kept on the port hand in entering.
Derbyhaven	Entrance of the Harbour	54 5	4 36	One	F	—11—	Only lighted during the Herring Fishery.
DOUGLAS	Douglas Head	54 9	4 28	One	F	—14—	Not visible from Langness Point, but with three miles offing it will be seen N.E.¼E.; and the Calf Light, at the same time, N.W. by W. ¼ W.
Douglas Harbour	North Pier-head	54 10	4 28	One	F	—10—	
Ramsey Harbour	South side of entrance	54 20	4 23	One	F	—10—	Red Light.
Bahama Bank Light Vessel	A third of a mile off the S.E. tail of the Shoal. Moored in 11 fathoms.	54 20	4 12	Two	F	—10—	A Gong is sounded during foggy weather. "Bahama Bank" is painted on her sides. King William Bank Buoy, E.N.E. eight miles.
Principal Lights—West Coast of England							
Lee Scar	On the Rocks	54 52	3 25	One	F	— 6—	On Piles. Base dries 6 feet at low water.
Solway Light Vessel	Robin Rigg Channel	54 48	3 32	One	F	— 6—	Red Light. Moored in 4½ fms. A Black Ball by day; tolls a Bell in foggy weather.
ST. BEES	St. Bees Head	54 31	3 38	One	F	—23—	
WALNEY.	S. Point of Walney Island	54 3	3 11	Two	1 R 1 F	—13—	Every minute. The Fixed Light is Red. N.W. by W. ¾ W. and S.E. by E. ¾ E. 340 yards.
River Wyre	N.E. elbow of N.Wharf Bank	53 57	3 2	One	F	—10—	On Piles. A Bell is tolled in foggy weather.
Fleetwood	High Light in the Town, Low Light on Esplanade	53 56	3 1	Two	F	13 & 9	N. & S. 850 feet. Shown while 9 feet water in the Channel.
River Ribble	On Stanner Point, N. side of entrance	53 45	3 1	Two	F	12 & 9	The Upper Light Bright: the Lower Red. The Lighthouse stands about 70 feet high, and bears by compass S.E. by E. ½ E. from Buoy Nelson, 7 miles.
FORMBY	On the Point	53 32	3 4	One	F	—12—	The Light from this tower has been discontinued.
Formby Light Vessel	In the New Channel	53 32	3 11	Two	F	— 8—	Painted Red; carries Red Ball. In 25 feet at low water. Crosby Lightship S. E. ½ S., 2¼ miles. N. W. Mark, E. by N. ¼ N., 3⅞ miles.
Crosby Light Vessel	N.E. elbow of great Burbo Bank	53 31	3 7	One	F	— 8—	Painted Red; carries Red Ball. In 44 feet at low water.

Principal Lights—West Coast of England, continued

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
Black Rock	Rock Point, West side of the entrance of the Mersey	53 27	3 3	One	R	—14—	Making a revolution every three minutes, showing two Bright Lights and one Red Light in due succession. A Bell is tolled during foggy weather.
Leasowe	On the shore, between the Mersey and the Dee Rivers	53 25	3 7	One	F	—15—	Yellow Light. Disappears when inward bound, bearing S. W ½ S.
BIDSTON	Bidston Hill	53 24	3 4	One	F	—23—	Obscured when inward bound, bearing S.b.W½ W.
Hoylake	Near Hoylake Church	53 24	3 11	Two	F	13&11	When in one, S. W. by S., you may haul up the Rock Channel.
Liverpool N.W. Light Ship	Off the Horse and Helbre Channels	53 27	3 17	Three	F	—10—	Moored in 7½ fathoms; exhibits a Black Ball during the day.
AIR	Air Point, at low water mark	53 22	3 19	One	F	—10—	On Piles. A Bell is sounded in foggy weather.
LYNUS	Point Lynus	53 25	4 17	One	Fl.	—16—	Flashing once every ten seconds.
SKERRIES	Highest Island	53 25	4 36	One	F	—15—	
STACK	South Stack Rock, off N.W. Point of Holyhead I...	53 18	4 42	One	R	—19—	Revolving every minute. During foggy weather a smaller Bright Light is occasionally shown, about 40 feet above the sea, and 30 yards North [of the main Lighthouse.
BARDSEY	Bardsey Island	52 45	4 48	One	F	—17—	
SOUTH BISHOP	South Bishop Rock	51 51	5 25	One	R	—17—	Revolving every twenty seconds.
SMALLS	Smalls Rock	51 43	5 40	One	F	—13—	Erected upon pillars, 40 feet high.
ST. ANN'S	St. Ann's Point, Milford Haven	51 41	5 10	Two	F	19&17	High Light N.by W.¼W., 609 feet, from Low Light. When in one they lead clear of the Crow and Toes Rocks.
CALDY	Caldy Island, Southern part	51 38	4 41	One	F	—19—	
MUMBLES	Mumbles Head	51 34	3 58	One	F	—15—	
NASH	Nash Point	51 24	3 33	Two	F	18&16	High Light, S. E.by E. ¼ E. and N. W. by W. ¼ W., 1000 feet from Low Light. The Lights in one lead a cable's length Southward of the Nash Sand.
USK	W. side of entrance of River	51 32	3 0	Two	F	—10—	Red. A Red Light is also shown up the river.
FLATHOLM	Flatholm Island, South point	51 23	3 7	One	F	—17—	
LUNDY	On the ridge of Lundy Island	51 10	4 40	Two	1 R 1 F	—30—	The Low Light (fixed) is only visible from the Westward, between N. N. W. and W. S. W. The Revolving Light flashes every two minutes. [one.
TREVOSE HEAD	On north-western part	50 33	5 1	Two	F	—19—	The Lower Light is 50 feet in advance of the high

Descriptive List of Principal Lights—South and East Coasts of Ireland

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather	Remarks.
FASTNET	Summit of Rock..	51 23	9 36	One	R	—18—	Attaining its greatest brilliancy every two min.
KINSALE	South Point of Old Head..	51 36	8 32	One	F	—21—	Red light is shown in a line to the Horse Rock in Courtmacsherry Bay, Bright to Seaward.
CORK HARBOUR or Queenstown	Roche Point, E. side of entrance ..	51 48	8 15	One	F	—14—	Red towards the sea. To the harbour Bright.
	East elbow of Spit Bank, in 9 feet..	51 51	8 16	One	F	— 8—	Red. From N.N.E.½E. to S.E. by E.½E. round by E.
BALLYCOTTIN ..	Outer Island, West side of Bay ..	51 49	7 59	One	Fl.	—18—	Every 10 secs. From E. ½ N. round S. to W. ½ N.
MINEHEAD	South side of Head	52 0	7 35	One	Int.	—21—	Bright 50 sec., obscured 10 sec. From E.N.E.½N. [to W. ¾ S.
HOOK TOWER	East side entrance Waterford.. ..	52 7	6 56	One	F	—16—	
SALTEE'S LIGHT VESSEL	Off Coningbeg Rock, the Southernmost of the Saltee Islands	52 2	6 40	Two	F	—10—	Carries a Ball. Moored in 32 fathoms During foggy weather a Gong is sounded.
TUSKAR	Tuskar Rock	52 12	6 12	One	Int.	—15—	Every two minutes. Two sides Bright, one Red. During foggy weather a Bell is tolled every half-minute. Red Light seen 10 miles. [weather.
ARKLOW LT.-VESSL.	S. end of Arklow Bank, in 22 fath.	52 42	6 0	One	F	—10—	Carries a Ball. A Gong is sounded in foggy
WICKLOW	Wicklow Head	52 58	6 0	Two	F	21 &16	The Lights bear from one another N.W. by W. ¾ W. and S.E, by E. ¾ E., 540 feet. When in one they lead between the India and Arklow Banks.
DUBLIN BAY. KISH LIGHT VESSEL . ..	Off N. Point of Kish Bank. Moored in 10 fathoms	53 19	5 56	Three	F	—10—	The Lights are triangular. Carries a Ball. A Gong is sounded during foggy weather.
Kingstown.. ..	Centre of East Pierhead of Kingston Harbour, ...	53 18	6 8	One	R	— 9—	Revolving every half-minute, shewing a Bright and Red light alternately, During foggy weather
	West Pierhead			One	F	— 2—	A small Red Light. [a Bell is tolled.
POOLBEG.. ..	End of S. Wall, at the entrance to the river Liffey..	53 20	6 9	Two	F	—12—	The Lower Light, which is much fainter than the Upper, is exhibited from half-flood to half-ebb. A Ball is hoisted, at the same period, during day-time.
	End of N. Wall, or N. Quay, Dublin	53 21	6 14	One	F	—10—	
BAILEY .. .	S.E. Point of Howth Peninsula ..	53 22	6 3	One	F	—15—	During foggy weather a Bell is tolled.
CARLINGFORD.. ..	Haulbowline Rock	54 1	6 5	Two	F	—15—	The Lower from half-flood to half-ebb. A ball is hoisted during the same period by day; and in foggy weather a Bell is tolled every half-minute.
DUNDRUM BAY ..	St. John's Point..	54 13	5 40	One	R	—12—	Every minute. 45 secs. bright,& 15 secs. obscured.
SOUTH ROCK	On the Rock	54 24	5 25	One	R	—12—	Every minute and a half.
COPELAND.. .. .	Small Copeland Island	54 42	5 32	One	F	—16—	

MARINERS' GUIDE

TO THE

Principal Ports and Harbours

IN THE

BRISTOL AND ST. GEORGE'S CHANNELS,

THE IRISH SEA,

AND THE NORTH CHANNEL;

CONTAINING A SERIES OF CLEAR AND CONCISE

SAILING DIRECTIONS

FOR THE

WEST COASTS OF ENGLAND, WALES, AND SCOTLAND, THE ISLE OF MAN,

AND THE

EAST, SOUTH-EAST, NORTH-EAST, AND NORTH-WEST COASTS OF IRELAND;

WITH

Tables of the Magnetic Bearings and Distances

OF DIFFERENT

HEADLANDS, HARBOURS, AND LIGHTS

ON THOSE COASTS.

*** The Bearings and Courses in these Directions are those by compass, and the Distances are nautical miles, of 60 to a degree.

MARINERS' GUIDE.

ISLE OF MAN.

The **ISLE OF MAN** lies in a N.E. by E. and S. W. by W. direction, and is about 30 miles in length and 11 in breadth. The Northernmost Point of Ayre is in lat. 54 deg. 27 min. N., and long. 4 deg. 20 min. W. The

Calf Island,

At the S.W., is in lat. 54 deg. 3 min. N. and lon. 4 deg. 50 min. W. On this Island are TWO Lighthouses, 187 yards distant from each other, bearing N.E. ½ E. and S. W. ½ W. The *higher* Light bears from the dangerous sunken rocks called the *Chickens* N.E. ½ E., distant about a mile and a quarter: when the Lights are in one they lead on the Chickens. These Lights are DOUBLY revolving, without color, making their revolution in 2 minutes, and becoming gradually fainter during that time, until, at a distance, they appear totally obscured. At their brightest period they may be seen seven leagues off, resembling a planet. Between the Chickens and Calf is a passage about a mile broad, through which the tide sets from the W. round the Calf Point *very strong* outside of the EYE Rock, and also through the passage between the Island and S.W. Point of Man. There has been erected in the Sound of the Calf, on the "Thusla Rock," a Large Oblong Beacon. 2½ miles to the east is PORT ST. MARY, where there is good anchorage behind the Pier, which has been lately very much improved, but a dangerous rock called Carrick, lies about ¾ of a mile S.S.E.½E. from the Village. This harbour has about 9 or 10 feet water at neap tides, and 14, 15, 18, &c. at spring tides. In running for it, keep Scarlet Head to the S. of Castletown, a good sail's breadth open, to avoid the Carrick Rock. On entering, take the quay as close as circumstances will admit. A LIGHT is exhibited throughout the year, on the larboard hand on entering the harbour. Five miles E. from the Chickens and 2¼ from Port St. Mary, is Scarlet Head, the westernmost point of

Castletown Bay.

The bottom towards the entrance Is generally rocky, and there are three shoals or rocks dry at low water, the largest of which, Lheeahrio, is a quarter of a mile long and 500 feet wide, and is marked on the east end by a large Black Buoy. A RED stationary light, to be kept on the larboard hand on entering, is erected on the new pierhead, which lies 80 yards outside the old pierhead, in a S.S.E. direction therefrom. The Buoy on Lheeahrio Rock is placed in five fathoms at low water, having Langness Point, by compass bearing S. ¾ E., and the lighthouse on the pierhead, N. ¾ E. On entering the Bay, be careful to leave the Buoy on the *larboard* hand, and in working into the Bay from the Westward, you must not bring the Buoy to the Southward of E.S.E.; nor open Spanish Head to the Northward of the Stack of Scarlet until Eastward of the Buoy, or until the lighthouse on the pierhead bears N. ½ E., then steer for the harbour. The anchorage is sheltered from N.W. round by N. to S.S.E., the marks for which are, Spanish Head just open to the Southward of the Stack of Scarlet; the Steeple of Castletown Chapel in line with the Eastern part of a Gap in the Mountain bearing N. by W., and King William's College N.E. by N., where there are 9 fathoms at low water, spring tides, and safe anchorage.

Langness Point,

An isthmus running out from the mainland, 2 miles to the S.W., has a turret on the point to identify its situation. There are SUNKEN rocks all about it, and the tide sets like a race upon the Point from the Chickens, at the rate (spring tides) of 6 miles an hour, and runs E.N.E. from 2 to 5 or 6 miles from the land, diminishing in strength to Maughold Head. To avoid the inset between the Chickens and Langness Point, it is advisable for strangers on no account to come within 3 or 4 miles of the land. On the E. side is

Derbyhaven,

Affording anchorage for large merchant ships, and sheltered from all winds except E. to S.E. The best ANCHORAGE is on the N. side of St. Michael's Island, in 3 or 4 fathoms, the castle (or fort) on it bearing S.E. by S. Small vessels may run further up. There is a LIGHT at the entrance of the harbour which is lighted only during the herring fishing season. The stream, or rather eddy, along the E. side of Langness runs 10 hours S., from 2 hours of flood to the last of ebb on the shore. About 3 miles to the E. of Derbyhaven is St. Ann's Head, from which to

Douglas Head,

E. is about 2 miles, upon which a LIGHTHOUSE has been erected, the light from which is STATIONARY, and appears like a star of the first magnitude at the distance

of 14 miles. The Bearings of the light are as follows:—From CLAY HEAD, W. by S. ¼ S., 4 miles; from LANGNESS POINT, E. by N., 7½ miles. The light will not be visible from Langness Point; but with an offing of 3 miles from that Point, the light will be seen bearing N.E. ¼ E., and the Calf Lights at the same time bearing N. W. by W. ¼ W. Vessels running for Douglas, between E. by N. ½ N. to W. by S. ½ S., will see the light at 5 miles' distance. Blowing fresh from the W. and bound for the bay, a vessel should keep pretty close to Douglas Head, or she will be thrown to leeward of St. Mary's Rock, by the strong and variable gusts off the high land to the S.W., where she will be exposed and in bad anchorage. On this rock a TOWER has been erected, the appearance of which in the night is like a square-rigged sloop under sail. Anchor in the bay between St. Mary's and the S. shore, 3 or 4 cables East of the pierhead, where there is a LIGHT exhibited throughout the year, to shew ships into the Harbour; to enter which keep close to the pierhead. Four miles E.N.E. from Douglas Head is

Clay Head,

Round which is Laxey Bay, where there is good anchorage in 6 fathoms depth. From Clay Head to Maughold Head the course is N.E. ½ E. 7 miles, and round the latter to

Ramsey,

N.W. N'ly. 2½ miles. To the E.S.E. of the town is Port Lewague. There is excellent anchorage and shelter from 1 to 1½ miles opposite the town, as the bottom is good stiff clay; but there is generally a heavy sea and hard riding in it with winds from S. to E.N.E., to all of which it is open. The harbour will admit vessels drawing 17 or 18 feet water at spring tides, and 11 or 12 feet at neap tides. There is a lighthouse on the quay, and the light, which is stationary and of a RED colour, is exhibited throughout the year. In the bay the stream runs nine hours N. and three hours S., beginning at 2 hours' flood. There are three banks off this bay that deserve notice. The BAHAMA BANK, or RIG, bears N.E. 2 leagues from Ramsey town, and is about 6 miles in length from S.S.E. to N.N.W., with only 6 feet depth of water at the S. end, differing in other parts from 9 to 12 feet, and is rather more than ½ a mile broad. The BAHAMA FLOATING LIGHT, exhibiting TWO BRIGHT FIXED lights, is moored a third of a mile off the S.E. tail of the shoal, in eleven fathoms, low water, spring tides, and with the following compass bearings:—King William's Bank Buoy, E.N.E. eight miles; Point of Ayre lighthouse, N. by W. ¾ W.; Maughold Head, W. by S.; Clay Head, S. W. by W. ¼ W. WHITESTONES BANK, so called from its composition, lies S.S.E. 1½ miles from the extreme Point of Ayre, with a good passage between them; it bears N.N.E. from Maughold Head, and is ½ a mile in length N. and S. and a ¼ in breadth E. and W., with 6 feet at low water spring tides. POINT OF AYRE BANK is a ridge extending ½ a mile from the Point to the distance of 1 mile E., and thence circularly to the S. and E., always with a considerable ripple, nearly in a line with the BAHAMA BANK. KING WILLIAM'S BANK is 8 miles in length from S.E. to N.W., and ½ a mile broad: the N. W. end is E. 6½ miles from the Point of Ayre, and N.E. 11 miles from Maughold Head, from which the S.E. end bears E. N.E. ½ E. 13½ miles, and from the Point of Ayre. E. S.E. 12 miles distant. The least depth of water on it is 18 feet. The

Point of Ayre Lighthouse

Bears N.N.E. ½ E. from Maughold Head, distant 8 miles, and the lantern is 106 feet above the sea. It is REVOLVING, showing alternately a BRIGHT and RED coloured light, becoming from a star-like appearance gradually stronger, until the attainment of the utmost brilliancy every TWO MINUTES. The light of the common colour is to be seen 4 or 5 leagues off; but the RED one is not distinct at so great a distance. Maughold Head prevents the light being seen by a navigator S. of it, as does Rue Point when he is W. of it. N. by W. ½ W. 1½ miles from the Point of Ayre is STRUNAKILI BANK, bearing from Jurby Point E. by N. 5 miles; it is 1½ miles long E.S.E. and W.N.W., and nearly ½ a mile broad. There are 3 fathoms on the shoalest end, but the sea breaks and the tide sets strong upon it; keeping WITHIN 1¼ miles of the land will clear the whole.—From the Point of Ayre to Jurby is 7 miles to the W., and hence to the Peel Light, S.W. ½ W. 11 miles; 4 miles from Jurby W. ½ N. and about 3 miles from the land abreast, is a BLIND ROCK, and from

Peel Light,

N.E. by E., 9 miles. This light is stationary, is exhibited throughout the night, and is visible at a distance of eight miles in clear weather. Between Jurby and Peel, off Ballabui, lies a shoal 1½ miles from the land, and 3½ miles N.E. ½ E. from the light. A vessel may ride in the bay with the Castle bearing from S.S.W. to S.W. in 6 or 7 fathoms' depth of water. On entering the Harbour, keep the point of the Jetty close on board on the starboard hand and run in, keeping the light on the pierhead on the larboard hand. The Mull of Galloway light adds considerably to the importance of this Harbour, being visible from the Castle, and only distant N. by E. 26 miles. The Peel Light

is about 300 yards S.S.W. from the N.E. point of the Castle. The streams of flood that come to the E. from along the S. coast, and along the N. coast of Ireland, meet about a mile W. of Contrary Head, so called from this circumstance, and there divide into two branches, one of which runs N.E. to the Point of Ayre, and on to Maughold Head, the other S.W. to the Calf; one proceeding round the Calf at 6, the other round the Point of Ayre at 4 miles an hour, meeting off Maughold Head. From Contrary Head to abreast the Calf Lights the course is S.W. 10 miles; and 4½ miles from the W. end of that Isle is

Port Iron,

a good little Harbour, easy of access, and affording shelter against all E. winds. At the entrance of the bay, between the headlands, there is a depth of about 15 fathoms water; here the tide runs very strong at the rate of 6 miles an hour. In the Sound of the Calf the stream runs W. 2 hours before high water on the shore, and continues 6, i.e., two hours before it ebbs on shore. Keep the Calf Lights well open when passing Langness Point.

TIDES.—On the full and change days, it is high water on the shore at Peel at 10h. 48m.; in the Calf Sound, 10h. 57m.; at Douglas, 10h. 48m.; at Ramsey, 10h.; and at the Point of Ayre, 10h. In the Isle of Man, spring tides rise 18 or 20 feet perpendicular; neap tides 9 or 10.

Magnetic Bearings & Distances,

FROM THE HEADLANDS OR HARBOURS IN THIS ISLAND, TO OTHER HEADLANDS OR HARBOURS IN THE CHANNEL.

FROM DOUGLAS HEAD TO		MILES.
St. Bees Light	E. by N.	42
Ravenglass	E. by S.	40
Lancaster Channel	S.E. ¾ E.	54
Liverpool Floating Light, S. by E.	½ E.	59
Chester Bar	S. by E.	60
Great Ormshead	S. ¼ W.	54
Skerries Light	S.W. by S.	46
Langness Point	S.W by W.	8
FROM THE POINT OF AYRE TO		
Maughold Head	S.S.W. ½ W.	8
St. Bees Light	E.S.E. ¼ E.	26
Whitehaven	E.S.E. ¾ E.	28
Maryport	E. ¼ N.	37
Ross Light, Kirkcudbright	N.E. ½ E.	24
Burrow Head	N.N.E.	16
Mull of Galloway	N.W. by N. ¾ N.	21
Copeland Light, Belfast	N.W. ½ N.	44
Liverpool Floating Light	S. ½ E.	70
FROM MAUGHOLD HEAD TO		
Skerries Light	S.W. ½ S.	56
Great Ormshead	S. by W.	60
Liverpool Floating Light	S. ¾ E.	63
Lancaster Channel	S.E. ½ S.	50
St Bees Head	E.	27
Ravenglass	E.S.E.	32
Whitehaven	E. ½ N.	31
FROM THE CALF OF MAN TO		MILES.
Langness	E.S.E. ½ S.	7
Mull of Galloway	N.N.E.	38
Copeland Light	N. ¼ W.	48
South Rock Light	N. by W. ¾ W.	31
Strangford Lough	N.N.W. ½ W.	31
Carlingford Lough	W.N.W.	45
Drogheda	W. ¾ N.	55
Howth Head	W.S.W. ¾ W.	60
Kish L'ship, Dublin Bay	W.S.W. ¼ W.	60
Holyhead	S.S.W.	41
Great Ormshead	S. by E.	54
Liverpool Floating Light	S.S.E. ⅝ E.	65
Skerries Light	S. by W. ¼ W.	38
Point Lynas	S. ¼ E.	42
FROM PEEL TO		
Mull of Galloway Light	N. by E.	26
Copeland Light	N.N.W. ¼ N.	40
Strangford Lough	N.W. ½ W.	29
Maidens Light	N. by W. ¼ W.	57

Free Harbours

No tolls are exigible on vessels entering any of the Harbours in the Isle of Man.

Abstract of the Bye-Laws for regulating the Harbours.

1. Any vessel, through mismanagement, injuring the quays, &c., such injury to be repaired, under penalty of double the value of the damage.

2. No chain cables to be used for mooring vessels, under penalty of £2.

3. No ballast to be discharged without a port sail, under penalty of £2.

4. Vessels heaving ballast or stones into the harbours, penalty £2 per ton.

5. That no person heave stones, dung, &c., into the harbours, under the penalty of £2; and if not removed when ordered a further penalty of £2.

6. Masters of vessels not obeying Harbour Masters in mooring vessels, penalty £2: all expenses incurred by the Harbour Master in mooring vessels to be paid by master or owners of said vessel. Any person obstructing Harbour Master in executing his duty, penalty £5.

7. No person to make a fire on the quays without permission, penalty £3.

8. No clog fenders to be used, under penalty of £1, unless hung lengthways.

9. Any person throwing off ends or cutting hawsers, besides paying the damage to the owners, to forfeit £5.

10. That all gunpowder be landed immediately after arrival, under penalty of £10 for every 24 hours it remains on board; and no fire or light to be kept on board while such gunpowder remains in the vessel, further penalty £20.

11. Any dock made for repairing vessels in harbour to be filled up in 24 hours after removal of the vessel, under penalty of £5 for every 24 hours it lies open.

12. No vessel to unload ballast at night under penalty of £10.

13. That no timber, iron, &c. (unless for repairing vessels) be left on the quays longer than two days, on penalty, for every day longer than the said two days, after notice given by the Pier Master, of £1.

14. That no vessel be allowed to take ballast from another, penalty £1, unless by leave of the Harbour Commissioners.

15. Ballast not to lie on the quay longer than 24 hours, under penalty of 5s. per day.

16. All vessels unloading merchandize to have preference of berth in turn.

17. Vessels taking in goods to have any unoccupied berth, but to give it up on the arrival of a loaded vessel.

18. & 19. One person at least to be on board every vessel when afloat, in harbour or bay, under penalty of £2.

20. & 21. No person to act as pilot without commission, under penalty of £10. No vessel compelled to take a pilot.

22. Proprietors of lime-kilns to screen their lights, if liable to be mistaken for harbour lights, under penalty of £5.

23. Persons firing on pier, &c., (except on days of public rejoicing,) penalty 10s.

24. Boats plying for passengers without licence, penalty £2; and owners to be accountable for breach of harbour laws by any of the crew.

25. No person to erect stalls on the quays to cure fish, or deface the quays, &c. under penalty of £2 for every offence.

26. No person to enforce higher rates for pilotage than as follows, which include attendance of boat and four men:

Vessels of 40 Tons	£0	5	0
Vessels above 40 and under 60	0	7	0
Vessels above 60 and under 100	0	13	0
Vessels 100 Tons and larger	1	0	0

27. Vessels must allow ropes or warps of other vessels to be made fast to them, under penalty of £2.

28. All vessels in harbour must keep in their jib and mizen booms, under penalty of £2.

29. No lumber to remain on the quays or steps, under penalty of £1.

30. No conveyance having wheels shod with iron, allowed on Douglas pier, under penalty of £2.

WEST COAST OF ENGLAND.

RIVER RIBBLE TO SOUTHERNESS LIGHT.

The **River Ribble.**—PRESTON and LYTHAM.—About 5 miles northward of the Formby Channel is the entrance to the River Ribble, leading to Preston. The shore on the starboard side is lined with an extensive sandbank, which runs out full 2 miles from the land, drying at 4 hours' ebb; while on the port hand is the Butler's Wharf, a large shoal, contracting the passage, rendering its navigation almost impracticable without a pilot. There is also a smaller bank to the northward of the Butler, which also dries at half-ebb. Outside the bar is a large buoy called the *Nelson*, which vessels should endeavour to pick up when bound for the river. It is a large round black buoy, with a cage ball at the top, stands about 26 feet out of water, and may be seen in clear weather ten miles; its name, *Nelson of Preston*, is painted upon it. The bearings and distances from the Buoy Nelson, of Preston, to the undernamed places are as follows:—Blackpool, E. by N., 8 miles; Calf of Man, N.W., 57 miles; Liverpool N.W. Lightship, S.W. by S., 17 miles; Pile of Foudry Light, N.E. by N., 18 miles; St. Bees Head, N. by E., 50 miles; Point Lynas Light, W., 41 miles; Douglas Head, N.N.W. ¾ W., 50 miles; Maughold Head, N. by W., ¾ W., 51 miles. The entrance to the River Ribble is by two Channels, called the North Channel and the Gut. The compass course is on Nelson Buoy; that leads to the different outer buoys at the entrance of each Channel. There are buoys placed in the deepest parts of the Channels, which in some places are narrow. There are 11 buoys placed in the North Channel, numbered from 1 to 11, and marked with the letter N. In the Gut are 5 buoys, with cages on the top of each: these lead to No. 8 in the North Channel, where the two Channels meet. The outer buoys of the two Channels lie in 3 fathoms, low water spring tides: from them the other buoys can be seen. No vessel drawing more than 10 feet water should enter the Ribble later than one hour after high water. There are two tug boats at Lytham to tow vessels up to the Preston quays, if required. Vessels drawing 12 feet water can go up to Preston at spring tides. The quays are connected by a branch with all the railways in the district.—On the northern side of Preston Bay is the village of LYTHAM, where coasting vessels resort, before which is a small tide-light. Here is a dock where vessels can lie in safety, and also a branch railway to Preston. The Lytham Lighthouse, exhibiting two fixed lights, one being Red, stands on the Gravel Point

near where the two Channels meet, and bears S. E. by E. ½ E., 7 miles from Nelson Buoy. Both lights are visible all round from the Blackpool to the Southport shores.—Masters of vessels not acquainted with the navigation of the Ribble, are advised to put into some safe harbour inside the line in the South Channel, from St. David's Head, on the Welsh Coast, to the Tuskar Rock, on the Irish Coast, and inside the line in the North Channel, from the Mull of Cantyre, in Scotland, and Fair Head, in Ireland, and to address a letter to the Harbour Master at Lytham, who will immediately send a Pilot well acquainted with the river to conduct the vessel to Lytham, at the following rates:—From inside the above lines—foreign bottoms, 10s. per foot, English bottoms, 8s. per foot; from outside the Nelson Buoy—foreign bottoms, 5s. per foot, English bottoms, 4s. per foot; from Nelson Buoy—foreign bottoms, 4s. per foot, English bottoms, 3s. per foot; from No. 1 Buoy—foreign bottoms, 3s. per foot, English bottoms, 2s. per foot; and from outside the two lines above mentioned, 2s. per foot extra.

Morecambe Bay.—In sailing towards this bay, which is about 8 leagues from Formby Point, keep full 4 miles from the shore, on account of the flat shoal water, known by the name of the Oyster Grounds; these begin nearly abreast of Blackpool, and extend to Rossall, the north bank of the Wyre River, which they now join. The western edge of these grounds is steep-to, and there are on some parts of the Oyster Grounds not more than 6 and 9 feet at low water. The entrance to Morecambe Bay is known by the name of Lune Channel, and is 2½ miles wide. On the southern side is the Point of Rossall, and on the northern side is the Island of Walney; on the former is a conspicuous beacon or landmark, and on the latter is a lighthouse, which bear from each other nearly north and south, distant 8 miles. The Point of Rossall is low land, and the beacon, when seen at the distance of about 5 miles, has the appearance of a vessel under sail. Morecambe Bay is encumbered with numerous large sandbanks, many of which dry at low water, and some at half-ebb. The general direction for the mariner, if bound to Lancaster, will be to attend particularly to his soundings, taking care to get into the deep water of the Lune Channel, and to remain there until he obtains a pilot. When in 24 and 25 fathoms, you will perceive the ends of the rock weeds floating, and the water of a darker blue than when you are over any of the banks.

The **River Wyre.**—The following are the directions for entering the Port of Fleetwood:—On coming from sea, h the westernmost part of Walney Islan the eastward of Blackcombe until Ro Landmark bears S.E.: here you are tering the deep water of Lune, where will have 28 fathoms at low water. shoals to be avoided on approaching W are, Shell Wharf, North Wharf, and Ki Scar Ridge. A large red buoy is laid d nearly on the point of the Ridge, to wh a good berth should be given; it marks the southern side of the Lune d A black perch is placed on North Wh about three-quarters of a mile S.E. b from the King's Scar Buoy. On the n side of Lune deep a black buoy, with gl on the top, and marked "Danger Pat is placed a few fathoms westward shoal patch bearing that name. Betw these buoys is the Lune deep or chan Rossall Landmark is a large wooden stu ture (of a conical shape) built on the sh of Rossall point, and denotes the south limit of Lancaster or Morecambe B Walney Island, on which is a revolv light, is the northern limit. Shell Wh extends to the westward of Rossall La mark and North Wharf. If in h weather you fall in with low land, a not knowing whether it is Walney Rossall land, your lead, which shou never be neglected, will at once info you; for 4 or 5 miles off Walney, y will have 8 or 10 fathoms, but at same distance off Rossall only 4 or 5 thoms. After passing the Danger Pa and King's Scar Buoys, you will obse the Fairway Buoy to Fleetwood chan It is a vertically striped black and wh buoy, and lies half-a-mile N.N.W. fr the Screw Pile Lighthouse. Enter channel between the Fairway Buoy a the lighthouse, leaving the lighthouse the starboard hand, and running up the chequered buoy on the Little Fo leaving that buoy on the port hand. Y will now have come up with the red bu on the Big Ford; leave that on the st board hand; then leaving all the bla buoys, which mark the eastern side the channel, on the port hand, and red buoys and perches (the latter hav red globes on the top) on the starbo hand, round close-to the Steep Bre on the edge of which stands the Lo Shore Lighthouse, and where the ti run very strong: you then enter Harbour. There are large red buoys mooring ships to. Sail between the bu and the shore, letting go your anch when you reach the upper part of Canshe Hole; but be careful not to f the moorings of the buoys, as they l in various directions across the harbo Strangers visiting this port should alwa hoist signal for a pilot, several of wh are constantly on the look-out. Th are two pilot cutters (numbered 1 and

with pilots for any ports in the bay; the former is stationed at Fleetwood, the latter at Pile, and both are generally cruising off the bay. The Screw Pile Light is a Fixed Bright Light, seen 8 or 10 miles in clear weather. There are also two Fixed Shore Lights, lighted from half-flood to half-ebb. By day, a black ball hoisted on a pole at the Screw Pile Light and Lower Shore Lighthouses, denotes the same interval of tide. A bell, tolling three strokes per minute in foggy weather, is sounded from the Screw Pile Lighthouse, and may be heard at the distance of two miles. There is good anchorage off North Wharf, anywhere between the King's Scar Buoy and the Lighthouse, in such water as the state of the tides and a vessel may require. A green buoy is placed near a wreck on the Bernard Sand, about half-a-mile N.E. of the Screw Pile Lighthouse; but your vessel should never be that far to the eastward, as the tides generally run across there, and will set you ashore.

The **River Lune.**—SUNDERLAND, GLASSON, and LANCASTER.—Sunderland harbour is at the mouth of the River Lune, and is dry. Large vessels may go in after half-flood, and lie on clean ground below the houses, and with neap tides, ships of 12 feet water may ride afloat in the pool, off the westernmost houses in the village. It is not safe riding in the pool with spring tides, because of the rapidity of the stream, which runs there about 4½ miles an hour when strongest. The channel leading into Sunderland is buoyed, and there is a Lighthouse on the south side, over against the point of Sunderland. Bernard's Wharf, the westernmost bank, begins to dry at half-ebb. At the easternmost buoy there is a patch of sand that dries with spring tides only. To come up with the outer or westernmost buoy of the channel of Lune River, take half-flood, and stand no nearer the North Wharf Bank than 8 fathoms water; or keep Lancaster Church Steeple a small sail's breadth open to the southward of the Bluff End of Highfield—a long hill under the same high land, which terminates in a remarkable Bluff Point, a little to the northward of the Church Steeple. This mark will bring you up to the Outermost Buoy, clear of North Wharf and Bernard's Wharf; or, when this mark cannot be seen, keep the westernmost part of Walney Island to the eastward of Blackcombe, until the Landmark bears about S.E. In this situation you are entering the deep water of the Lune, where you will have 28 fathoms at low water, and the Outermost Buoy bearing about east from you; and should you be forced in by strong gales, or night coming on with a flood-tide, that you cannot keep an offing, you may bring your vessel safely to an anchor to the southward of the buoy.—If in dark hazy weather you should fall in with low land, bearing E.N.E., &c., and not know whether it is Walney or Rossall land, your lead will at once inform you; for at the distance of 4 or 5 miles from Walney, in that direction you will have 8 or 10 fathoms water, but at that bearing and distance from Rossall, only 4 or 5 fathoms.—*To avoid the Shoals on the north side of the Bay:*—Near low water come no further in, with a vessel of considerable draft of water, than where Walney Lighthouse is open to the eastward of the highest part of Blackcombe, when the Landmark bears S.E., as you are here to the westward of the Stony Patches on the north side of the Lune, where you may safely stand off and on for a pilot.—*To avoid the Shoals on the south side of the Bay:*—Shell Wharf extends W. by N. to W. by S. from the Landmark, therefore you must take care about low water to keep the Landmark to the southward of E.S.E., and when you steer for the buoy at the proper time of the tide, and having fallen into the deep water of the Lune, you must allow for North Scar and North Wharf, a high bank, which runs out 2 miles northward of the Landmark, and covers about half-flood. About high water, you may venture in the day time to stand over any part of the bay from Pile of Foudry to the Outermost Buoy in the Lune; but in the night or thick weather, keep further out to the westward, taking care to keep the lead constantly going, and watch every opportunity to take the bearings of the marks before mentioned, until you obtain a pilot.—The *First*, or Outermost Buoy, lies in 6½ fathoms at low water, neap tides, with Pile Castle bearing N.N.W. ½ N.; Lighthouse on Walney, N.W. by N. ½ N.; North End of North Wharf, W. by S.; Landmark on Rossall Point, S.W.; Foot of Wyre Lighthouse, S.W. by W.; Lancaster Church Steeple, a little open with Highfield, E. by N.; Second Buoy, E.S.E. The First Buoy must be passed on the south side. If too early of the tide, or too late in the evening to proceed up the river, you have good anchorage one cable's length to the eastward of the Second Buoy, under Bernard's Wharf, where you will have 3 fathoms at low water, and little current; but you must not proceed up the river with a vessel of considerable water draft until after half-flood. The *Second* Buoy lies in 3 fathoms, with Outermost Buoy bearing W.N.W.; Third Buoy, S.E. by S. The *Third* Buoy lies in 12 feet, with Second Buoy bearing N.W. by N.; Fourth Buoy, E. by S. ½ S. The *Fourth* Buoy lies in 5 feet, with Third Buoy bearing W. by N. ½ N.; Fifth Buoy, E. The *Fifth*,

or Innermost Buoy, lies in 5 feet, with Fourth Buoy bearing W.; Lighthouse on Abbey Scar, E. ½ S. Keep the Upper and Lower Lighthouses in a line, and guard against the flood-tide setting strong to the southward, up Cocker. Soon after you have passed the Lower Lighthouse, keep Basil Barn a little open to the southward of Overton Chapel, which will take you clear of Thornbush Fishery and Town's Skear, to Sunderland, where you may obtain a pilot. The deepest water is on the south side of all the Buoys, and the River Buoys are placed on the north side of the channel.—GLASSON is about 5 miles before you reach Lancaster. Upon the pier is a harbour light, shown at tide time. The tide flows at the dock gates the same time as at Liverpool; adding two inches to every foot of water at Liverpool, will give the height at Glasson. Every vessel going into the dock must clew up her sails, and (if the wind be any way to the northward) let go an anchor before coming into the Dock Gut, to prevent her anchor bills running through her bows and destroying the works. If the wind be from the westward, and a flowing tide, she may safely touch on the west side, and be veered alongside the pier-head, by a line from the westward; but on no pretence whatever is any vessel to attempt going in under ever so easy sail, as several serious losses have already been sustained thereby; and no steam-vessel is to use her paddle wheels either in going in or out of dock, but to let off steam before doing so. Masters of vessels offending in these particulars are liable to a penalty of £5, besides having to repair the damage.—From Glasson to LANCASTER the Channel is irregular, variable, and shallow; the shallowest part of it having no more than 7 feet water at high water with neap tides, and 12 or 14 at high water with spring tides. Pilots, legally appointed to conduct vessels to and from the quays at Lancaster, may be obtained at Snatchems, near Sunderland.

Morecambe Harbour.—This harbour is situate at the terminus of the North Western Railway, and is connected with the Midland, and Lancaster and Carlisle Railways. A new stone pier has recently been constructed, and superior accommodation provided for the transhipment of passengers and merchandise between the railway trains and steamboats. The dues levied on vessels in respect of lights and buoys are 2d. per ton on vessels from ports in the United Kingdom, and 3d. per ton on vessels from ports beyond, but when such dues have been paid three times in one year by any vessel, they are then reduced to 1d. per ton on the same vessel for the remainder of the year. There are no other dues or port charges on vessels.— The sa directions for Fleetwood or Lanc must be adhered to until the Screw Light at the foot of Wyre bears s then, if flood tide, haul up N.E. b and if ebb, N.E., which course lea the New Screw Pile Light at the ent of the Channel to Morecambe Har This Lighthouse is upon the same and is similar in appearance to the of Wyre Lighthouse, but exhibits a *Light*, visible at a distance of 6 n and with the following compass ings:—Walney Light, N.W. ¾ W., 6¼ n Wyre Light, S.W. ½ S., 4⅔ miles; M cambe Harbour Pier Head Light, E. 5½ miles. The Light is masked t extent of one-fourth of the circle f Heysham Lake and Lune Estuary. A by day, and a small *Green Light* by n on the west side of the house, ind when not less than 8 feet water i Channel up to the Harbour. A B tolled during foggy weather or snc Seven Buoys define the Channel lea to Morecambe Harbour, namely:—1 *Red* Buoy, on the Western Poin Clark's Wharf Spit, with the follo compass bearings:—Screw Pile Ligl Wyre Foot, S.W.; Morecambe Har Pier Head Light, N.E. ½ E.; Wa Light, N.W. ½ N.; No. 2 Red Buoy, N.; No. 2 Black Buoy, E. by N. No. 1 *Black* Buoy, on the Western E of Yeoman's Wharf Spit, with the fol ing compass bearings:—Screw Pile L at Wyre Foot, S.W. ½ S.; Morec Harbour Pier Head Light, E. ¼ S.; ney Light, N.W. ¼ N.; No. 2 Red E E. by S. ¼ S.; No. 2 Black Buoy, E. These two buoys define the mouth o channel; they are about three-qua of a sea mile apart, and have a dep about 9 feet between them at dead water. No. 2 *Red* Buoy, on the n side of Clark's Wharf, the compass l ings being—No. 2 Black Buoy, N. W.: No. 3 Red Perch Buoy, E.N.E. 2 *Black* Buoy, on the south sid Yeoman's Wharf, the compass bear being—No. 3 Red Perch Buoy, E. No. 3 *Red* Perch Buoy is placed on western point of Low Scare, and ma passed on either hand. The com bearings from this buoy are—No. 4 and No. 4 Black Buoys, E. ¼ S. No. 4 Buoy is on the end of the Old Scare, No. 4 *Black* Buoy is on the end of S Scare. It is larger than the others, has a circular cage on the top; it very heavily during the strong cur of flood or ebb tide. Vessels appro ing the Harbour at low water sh anchor below this buoy, where the excellent holding ground in a dept not less than 5 fathoms at dead low wa spring tides, and remain there unt Black Ball by day is exhibited at the

of the Pier, and at night until half-flood, when there will be a depth of 8 feet in a clear course between the No. 4 Buoy up to the harbour. A Beacon on Stone Scare must be left on the starboard hand coming in. A Lighthouse is erected on the New Pier, which exhibits a *White Light* from sunset to sunrise; in the daytime a Black Ball is hoisted when there are 8 feet water between the No. 4 Red and Black Buoys.

Pile of Foudry.—Pile of Foudry is a harbour near the south end of Walney Island, where large merchant ships may ride in good shelter near the west or south-west side of Roe Island, in from 3 to 5 fathoms water. Small vessels commonly lie aground in the bight, on the east side of Pile of Foudry Island, about a cable's length from high water mark, when the house bears S. by W. In the anchorage near Roe Island the streams of flood meet; one from the north, the other from the south, and make it troublesome to keep the anchor clear. The stream here runs abont 3 miles an hour when strongest. On the south end of Walney Island is a stone lighthouse, exhibiting a revolving light 70 feet above high water, flashing every minute, visible in clear weather 3 or 4 leagues; there is also a small fixed light of a red colour. On the north side of this channel is Walney Island, which is low land, and on the south side are several sandbanks or stony ledges; the most dangerous of these is the Stony Patch, which lies to the westward of all the others, distant from the lighthouse on Haw's Point about four miles; to clear it to the westward, bring the Old Castle on Pile Island just open to the eastward of the lighthouse. The lead should be kept constantly going, and if coming from the southward, bring Blackcombe Hill on with the north end of Walney Island, and keep them so until Walney Lighthouse comes E.N.E., and the ruin upon Foula Island touches Haw's Point. The Helpsford Sand is on the S.E. side of Walney, within a mile of the shore, to clear which, you must bring the dwelling-house near the lighthouse a sail's breadth open of the southernmost sandhills, or the lighthouse just clear of the eastern chimney of the same house, bearing N.E. by E.; then, as you advance, bring the ruin of the house on Foula, before mentioned, on with Haw's Point, and these marks will lead you in. Upon the bar is 15 feet water at 2 hours' flood, and the rise of tide is sometimes 29½ feet. The strength of the flood-tide is 2½ knots an hour, and the ebb nearly the same. In leading to the anchorage with a flood tide, and the wind scant, you may stand along the southern part of Walney about a mile from the shore, and have regular soundings. In dark weather, should you fall in with land bearing E.N.E., and uncertain whether it is Walney Island or the land adjacent to Rossall Point, then you must be guided by your lead, for at the distance of 5 miles from the former are 7 and 8 fathoms, but at the same distance from Rossall there are only 4 or 5 fathoms; allowance must be made for the rise and fall of the tides, making high water full and change at 11 o'clock. In running for the Pile of Foudry anchorage at half-flood, give Haw's Point a berth of half a cable's length, and keep off Pile Castle Point a similar distance, then, should your vessel draw 10 feet water, anchor in the bight below the house on Pile Island, or near to Roe Island, in 5 fathoms, with the lighthouse open to the starboard of Pile Castle. The breadth of the anchorage above Roe Island is nearly 2 cables. Here the ground holds well; as the tide ebbs you become quite landlocked, and may shorten your cable, to enable you to swing clear of either side at low water in 3 fathoms.—Vessels bound from Pile to Barrow should leave Roe Island Lighthouse on the starboard hand, when they will fall in with the Fairway Buoy for Barrow, painted black and white. Further on they will find *Six Red Buoys*. Nearly in a line by keeping them on the starboard hand will lead vessels up to Barrow Pier, where they will have 18 feet water spring tides, and 10 feet neaps.

Ravenglass is a dry harbour, where three rivulets, the Esk, Mite, and Orte, unite about 12 miles to the southward of St. Bee's Head. There is a buoy placed a little within the mouth of the channel, in the middle, near the Fish Wear, which marks the entry. At this buoy, and in most parts of the channel, the depth is 3 fathoms at high water, with neap tides. The best part for vessels to lie aground on is, half a cable's length from the west end of the town of Ravenglass, on the south side of a perch which stands on the point of a sand there. At this anchorage, in the mouth of the river Esk, and also at the meeting of the other rivers, there are 3 fathoms at high water with spring tides, and 10 feet with neaps. To sail into Ravenglass Harbour, take 4 hours of flood, keep above a mile from the coast to avoid Selker and Drig Rocks (till Ravenglass town bears E.N.E.); steer in that course till you see the buoy bearing east, and then steer right for it, keeping within a ship's length of it on either hand; when you are just past the buoy, steer E.N.E., or keep Ravenglass a sail's breadth open to the north of your stern, till you are about half a mile from the east end of the sandy hillocks; hook the small bay, which begins there; keep near a cable's length from the point at the end of the

small bay, and anchor half a cable's length from the west end of the town, or off the perch, in the meeting of the three rivers. When the buoy in the entrance bears E., it is also in a line with the south shoulder of Newton Knot Hill, which is a small hill half a mile south of Ravenglass. The tide flows here, full and change, at 11 o'clock; and off the Bar runs as follows: the last half-flood and the first half-ebb set Northward, at the rate of 2 miles per hour, spring-tides; and the last half-ebb and first half-flood Southward at the same rate. There is a foot of water more on the Bar than shown by this Tide Table.

St. Bees Head.—To the Northward of Ravenglass Harbour, distant 13 miles, is St. Bees Head. On its summit is a LIGHT-HOUSE, the light from which is *stationary*, appearing like a bright star at the distance of 6 or 7 leagues in clear weather. From the entrance of Formby Channel to this Head, the course and distance are N. by E. 20 leagues. In sailing along from Walney Island to St. Bees Head, keep 2 or 3 miles from the shore, and you will clear every danger. Vessels in moderate weather, may stop a tide any where along the coast, for the stream seldom runs more than a mile an hour.

Whitehaven.—About 3 miles E.N.E. from St. Bees Head is the town of Whitehaven: the harbour is dry, and divided into basins by strong quays, which break off the sea. Within the second basin is the best place for vessels drawing above 10 feet water. Here you will find 20 to 22 feet water spring-tides, and 12 to 14 neap. The HARBOUR LIGHTS are upon the outer and inner Pierheads. The inner Light is *stationary*, of a RED colour, and is lighted while there are 9 ft. water between the Pierheads. The outer Light *revolves*, is lighted all night, and is seen at a distance of 3 or 4 leagues in clear weather. The light appears in its brightest state once every 2 min., and gradually becomes less luminous, till eclipsed. In the day a *Flag* is hoisted on a pole at the top of the old Lighthouse, while there are 9 feet water in the harbour, on entering which, keep both lights on the starboard hand.—A Blue Light is shown from a lighthouse on the end of the north pier, which has been extended 352 yards.

Harrington Harbour is 4 miles Northward of Whitehaven. A *Lantern* is hoisted upon a pole on the starboard side of the entrance, while there are 8 feet of water in the harbour, and in the day a Red Ball, at the inner end of the pier, during the same interval of tide.

Workington is 2 or 3 miles north-eastward of Port Harrington. A red ball is hoisted upon a pole on St. John's pier when there are 8 feet water in the harbour; and at night a light is exhibited on the pier-head, which answers a like purpose, and can be seen in clear weather at about 3 leagues from any point seaward. The channel into this port is along the south shore, its entrance bearing from St. John's pier nearly E. by S. by compass. It is formed by red buoys on the south side, and black buoys and perches on the north side, the deepest water being midway between. The outer perch has a cask upon it, painted red, which must be kept on the port side in entering. Steer in between the perches and red buoys, giving St. John's pier-head a berth of about 100 feet on the starboard side. After passing St. John's pier a perch with a white board upon it is the leading mark for the channel by day; and, by night, the northernmost of the blast furnaces on the north side kept right a-head, until an inner light which is on a wooden pier bears about S. E. ½ S.; then steer S.E. ½ E. for the entrance to the harbour, keeping the light upon the wooden pier on the starboard side, and passing a perch with a small red cask upon it by about 10 feet on the larboard side, when the harbour boat will be in attendance.

Maryport, situate about 5 miles N.E. of Workington, is easy of access, free from sand banks, and has a capacious dock, in which vessels are kept constantly afloat, as well as its original tidal harbour and basin. Depth of water in ordinary spring tides, 21 ft. 6 in., neap tides, 13 ft. 6 in.; or by adding 3 ft. to the water shewn in Holden's Liverpool, and the Manx tide tables, a near approximation for each tide will be obtained. A fixed bright light is exhibited on the outer pierhead all night, and another on the inner stone pier whilst there are 8 feet in the harbour; both lights are on the starboard side in entering, and are visible at sea from E.N.E. to W.S.W., the former at a distance of 15 miles, and the latter 10 miles. A Red Ball near the inner lighthouse denotes 8 feet in the day time. The jetty on the south side is distinguished by a Red light, and the north tongue by a Green one. Steam tugs are in readiness every tide, and when required by vessels at night, two lights must be shown one above the other; or by day a union jack at the main. There is good anchorage in stiff clay, about 1½ miles off shore, the outer lighthouse bearing S.E.

Solway Frith.—The entrance to Solway Frith may be considered to commence abreast of Workington, on the English, and at Abbey Head on the Scottish shore, the distance between which is 5 leagues. On the eastern side of the Frith of Solway, about 10 miles north-eastward from Maryport, is

Port Silloth.—This place is daily increasing in importance, being connected by railway with Carlisle, Newcastle, and Edinburgh, the rails of which are laid on the quays. It contains a wet dock, with entrance gates 60 feet wide (opened Aug. 3rd, 1859), and a jetty from the dock entrance into 10 feet at low water. The dock sill is 3 feet 6 inches above low water mark; and by adding 5 feet to any tide in this tide table, the depth over the sill will be given for high water. A Green Light is exhibited in the Lighthouse at the end of the jetty during the time the gates are open at night, and a Red Ball by day. The dock is fitted up with Hydraulic Machinery, by which vessels are discharged with the greatest possible dispatch. In Silloth Bay (between Lee Scar Light and the jetty) there is excellent anchorage in from 4 to 6 fathoms at low water, clay bottom. It is high water here, full and change, 11h. 35m.; spring tides rise 26 feet and neaps 20 feet. The fairway course, from about a mile off Workington to the Light Vessel at the entrance of the channel, is N.E.; and to avoid the tail of Robin Spit, care should be taken not to bring the vessel to the eastward of E.N.E, on which bearing the bright Light on Lee Scar will be in one with it. This Light Vessel is in the middle of the channel, in 3¾ fathoms at low water, and exhibits a fixed Red Light at 25 feet above the water, visible six miles. From it Maryport Outer Light bears S. by W.½W., 4¼ miles; Southerness Light, N. ¼ E., 5½ miles; and Lee Scar Light, E. N. E., 6 miles. It has a black ball at the mast-head during the day, and in fogs a bell is tolled. Having passed the Light Vessel, continue to run on N.E. ¼ N. a mile and a quarter, which will lead you up mid-channel in 3½ to 4 fathoms at low water; and when the bright Light on Lee Scar comes in one with the Cott Red Light, bearing E. by N. ½ N., alter your course to that direction, which will carry you up the fairway as far as Lee Scar in a depth of 2¼ to 5 fathoms. On passing Lee Scar Lighthouse keep a good cable's length to the northward of it. Silloth Harbour is about half a mile above Lee Scar. When following the preceding instructions, it is necessary to bear in mind that, as far as Silloth Bay, the black nun buoys should be kept on the port, and the red can buoys on the starboard hand. The black and white striped buoy marked F in the fairway off Beckfoot is passable on either side. The shoalest part of the channel, on which there are 2¼ fathoms at low water, is about half a mile below this latter buoy; thence to Silloth the depth is from 3 to 5 fathoms. The harbour expenses, including light charges, are—Coasting vessels 6d.; Foreign vessels 9d., per register ton. Branch Pilots for Silloth may be had (if required) off Maryport; charge, 1s. 9d. per foot.

Port Carlisle, a dry harbour, 10 or 11 miles up the Frith from Silloth Bay, is connected with Carlisle by railway, the rails of which run on the quays. It is high water here, full and change, at 12h. 10m.; springs rise 18 feet, and neaps 11 feet; the flood runs 3 hours. In this part of the Frith the sands so frequently change their position that detailed instructions for running up are useless; it is necessary, therefore, to keep a good look-out for the buoys, which are all placed in the deepest water, and numbered 1, 2, 3, &c. The harbour expenses, including light charges, are—coasting vessels, 4d., and foreign vessels, 9d. per register ton. Pilots may be had off Maryport; charge, 3s. 6d. per foot.—At Annan Foot there is a bright tide-light, and 2 perches on the western side of the entrance; the light is shown from half-flood to half-ebb. There is also a tide-light on the end of the jetty at Port Carlisle, 3 miles above Annan Foot, on the opposite or southern side of the channel; this light opens off Knockcross Point, on a S. E. by E. bearing. After passing Annan, soundings should be taken of the English side of the channel up to Port Carlisle.

Magnetic Bearings & Distances

FOR THE WEST COAST OF ENGLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

BUOY NELSON, OFF PRESTON (Lat. 53 43 N., Long. 3 11 14 W.)

		MILES.
To Beaumaris entrance	W. by S.	39
Point Lynas	W. Northerly	45
Dundalk Bar	N.W. by W.	112
Douglas Head Light	N.N.W. ¾ W.	50
Ross Light, Kirkcudbright	N.	71

WYRE LIGHT, FLEETWOOD (Lat. 53 57 14 N., Long. 3 1 46 W.)

To Great Orms Head	S.W. by W. ¾ W.	45
Dundalk Bar	N.W. by W. ¾ W.	112

WYRE LIGHT, FLEETWOOD

		MILES.
To Wicklow Head Light	W. ¼ S.	118
Calf of Man L'ts.	N.W. by W. ½ W.	65
Burrow Head	N. by W. ¾ W.	62
Walney Light	N. by W. ½ W.	8

WALNEY LIGHT (Lat. 54 2 56 N., Long. 3 10 32.)

To Wyre Light	S. by E. ½ E.	8
N.W. L'tship, L'pool	S.W. by S.	35
Kish Lightship	W. ¼ N.	104
Calf of Man	N.W. by W. ¾ W.	57
Point of Ayre Light	N.W. by N.	47

ST. BEES' HEAD (Lat. 54 30 50 N., Long. 3 18 W.)

		MILES.
To N.W. L'tship, L'pool	S. by W. ⅝ W.	65
Tuskar Rock Light	S.W. by W. ⅝ W.	162
Douglas Head Light	W. by S.	42

WHITEHAVEN (Lat. 54 33 N., Long. 3 26 2 W.)

To Beaumaris entrance	S.W. ¾ S.	76
Skerries Light	S.W. ¾ W.	65
Bahama Lightship	W. by S.	244

WEST COAST OF SCOTLAND.

SOUTHERNESS LIGHT TO THE MULL OF CANTYRE.

Southerness Light, at the west side of Solway Frith, is chiefly useful as a direction to the harbour of Dumfries. It shows a fixed bright light, from N.E. seaward to W., which can be seen at the distance of 11 miles in clear weather.

Little Ross Island—A Lighthouse has been erected upon this Island, which lies off the entrance of Kirkcudbright bay and harbour. It bears a fixed and flashing light, producing 12 bright flashes in a minute, visible from N. by E. to N.W. by W. Southerly, at the distance of 6 leagues.

Kirkcudbright is formed by the Points Balmae and Torrs to the E., and the Island of Little Ross to the W. There are two Towers on Little Ross bearing S.W. from each other, which being kept in one lead over the Bar in the best water to the First Perch on the S E. shore; thence running N.E. about 300 yards, passing a Red Buoy on the point of the bank on the larboard hand; thence N.N.W. passing the Perch on the point of St. Mary's Isle on the starboard hand; thence direct to the lower Fish-house, where is a Pool a vessel can ride afloat at spring ebbs. Abreast and above the upper Fish-house there is excellent lying on soft mud, moored to rings on the rocks, and no stream of tide. On the bar of Kirkcudbright River there are about 8 feet water at half-flood. Vessels running for this place, and not having water over the Bar, will find good anchorage in the Ross Roads in from 2 to 3 fathoms at low water, in good clay ground. Should the wind be Southerly, blowing hard, a vessel should bring up on the W. side of the beach just as the sound begins to open, the closer to the beach the better, as it is very steep-to and quite out of the sea. At half-tide she can trip and run up the lake to the Lake or Fish-house, or waiting 4 hours' flood may run up for the Perch off St. Mary's, and proceed to Fish-house or the town. The coast from Kirkcudbright to Belcarey Bay and River Urr is a bold rocky shore, with neither beach nor harbour.

Belcarey Bay, about 8 miles to the E. of Abbey Head, is formed by the High Lands of Aairds to the W., and Heston Island to the E.; entrance ½ a mile wide. The Heston Island is also high, and highest in the middle: this is an excellent place and too little known. Vessels running for it should keep close past the Aairds, and keep close up till they come above the first salmon weir opposite the large house in the bight, when they may go as far in as water will admit, as it is all clean ground, and quite landlocked from all weathers. The tide sets strong E. and W. past all these places, till a vessel comes within the points mentioned.

Wigton Bay lies to the westward of Kirkcudbright Bay, and has a spacious entrance. Here are several places where vessels may stop in moderate weather, or when the wind blows off the shore. The channel to Wigton is shallow and intricate, and will admit only small craft. Vessels may stop with good anchorage in 7 or 8 fathoms water, about a mile to the northward of Stone Head, and half a mile from the shore, where the bottom is clean sand.

Garlieston. — The entrance to this harbour, situate in the Bay of Wigton, is spacious and of easy access, no pilot being required. Here coasters will find good shelter, with an easy loose for any part. When desired, a light is shown from the pier-head, which has been recently extended 250 feet, and where are at springs, 18 to 20 feet, and 11 to 12, neaps. From the pier-head the Ross Light bears S.E. by E. In taking the harbour, keep the perch off the breakwater on the larboard hand. Port charges, 1d. per ton; harbour boat, 3s. to 6s.

Whitehorn.—To the southward of Stone Head and near Burrow Head is Whitehorn Island, between which and the coast is Whitehorn harbour, in which vessels drawing 12 feet water cannot be neaped above twice a year at the quay. It is well sheltered from all winds. The only danger is the Screen's Reef, a rocky ledge extending from the west point, upon which the tide sets very strong. Going into the harbour from the W., if Stone Head be kept open of Kairn land it will clear the rocks on the W. side.

Glenluce Bay.—To the westward of Burrow Head is the bay of Glenluce, within which and near to the Mull of Galloway lie the Scar Rocks, always above water. There are no shoals near them; but off the Little Scar are two or three rocks, which the sea sometimes washes over. In moderate weather, with W. and S.W. winds, vessels may stop anywhere on the west side of the bay.

Mull of Galloway.—On the Southern point of the Mull of Galloway, a

Lighthouse has been erected, and bears, by compass, from the largest of the Scar Rocks, W. ¼ N., 6 miles; from Burrow Head, W. by N. ¼ N., 18 miles. The light is intermittent, 2½ minutes bright, then eclipsed ½ a minute; is visible seaward 23 miles from N. E. to N. W. ¼ W.; but the high lands of Dramore shut the light from the view of the mariner in coasting along the Port Patrick shores. After rounding the Mull, which is a rocky shore, you will soon reach

Cromack Point, about 4 miles from which is

Port Nessic Harbour, fit only for small craft; but a vessel drawing not more than 6 or 7 feet, may find shelter from N. or N. W. winds, by running aground near the pier head. Seven and a half miles further is

Port Patrick, a small and dry harbour open to the westward. Small vessels must go in at high water, and run aground on the N. side of the creek, or within the pier, so as to be out of the reach of the sea, in case the wind should blow from the W. or South-westward.

Point Corsewall is about 14 miles to the northward of Port Patrick, and is the north-west point of entrance to Loch Ryan; between are some rocks, but they lie close in shore, and are mostly above water. On the rocks off Laggan Point, called Ebbstone Rocks, which dry at low water, is a red beacon consisting of a pyramid of iron pillars, 40 feet high, with a cylindrical open cage on the top. From it Corsewall Lighthouse bears N.E. by E.; the highest point of Ailsa Craig, N.E. ¾ N.; and Laggan Point, S.S.E. ½ E. On Corsewall stands a Lighthouse, exhibiting a white and red light alternately; these lights revolve, and attain their greatest brilliancy every 2 minutes. They may be seen, like a star of the first magnitude, at the distance of 5 or 6 leagues, and are visible from N.E. by E. northerly, to S.W.

Loch Ryan is capacious, of easy access, well sheltered, with good holding ground, and depth sufficient for large vessels. The only danger to be avoided is the Scar, a tongue of sand on the western side of the Loch, and about 3 miles up the harbour, which extends 1½ miles south-eastward from Kirkholm Point. There is a large Black Nun Buoy on the end of the Scar, which distinctly shews its position. The best anchorage is about ½ a mile to the southward of Cairn Point, in 6 and 7 fathoms. On this point is a tower, exhibiting a fixed light of the natural appearance, serving to lead to the anchorage. Fourteen miles N.N.E. from Loch Ryan is the

Craig of Ailsa, a rock 940 feet high, with deep water all round it, serving as a beacon to guide ships to the entrance of the Clyde.

The **Frith of Clyde** makes a fine open entry to several rivers, having no danger more than a quarter of a mile from the shore, excepting the Brist Rock, which lies three-quarters of a mile W. ½ S. from Turnberry Point; it dries at half-ebb, and is about half-a-mile from shore.

Ayr.—Ten miles from Turnberry Point is the Town of Ayr. Here is a commodious harbour, fit for vessels drawing 12 to 14 feet water. The bar, at low water, has from 4 to 6 feet water over it, and with spring-tides at high water there are from 13 to 15 feet, and with neap from 11 to 12 feet over it; with fresh southerly winds there will be a foot more; for S. and S.W. winds raise the tides in all the rivers of the Frith of Clyde, and N. and N. E. winds have a contrary effect. On the north side of the harbour is a light-house exhibiting two lights; the upper bright, having a star-like appearance, and the lower red. There is also a tide-light (red) shown when 8 feet water are on the bar. The distance between the lights is 850 feet; and they bear from one another S.E. by E. ¼ E., and N.W. by W. ¼ W., and are leading lights for entering the harbour, and when kept in one lead over the bar in the deepest water. The upper or bright light may be seen 12 miles off; the red 9 miles; and the tide light 4 miles off. Vessels drawing 7 feet water may make directly for the bar so soon as the tide-lamp is lighted. A flag is hoisted in day-time at half-flood, and continues to be so until half-ebb. About a cable's length S. W. of the south pier lies St. Nicholas Rock, which dries with spring tides only; you will avoid it by keeping the two red buoys on the starboard hand coming into the harbour, the breakwater being on the larboard hand. There is an iron steam tug for towing vessels in and out; and the bar and harbour are being further deepened by means of a powerful dredging machine.

Troon Harbour has an extensive pier and breakwater, with 4000 feet of quayage room, and an average depth of 12 feet at low water; at the outer pier the rise and fall of the tide is from 8 to 11 feet. About 1 mile S.S.W. of Troon Pier is the Lady Isle, a large patch of rock with a large and small Beacon on it. These Beacons are not leading marks, and there is plenty of water inside the Isle. At the distance of half-a-mile N.E. from the pier, is a half-tide shoal, on which is a red buoy. Here are exhibited two Lights; one, on the inner end of the Pier, intermittent, 40 seconds bright and 20 obscu-

red; the other on the Pier-head, red. They bear from each other N.E. ½ N. and S.W. ½ S. 350 yards; and are visible, respectively, 9 and 6 miles. This harbour is perfectly safe, and may be run for in any weather by vessels of moderate draught of water, as there are no dangers but what are to be seen, and pilots are always in attendance. An extensive open wet dock or basin, 400 feet long by 300 wide, with 20 feet at low water tides, and capable of admitting the largest ships or steamboats, adds to the importance of this port. A branch of the Glasgow and Ayr Railway comes down to the harbour, as does also the Railway of the Duke of Portland from Kilmarnock. There is also an extensive ship-yard, with one of the finest graving docks in the west of Scotland, capable of receiving ships of the largest size. The magnetic bearings and nautic distances are as follows:—From Troon pier head to Ayr Harbour, S. by W., 5 miles; Dunure Point, S.W., 9 miles; Beacon on Lady Isle, W. by S., 2½ miles.

Irvine.—Four miles and a half from Troon are the town and harbour of Irvine; and nearly midway, is Lappock Rock, upon which was erected, in 1843, a beacon about 40 feet above the level of the sea, bearing S.W. Southerly, distant about 2 miles from Irvine bar. There are now from 12 to 13½ feet water on the bar at high water spring tides; ordinary tides, 12 feet; and at low water 4 feet. There is a red warping buoy placed in the *fairway* of the river, about two cables' length from the bar perch, which perch must be kept on the starboard hand on going in. There are also pawls all the way up the river on both sides. Vessels running in should keep the middle of the river, and run right up till they come to the end of the stone quay, where they can either beach or anchor. There is a steam tug for vessels frequenting this harbour.

Ardrossan.—At about a mile to the N.N.W. of Saltcoats is the spacious harbour of Ardrossan, in which more than 100 sail of coasters may lie with ease; or they may ride safely without it, in good ground, with any wind. The pier and breakwater completely protect the harbour from southerly and westerly winds; and Horse Isle, with the other rocks, shelter it from the N.W. There is, however, (except within 150 yards of the entrance) no depth of water alongside the quays, vessels taking the ground before half-ebb.—In place of the two previously existing harbour lights, a new lighthouse, exhibiting a red light, has been erected at the extremity of the Breakwater. This light illuminates an arc of from 15° to 20° in the direction of the open channel leading into the harbour, and bears from the middle of this channel E. and by N., on which bearing it is brightest. A vessel running for Ardrossan Harbour should steer the usual course from Pladda towards Cumbray Light, and when about 14 miles past the former, and 7 miles from the latter light, the Ardrossan Light will be seen, in favourable states of the weather, on the starboard, at the distance of about 5 miles, and bearing E. by N. In running into the harbour the light should never be closed; but the vessel must be kept within the illuminated space in which there is nowhere less than 2 feet at low water. A red can buoy marks the north side of the channel by day which is on the west Grinan Rock, and a perch on the Grinan; both to be kept on the larboard hand. The entrance lock of the dock is 160 feet long between the gates, and 40 feet wide, there being a depth of water on the sill of the lock of 20 feet at average tides. The railway trains come alongside the ships. There are a graving dock and a patent slip attached to the dock.

THE **River Clyde** is remarkable for the ease and safety with which it may be navigated. It is provided with numerous well sheltered harbours, and spacious arms of the sea, of easy access, and capable of containing the largest fleets. In approaching it, there are neither rocks, nor shoals, nor rapid tides to be feared. Ailsa is a high mountainous rock in the mouth of it, conspicuous at more than 10 leagues' distance, and serves as a remarkable beacon to direct ships to it; there are 4 Light Houses to direct mariners farther up, and to good shelter in the night; and there is hardly one opening to be seen but what a stranger, without draft or pilot, might venture safely to run for in the day time, and find good anchorage within it On coming up the SOUTH or St. George's Channel, and having got up as far as Ailsa Rock, say passing it at 2 miles' distance, the course by compass for Cumbray Head is N.N.E. ½ E. nearly, and will carry you clear of Holy Island, which forms the harbour of Lamlash. If at night, the LIGHTS will be seen on Pladda, a small low Island off the S.E. of Arran Isle. The distance between Ailsa Rock and Pladda Lights is about 11 miles, and from Pladda Lights to the Light on Cumbray Island 18½. It would, however, be advisable for strangers to keep between the Rock Ailsa and the Island of Arran, till daylight. When coming in the NORTH Channel, particularly during the winter months, with a N.W. gale, ships should never run to leeward of Arran during the night, but as soon as they pass the Island of Sanda, inside the Mull of Cantyre, they should by all means haul by the wind, on the larboard tack, with the ship under easy sail, standing 2 hours each way. By this you

keep in smooth water, and when daylight comes, can act according to circumstances. Should you run to the leeward of Arran, the wind, which was N.W. will be found at N.W. by N. and sometimes N.N.W. blowing heavy, with very heavy gusts, fit to tear every thing away. Keeping to windward, should the gale increase or continue long, you have Loch Ryan under your command; its entrance about S. ¼ W. from Ailsa; but once getting to leeward you can never regain your ground and you have a lee-shore to encounter. On approaching the Cumbray Islands, 3 entrances appear before you: the middle one is the main ship channel. In clear weather you cannot mistake the Cumbray Island, being distinguished by an old Light Tower on its highest part, a little to the southward of the present Light-house, which is low down by the side of the channel. There is a good ship channel to the southward of the Cumbray Island, but strangers never should attempt it without a pilot. The part of the Island of Cumbray on which the Light stands, is bold and steep close to. Opposite to it lies the Island of Bute, the nearest head or point of which is called Garroch Head, distant about 3 miles. Entering between these 2 head-lands, with the Cumbray Light on your starboard hand, when in mid-channel your course to the Light on the Point of Clough is N.E. ½ E., 12 or 13 miles. In proceeding on this course, a little more than half distance, you will fall in with a REVOLVING LIGHT on your larboard hand, situated on the Point of Toward, which forms the starboard side of the entrance of Rothsay Bay. The Clough light stands on a bold shore. On the opposite side is the town of Dunoon, off which lies a ledge of half-tide rocks, called Gantocks. The position of these rocks is marked by a large stone obelisk, which can be seen from a considerable distance. The river afterwards inclines a little to the eastward, until you get opposite to Gourock, situated in a small bay on your starboard side. Opposite the middle of this bay is good anchorage; and here it is advisable to anchor till a pilot comes on board. The mark, the centre of the bay with the Clough Light on with Kempuck.

Greenock, which is the chief port for large vessels in the Clyde, has three fine basins adjacent to each other. They are known as the west, the east, and the Victoria harbours. Between the pier-heads, at the entrance of the west harbour, there are about 20 feet at high water, spring tides, and from 10 to 12 feet at low water; alongside the quays is a depth of from 17 to 19 feet. The east harbour contains about the same depth of water, but is more spacious; on the quay is a crane capable of raising 50 tons. The custom-house stands between these two basins. On the eastern side of the east basin is the Victoria harbour, opened in 1851. It has an area of 6 acres, is 563 feet long, and 458 feet wide, with a uniform depth of 26 feet at high water, and 14 feet at low water, spring tides. On the quay is a large crane of 70 tons lift; there is also a steam crane of 15 tons lift, for loading coals. Connected with the east and west harbours are graving docks, the widths of their respective entrances being 34 and 38 feet. A small light is placed on the quay, in front of the custom-house, as a guide to the shipping, and lights of a red colour are exhibited at the several entrances of the port. In the roadstead are warping buoys; but in order to avoid the shoal off the custom-house, care must be taken to anchor as close as possible *outside* the line of buoys. The best place for coasters is *Crawford's Dyke*, a little above the quays, where they will be out of the way, and have room to swing. About a mile N.N.W. of the custom-house are two fixed red lights, visible at the distance of 2 leagues: when in one, bearing W.S.W. ¾ W., they lead to the anchorage below the "Tail of the Bank."—COCKLE BANK reaches from the east end of the town of Greenock to the *Old Castle of Newark* at Port Glasgow.

Port Glasgow.—The channel from Greenock to Port Glasgow is narrow and intricate as far as *Garville Point*, and should not be attempted without a pilot; about a ¼ of a mile N. from Garville Point is a buoy on the south edge of the *Cockle Bank*. Keep that buoy on the larboard hand, and run about a cable's length from it. Near the E. side of Garville Point is a beacon, which pass on the starboard hand, keeping not less than 2 ships' length from it, nor more than half a cable, to avoid the Cockle Bank. Between this last-mentioned beacon and *Inch Green* is first a buoy and then a beacon; keep both on the starboard side, sailing at the distances before directed. There is also a beacon near the quay of Port Glasgow, which you must pass at 2 ships' length on the starboard side, and enter the harbour about high water. At the quay there is water for small craft only. At low water it is dry, and with spring tides is capable of containing vessels that draw 10 and 11 feet water; the ground is soft and easy to lie on, and a good place for graving ships' bottoms is made here. A light is exhibited on the pier to direct the steamers; and at the entrance of the harbour is a light of a red colour on the west quay. About four miles from Port Glasgow is

Dumbarton, a creek in the mouth of the river Leven. Vessels drawing not more than 8 or 9 feet may go in at high water. If pilots cannot be had, the follow-

ing directions may be useful. Weigh anchor and sail from Port Glasgow at half flood; keep a cable's length from shore at the Old Castle of Newark; from thence steer eastward between Audoch and Dumbarton Castle, about 2 miles, until you come abreast of Finlayston; then steer south-eastward for the western buoy off Dumbarton Castle; there anchor until it is high-water. Leave that buoy to the larboard, and the other on the starboard, and stand in for the entry, keeping that side close until you have passed the Castle.

Between Port Glasgow and Bowling Bay are three Lights: at Auchenleck, the Garmoyle Floating Light, and the third about a mile above Dumbarton: all to be left on the starboard hand in going up the river.

Glasgow.—On the lower or western extremity of Broomielaw Quay, and larboard hand going up the river, a light, of star-like appearance, is placed for the direction of shipping.

Isle of Bute.—To the westward of the Isles of Cumbray is the Isle of Bute, on the eastern side of which, directly opposite Great Cumbray, is Killichattan Bay, where vessels may anchor in from 11 to 16 fathoms. To the northward is the Bay of Rothsay, the ground good and clean, and well sheltered: you may anchor in any part on the E. side of the Bay: but the most convenient place is 2 cables' length N. of the pier-head.

Kyles of Bute.—The channels between Bute and the Main are termed the Kyles of Bute: their access is easy, and well sheltered, the bottom is extraordinarily good, and the depth sufficient for the largest ships. They are distinguished by the names of the East and West Kyles.

Island of Arran lies to the southward: at its S. E. extremity lies the Island of Pladda, upon which a Light house is erected, 3 miles north-easterly of which is the Island of Lamlash. This island lies right in the front of the bay and forms a good and well-sheltered anchorage: the N. side of it is shallow about 2 cables' length from the shore, but the best parts to ride in are off the houses in Holy Island, in 9 or 10 fathoms, or about 2 cables' length E. by N. or E.N.E. from the pier at the town of Lamlash. A red buoy is placed on a rock, with 14 fathoms water in the south entrance to Lamlash. You can go either side; but the Island side is best. The lighthouse on Pladda exhibits two bright fixed lights, and may be seen from N.W. by W. southerly, to N.E. by E.; the upper at 17 and lower at 14 miles' distance.

At the northern extremity of Arran Island is

Loch Ranza, the ground in which is very good, and water sufficient for large ships, but the place being narrow renders it fit for small vessels only. On the east side of the entrance there is a rocky ledge, dry at low water, which extends near one-third over to the opposite side; to avoid this ledge, keep in the middle of the channel. Anchor abreast of the houses of Ballino, nearest the E. side of the Bay, about a cable's length north of the peninsula on which the Old Castle stands, in 5 or 6 fathoms water.

Loch Fyne.—To the northward of Arran is Loch Fyne, an extensive and good place for shipping, but is too deep in the middle for anchorage. Between Ruinahoterach Bank and Ilan Yone there are from 20 to 30 fathoms, and from thence to Inverary from 30 to 70 fathoms: near either side, therefore, about a cables' length or two from the shore, is the best anchorage for large ships, and the north side is reckoned better than the south.

Campbeltown Harbour lies about 11 miles south-westward of Point Carradale; it is large, well sheltered, the ground good, and there is very little to be feared in sailing into it. On coming from the S. or S.E., you will first see the Island of Devar and the *blind* sound to the south-west of it, through which is a view of the town. On Otter Buoy, the north-east point of Devar Island, is a light-house, from which is exhibited a bright light every half minute; it is visible from N. ¼ W. to E. by S. by the N., and may be seen in clear weather about 15 miles. This light is a good guide for clearing Paterson's Rock; if kept in sight, it will lead about 3 miles to the eastward of it. In standing in for Campbeltown at night, be careful to keep to the eastward until the light upon Devar Island is fairly open; then stand for it, keeping it on the port hand, and steering about one or two cables' length from the point of the Island, until you open the harbour; then haul up W. ¼ N., or W. by N., still keeping about the same distance from the shore. When abreast of the western end of Devar, a black buoy will be observed on Mullbeg Bank, about 60 fathoms from the island; this must be passed on the port hand. Steering half a point more northerly, you will next pass, on your starboard hand, a red buoy, placed nearly opposite a sandbank, which is always dry, except with spring tides. On this bank is a beacon, painted black. There is also another beacon, painted red, on Trench Flat. Hence the red light on the north pier will be seen, and soon after, on

assing Trench Point, the green light hown from Dolintober Quay. Now steer .N.W., or N.W. by W., and you may ome to an anchor in any part of the och—observing, however, to give the est shore a berth of two cables' length. n the loch inside the beacons, the eepest water is on the north side; a tranger should, however, keep the lead oing if working in, and put about the rst shoal cast, as the bank is steep on oth sides. The harbour has a depth of ater of from 5 to 10 fathoms.—Masters f vessels turning in with a west wind at ight, must be careful not to shut the ight on the Island when standing south, ut tack as soon as it becomes obscured by the high land of the Island, for in that ase they are close to the South Bank, nd the water shoalens at once; but by keeping the light E. by S. they will go clear. At night, however, it will be better to anchor at Black Rock, on the north ide, about a quarter of a mile E.N.E. from the red buoy, or when Devar Light bears about S.E., in 4 or 5 fathoms water, good holding ground, and well sheltered, being within Macrinian's Point, which forms the north entrance to the harbour.

Sanda Island.—About 6 miles to the southward of Campbelton is Sanda Island, where is a kind of harbour fit only for small vessels in summer time, or in moderate weather, the anchorage is on the N. side to the westward of Ilanagurach. On the ship rock of Sanda, in lat. 54° 16′ 30″ N., and lon. 5° 34′ 55″ W., a lighthouse, exhibiting a fixed red light, has been erected. It is visible from N.W. ½ W. to S.E. by E. ½ E. by south-westerly, and may be seen at a distance of 5 leagues. It bears by compass from Pladda Light, W. by S. ¾ W., eighteen miles; from Ailsa Craig, N.W. by W. ⅛ W., sixteen miles; from Corsewall Light, N. by W. ¼ W., twenty-two miles; from the Maiden's Rocks Lights, N.E. ¼ N., twenty-one and a half miles; from N.most Point of Rathlin Island, S. E. by E. ⅛ E., twenty-one miles; and from southernmost Point of the Mull of Cantyre, S.E. ¾ E., six miles. From Sanda Light, E. by S., distant one and a half miles, is the Paterson's Rock Buoy, pointing out a dangerous rock, uncovered at low water. When the Mull Head of Cantyre is seen to the southward of Sanda, you are to the southward of this rock; when the Mull Head is to the northward of Sanda, you are to the northward of it. When Gluinmore Rock appears to the west end of Ilanagurach you are to the eastward: and when Gluinmore Rock appears to the east end of Ilanagurach, you will be to the westward of Paterson's Rock.

Tides.—The stream of flood within a mile of the Mull Head runs southward, and turns sooner than at a greater distance from the land, so that a vessel keeping near the W. coast of Cantyre, will have the benefit of the stream 2 hours before one above a mile from the land.

Magnetic Bearings & Distances

FOR THE WEST COAST OF SCOTLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

		MILES.
ROSS, OFF KIRKCUDBRIGHT (Lat. 45 46 N., Long. 4 5 1 W.)		
To Maryport	SE by E	20
Workington Harbour	SE ¼ S	19
Harrington do.	SE by S	20
ROSS, OFF KIRKCUDBRIGHT		
To Whitehaven Harbour	SE by S ½ S	21
St. Bees' Head Light	S by E ½ E	21½
Rossall Landmark	S ¾ E	61½
Buoy Nelson, off Preston	S	71
Zebra Channel, Liverpool	S ⅛ W	81
Bell Buoy, Liverpool	S ½ W	82
NW Lightship, Liverpool	S ¾ W	83
Beaumaris entrance	SSW	85
Bahama Lightship, I. M.	SW by S	26
MULL OF GALLOWAY (Lat. 54 38 9 N., Long. 4 51 20 W.)		
To Beggar Scar Rock	E ¾ S	6
Maryport Harbour	ESE	47
Workington do.	SE by E ¾ E	44
Harrington do.	SE by E ½ E	44
Whitehaven do.	SE by E	44
St. Bees' Head Light	SE ½ E	43
Ravenglass	SE	53
Walney Light	SE by S ¼ S	67
Point of Ayre, I. M.	SE by S ¾ S	21
Jurby Point	S ½ E	19
Peel Harbour	S by W	26
Calf of Man	SSW	38
Bardsey Island Light	SSW ¼ W	113
South Bishop Light	SW by S	174
Smalls Light	SW ¾ S	180
Tuskar Rock Light	SW	153
Arklow Lightship	SW Westerly	124
POINT OF CORSEWALL (Lat. 55 0 29 N., Long. 5 9 28 W.)		
To Larne Loch Light	W ¼ N	24
Fair Head	NW ½ N	37
Mull of Cantyre	NNW	30
Sanda Light	N by W ½ W	26
Pladda Light	NE by N ¼ N	25
Ailsa Rock	NE by N	14½
Cumbray Light	NE ⅜ N	43
Ardrossan Harbour	NE	40
TROON (Lat. 55 33 N., Long. 4 41 W.)		
To Heads of Ayr	SW ½ S	8
Corsewall Light	SW ¾ W	36
Copeland Light	SW by W	58
Ailsa Rock	SW ¾ W	22½
Larne Loch Light	WSW	56
Maidens Lights	W by S ¾ S	55
Pladda Light	W	16
ARDROSSAN (Lat. 55 38 27 N., Long. 4 49 28 W.		
To Troon	S by E	7½
Ayr Harbour	S	11⅛

ARDROSSAN continued.		MILES
Heads of Ayr	S by W ½ W	13
Loch Ryan	SW ½ S	38
Corsewall Light	SW	40
Ailsa Rock	SW ½ W	26
Copeland Light	SW ½ W	61
Pladda Light	SW by W ¾ W	17
CUMBRAY LIGHT (Lat. 55 43 16 N., Long. 4 58 W.)		
To Ardrossan	S ½ E	6
Ayr Harbour	S ¼ E	12
Heads of Ayr	S by W	18½
Turnbury Point	SSW	23
Loch Ryan entrance	SW by W	42
Corsewall Light	SW ⅝ S	43
Ailsa Rock	SW ¼ S	29½
Copeland Light	SW	64
PLADDA ISLAND LIGHT (Lat. 55 26 N., Long. 5 7 9 W.)		
To Cumbray Light, from 1 mile North of Pladda Light	NE	19
Irvine Harbour	E by N	18
Troon do.	E	16

PLADDA ISLAND continued.		MILES.
Ayr do.	E by S ½ S	16
Turnbury Point	SE by S	11
Loch Ryan entrance	SSW	24½
Ailsa Rock	SW by S ½ S	11
Corsewall Light	SW by S ¼ S	25
Copeland Light	SW	45
Belfast Loch entrance	SW ¾ W	43
Larne Loch Light	SW by W ½ W	42
Maidens Lights	SW by W ¾ W	36
MULL OF CANTYRE (Lat. 55 19 N., Long. 4 49 W.)		
To Sanda Light	SE by E ½ E	5
Ailsa Rock	SE ½ E	24
Corsewall Light	SSE	30
Calf of Man	S ½ W	84
Maidens Lights	SSW	24
To Fair Head	W ¼ S	13
Inisterhul Light	NW by W	49
Loch Ryan entrance	SE by S ½ S	31
Larne Loch do.	SW by S ½ S	28
Rathlin Island, N end	W by N ¼ N	13
Sound of Isla, E. en.	N by E ¼ E	28

MULL OF CANTYRE TO THE NORTH END OF SCOTLAND.

The **Mull of Cantyre** is a high rocky promontory, running to the southward, and approaching within 11 miles of the coast of Ireland. On its south-western extremity is a lighthouse, which exhibits a fixed bright light, visible 22 miles in clear weather, from N. N. E. ½ E. to S. by W. ¼ W. by W. Off Dunimore Head, which is about 5 miles to the northward of the lighthouse, is a rock, lying about a cable's length from the shore, which dries at half-ebb. A rocky shoal, with 3 or 4 feet on it at low water, lies further north, about a quarter of a mile off Usid Point, at the Saltpans: on this shoal the sea always swells, and breaks in the calmest weather.

West Loch Tarbit, on the main of Cantyre; the bay of which is well sheltered, and the depth of water for a mile up sufficient for the largest ships; but the ground, being of soft mud, does not hold well with hard gales, except there is a full cable out. The common places of anchorage are, for large ships, off Ardfarik, in the mouth of the loch; and for small vessels, on the east side of Ilanagalligan. On the S. side of Ilan Trayn are several rocks above ½ a cable's length from the island, or ⅛ from it, and ⅜ from the starboard side of the entry. There is also a sand bank extending from the E. Point of Corran, nearly ⅛ over to the N. side of the loch; to avoid which, keep nearest to the N. side, or keep the easternmost extremity of Ilan Trayn in a line with the W. end of the highest hill in Gia Island. About 3 miles up the loch, off Duneturik, nearest to the N. shore, is a small blind rock, having 5 feet water over it. Keep the middle of the loch, and you will avoid it.

Loch Achastil is a fine harbour, and fit for ships of any size; the ground good, and only one rock, about midway, within it, covered only with spring-tides. Ships may anchor in any part of this loch above Castle Swein. The danger to be avoided in sailing toward Achastil is a small rock on the N. side of the two Mackcarmack Islands, which dries with spring-tides only.

Jura Island.—To the westward is the Island of Jura; on the S.E. side of which is Loch Daguall, with good anchorage, well sheltered, and water enough for a merchant ship. This anchorage is very convenient for vessels bound to the southward. You will anchor near the middle of the bay, when Gia Island is just shut in by the N. point of the entry, and the northernmost Pap of Jura bears N.W. ½ W. In running either in or out, stand not too near the sides, for on the N.N.E. and N.W. sides of the bay it shoals nearly 2 cables' length from shore.

Sound of Islay is the common track for shipping to and from the N. A Lighthouse has been erected on Rudha Mhail Point showing a Fixed WHITE Light, visible 15 miles in clear weather. A tide or a night is the longest any vessel should stop here except in Macdougal's Bay, where one cable may be made fast to a ring or rock on the shore. In entering Islay Sound from the southward, you are to bring Glas-

an Island to bear N., or keep within a ble's length or two from the Islay shore, d you will clear the Skerchray Rock, ich lies on the starboard side, W. of the all Island of Frochilan.

Loch Tarbet is filled with small ks, especially on its southern side, is therefore hazardous to enter. The chorage is ¼ of a mile above Guin- re, but the best and safest place is r the mouth of the Loch in Glenabe- Bay. This is easy of access, and has nd 4 fathoms water. Keep a cable's gth from the point in passing, and an- r the same distance eastward of it. out a mile eastward of this anchorage cluster of small rocks above water; the E. side of these a ship may ride e in 5 fathoms water, keeping ¼ a ca- 's length from them in going up.

Loch Indaal.—Having rounded the ll of Kinho, which is the south-west- part of Islay, you will open Loch In- l. This may be said to be the only ce in Islay where vessels in winter time ride in safety. Here small vessels wing 9 and 10 feet water may ride, and well sheltered; larger ships, drawing feet, must ride with the mouth of the ch open, and will therefore not be so fe when the wind blows from the W. or W. But the best anchorage is at the rther end of the loch called Kilirn Bay, hen Bomore House bears S.S.E., lying mewhat nearer to the S. than to the N. e of the harbour, in 3 fathoms, sandy ound. Larger ships anchor more to the stward bringing Bomore House S.E. by in 4 fathoms. At the entrance to this bour are 2 spits of sand; one on the S. e, which never dries, extending from urach Point northwards; the other run- g from the opposite side southward, ich dries gradually. These two spits and almost enclose the harbour. In channel between their two points are nd 2½ fathoms, low water, spring-tides.

hins of Islay Light, on the north- side of the entrance to Loch Indaal, n the small island of Oversa, bearing compass from the Mull of Kinho, N. W. ¾ W., distant 10 miles; and from STATIONARY LIGHT of the Mull of ntyre, N. by W. ¾ W., 33 miles. From north eastern extremity of the Island Rachlin, N. ¼ E. distant 25 miles. From REVOLVING LIGHT of Innistrahul, E., tant 28 miles. From the Revolving ht, producing a bright flash once in ry minute, on the Rock of Skerry- e, distant from Hynish Point, in ree, W.S.W. ½ W., 10½ miles, it bears ¼ W., distant 44 miles. From the cks of Dunheertach, lying 11 miles W. from Icolmkill, it bears S.S.W., dis- tant 28 miles; and from Tanvore Head S.W. by S., distant 6½ miles. It will be known to mariners as a STATIONARY and a FLASHING LIGHT. To a distant ob- server it appears like a star of the first magnitude, producing a bright flash of light every 5 seconds, without those in- tervals of total darkness which character- ise other Revolving Lights upon the coast. In clear weather it will be visible at the distance of 6 leagues, and is open from N.N.E. to S.E. (westerly); half-a-mile off Cull Point it disappears.

Oronsa and Colinsa Islands.—Oronsa is much the smaller island, and is nearly 4 miles to the northward of Ru- inanishag Point, in Islay. Off its south- ern sides are several rocks, one of which extends W.S.W. from Gudimel, a small island on the S.E. part of Oronsa. This rock dries at half-ebb. There is a shoal also about ¼ of a mile to the southward of the middle of the rock, on which are 6 feet at low water. At the S.W. point of Oronsa is Ilana Roan, one mile S.W. of which are 2 or 3 rocks, which dry with spring-tides only, and some shoals, on which the sea always breaks. A leading mark to go to the southward of these dangers is Ruvaal Point in Isla, on with the S. end of Beninore Hill in Jura. Sail not nearer to Colinsa than till Ruvaal Point bears on the middle of the hill. To the W. of Colinsa are several rocks and shoals, lying a mile out from Ardskinish Point, some are above, some below, and others dry only at low water; you will avoid the whole of them by keeping about 2 miles from the shore, or one mile from those rocks you see above water. There is no anchorage on the W. side of Colinsa, and but indifferent on the E. side.

The **Gulf of Coryvreckan,** which is formed by the N. end of Jura, and the Island Scarba, is distinguished by a vio- lent breaking sea with whirlpools, partly occasioned by an excessively rapid stream running over a steep rock, at the N. side of the Sound, near the W. Point of Scarba. On the Jura side of the Gulf the sea rages, and forms whirlpools, both with ebb and flood: but the waves do not rise so high as on the Scarba side of the Gulf.

The Sound of Mull Light- house is situated on a small rock called Runa Gall, on the south shore of the Sound of Mull, Argyllshire, about one mile northwards from Tobermory. The tower is about fifty yards within the high water mark of spring tides, and is con- nected with the shore by a bridge of two spans. The Light is an azimuthal con- densing Light, and shows a FIXED RED LIGHT northwards out to sea; a FIXED GREEN LIGHT towards the New Rocks,

the Red Rocks, and the Stirks Rocks, in the Sound of Mull; a FIXED WHITE LIGHT southwards into the Sound of Mull. The Light is exhibited from a tower of masonry about 55 feet above high water of spring tides, and may be seen in clear weather at the distance of about twelve nautic miles.

Ardnamurchan Point.—A Lighthouse, exhibiting a Fixed Light of the natural appearance, has been erected on this point; and bears by compass from Caillach Head, N.E. ¾ E., distant 7 miles; from the Cairns of Coll, E.S.E., 8 miles; from Kana Head, S. ¼ E., 30 miles; from Scour of Eigg, S.W. by S. ¾ W., 11 miles; from Bo Askadil Rock, W.S.W., 7 miles. It is visible 18 miles in clear weather.

Ushenish Lighthouse is situated on the most easterly headland on the eastern side of the Island of South Uist, one of the Hebrides, in the county of Inverness. The Light is a dioptric first-class FIXED RED LIGHT, and is exhibited from a tower of masonry erected on the headland. The Light is about 176 feet above high water of spring tides, and may be seen in clear weather at the distance of about eighteen nautic miles.

Island Glass Light, situate on the eastern side of Glass, and on the western side of the channel between Skye and the Long Island. This light is STATIONARY, appearing like a star of the first magnitude, at the distance of 5 or 6 leagues, from W. by S. to E.N.E. ½ E. by the S.

Skergriatick Rock.—A Beacon, painted Black, has been erected on this rock, situate in the Minsh. It consists of a Frame-work of iron, surmounted by a cylindric cage, and rising to about 30 feet above high water spring tides. There are steps leading from the rock to the cage, in which shipwrecked mariners may find a temporary shelter. This beacon bears by compass from Skernamule beacon N.N.W., distant 3 miles; from Dunvegan Head, in Skye, N.E. ¾ E., 18 miles; from Island Glass Lighthouse, S.E. by S. ⅜ S., 7½ miles; from the Greater Galtimore (one of the Shiant Islands), S.W. ¼ S., 8 miles. There is foul ground nearly all the way from Skergriatick Rock to Fladdahuan Island, from which the beacon lies 2½ miles to the N. by E.

Loch Terriden.—In entering Loch Terriden avoid Runawhagh Point, its southern entrance, a little way off which point is a rock under water, which dries at spring tides. Excepting this rock, there is no danger in sailing into or up this Loch; for Skerintram Rock, which lies on the N. side, is always above water, with deep water all round. Her therefore the access is easy, the groun good, and so well sheltered, that sever hundreds of the largest ships may rid with safety in all weathers. Its entry is miles wide, the Loch running in S. by ½ E. to abreast of Loch Shieldag, then S. by E. to the furthest end. The best plac for anchorage is in Loch Shieldag, b tween the two narrows, on the S. side the basin, or any where above the secon Narrow, which is what may properly called Loch Terriden.

Loch Gerloch.—About 4 miles fu ther N. is Loch Gerloch, a large and we sheltered harbour, the ground in all par clean, holding well, and capable of co taining a fleet of the largest ships; its e trance is between Coupachar Point an Longa Island; distant from each oth nearly two miles. There are no dange either in or near it; and when it does n blow hard from the W. or S.W. ships ma ride in any part, particularly on the side of Island Longa. In winter the be anchorages are between Flowerdale an the Island of Horisdale, in from 9 to 20 f thoms water. Small vessels may ride o the W. side of this island, S. E. of a roc above water.

Loch Yew.—From Longa Island t Ru Rhea the bearing and distance are N E. ½ N., 3½ leagues. Five miles to th eastward is Loch Yew, a place large an well sheltered, forming a bay of easy ac cess, a moderate depth of water, and hav ing good holding anchorage, where whol fleets may ride in the greatest safety a all times. The entrance to Loch Yew is mile wide, and nearly off its western point lies the small Island of Fura, with 2 or islets to the eastward of it; there is also a little rock off the northern point of Fura; keep therefore at a distance in passing it, and the channel in is free from danger. In the middle of the bay is Yew Island, at the northern point of which are some rocks above water. The best places to ride, are on the E. side of the Island Yew, or on the E. side of the bay off Tunag, and off Inveraspadale at the opposite side of the Loch.

Loch More or Great Loch Brim.—To the northward of Loch Beg, are several islands, lying before Loch More, or Great Loch Brim. Loch More is a great and safe branch of the sea, capable of accommodating the largest fleets, and having no rocks or dangers within it, except a small ledge on the E. side of Ullapool extending above a cable's length from that shore, which is avoided by keeping ⅓ from the Ullapool side. You may anchor in this bay in 14 and 15 fathoms water, above a cable's length from the shore, or any where above Logie Point, in from

13 to 24 fathoms. Should you, in entering or sailing from this Loch, go between the larboard point, or Ru Handerrick, and the Carniskere Islands, remember to give the former a berth on account of a rock called Nuela, which lies nearly a cable's length from the shore, and dries about half ebb.

Loch Kylescough is nearly 7 miles E.S.E. ¼ E. from Ru Stoir, and 3½ miles in the same direction from Ouldenay Island. This is a large and well sheltered branch of the sea, the approach to which is safe, and the anchorage good; but for some miles within the Loch the water is too deep for ordinary vessels, being from 30 to 50 fathoms, unless you carry an anchor on shore. Above the Island Ranich, where the contracted channel commences again to widen, ships may anchor anywhere, the stream in the narrowest part running not more than 1 mile an hour.—The only rock necessary to notice, lies near the Island Calaway, off the larboard side of entrance; it bears W.S.W. from it and dries at low water; keep Runachusan Point in Ouldenay Island on with the extremity of Ru Stoir, and you will clear this rock to the southward. At the N. side of the entrance to Loch Kylescough is Loch Shark, and N. E. of Shark lies Loch Calaway.

Loch Inshard.—One league to the eastward of Lusford is Loch Inshard, the last bay before you round Cape Wrath. In sailing in great caution must be observed, as there is a rock lying right at the entrance, which appears at spring ebbs only. Within the loch you will be well sheltered, your depth moderate, and your ground good. Sail up until you are landlocked, and anchor near the north or east side. To the north west of Loch Ardicar are some Islands, close to the main, called Ilanarone; and nearly N.N.E. of these, 4 miles, is Balag Island, having a small rock above water, at both the N. and S. extremities. This Island lies about a mile from Ru Wochel. Near the latter is a rock above water, close to the land. From hence to Cape Wrath the coast is high and rocky. Off Cape Wrath are said to lie several rocks under water, called the Stags. Vessels in sailing round this headland should always give it a good berth, of 1½ or 2 miles, and steering eastward, they will reach the Pentland Frith.

Isle Oronsay Lighthouse is situated on a low point at the south-east end of the Island of Oronsay, Inverness-shire, in the Sound of Skye, also called Sound of Sleat. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT, from a tower of masonry about 58 feet above high water of spring tides. The Light may be seen in clear weather about twelve nautic miles.

Kyleakin Lighthouse is situated on a point of rock which covers at high water spring tides, and projects from the west end of Eilan Dool, or Gillean Island, in Ross-shire, at the western entrance of "The Narrows," leading to Loch Alsh. The tower is about fifty-three yards within the high water mark of spring tides, and is connected with the Island by a bridge of five spans. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT in the fairway of the Sound of Loch Alsh, and a FIXED WHITE LIGHT in the fairway leading to the Sound of Applecross, and which White Light extends southwards to Pabba Island. From thence it shows a FIXED RED LIGHT, extending eastwards along the shore of Skye to the south of the fairway of Loch Alsh. It also shows a FIXED RED LIGHT to the north-eastwards of the fairway to the Sound of Applecross. To the north of the fairway of Loch Alsh the Light is not shown. It is exhibited from a tower of masonry about 53 feet above high water of spring tides, and may be seen in clear weather at the distance of about eleven nautic miles.

Rona Lighthouse is situated on the northern end of the Island of Rona, in Inverness-shire, between the west coast of Ross-shire and the Island of Skye. The Light is a catadioptric second-class holophotal FLASHING WHITE LIGHT, showing a flash EVERY TWELVE SECONDS. It is exhibited from a tower of masonry erected on a peak at the north-east point of the Island. It is elevated about 222 feet above high water of spring tides, and may be seen in clear weather at the distance of about twenty nautic miles.

Cape Wrath Lighthouse, erected on the Cape, forming the north-western extremity of the main land of Scotland, in lat. 58 deg. 37 min. N., and in lon. 5 deg. W., bears from Hoy Head in Orkney, W. ¾ N., distant 50 miles; from the Butt of the Lewis, E. by S. ½ S., 41 miles; from the rocks called the Stags off the Cape, S. W. by W. ¼ W., about 1 mile; from the sunken Rock called the Nun, S.S.W. ¾ W., distant 15 miles; and from the Islands of Stack and Skerry, W.S.W., the former 35¼ and the latter 38 miles distant. It is known to mariners as a REVOLVING LIGHT, of the natural appearance, changing with one tinged red, which attain their most luminous effect every two minutes, and become, to a distant observer, totally eclipsed for a short time. The light is visible from S. ½ E. to S. W. by W. by the N., at the distance of 10 leagues.

Dunnethead Light, on the Northern extremity of the mainland of Scotland, in lat. 58 deg. 40 min. N., bears by compass from the N. end of the Island of Stroma, in Pentland Frith, W.N.W., distant 7½ miles; from Hoy Head, leading to Hoy Sound, S.S.W., distant 13 miles; from the Stack and Skerry, S. by E. ¾ E. distant thirty-three miles; and from Cape Wrath, in Sutherlandshire, S.E. by E. ¾ E., distant 54 miles. In reference to these bearings, the light will be visible to the mariner in a northerly direction from S.E. ½ E. to W. by northward. The Light is STATIONARY, and being elevated 346 feet above the medium level of the sea, will be seen like a star of the first magnitude, at the distance of from 7 to 8 leagues, and at lesser distances according to the weather.

Magnetic Bearings & Distances

FOR THE NORTH AND EAST COASTS OF SCOTLAND.

CAPE WRATH (Lat. 58 37 30 N., Long. 5 W.)

		MILES.
To Ru Store	SW by W	26½
Loch Maddy entrance	W by S	92
Glass Island Light	W by S ¼ S	70
Chicken Head	W ⅜ S	47
Tolsta Head	W ¼ N	39
To Nun Rock	NNE ¾ E	15
Hoy Mouth, Stromness	E ¾ S	61
Holburn Head	SE by E ⅛ E	51

DUNNET HEAD (Lat. 58 40 16 N., Long. 3 22 20 W.)

To Thurso Bar	SW by W ½ W	5
Holburn Head	W by S	5
Hoy Head	NNE	13
Swona, South end of	E by S	10
Pentland Skerries	ESE	14

SULE SKERRIE (Lat. 59 3 N., Long. 4 13 W.)

To Dunnet Head	SSE	33
Strathy Head	S by W	28
Sumburgh Head, Shetland	E	100
Westra Frith	E by S	40

HOY MOUTH, STROMNESS (Lat. 59 3 N., Long. 3 23 W.)

To Scrabster Roads	SW ½ S	17
Strathy Head	W by S ½ S	23
Lock Erobol	W	45
Cape Wrath	W ¾ N	59

DENNESNESS LIGHT, NORTH RONALDSHA (Lat. 59 23 N., Long. 2 23 W.)

To Foul Island	NE	45
Pappa Island, Shetland	NE ¼ E	60
Sumburgh Light, Shetland	E ¾ N	46
Fair Island	E by S	28

START POINT, IN SANDA ISLAND (Lat. 59 16 39 N., Long. 2 22 25 W.)

To Foul Island	NE ¼ N	50
Fair Isle	E	30
Noss Head	SW ½ W	50
Copinsha Island	SW ½ W	22

SUMBURGH HEAD, SHETLAND (Lat. 51 N., Long. 1 16 W.)

		MI
To Noss Island	NE by E	
Bucanness Light	SW by S	
Fair Isle	SW by W	
Start Point, Sanda I.	W by S ¼ S	
Foul Island	NW by N ½ N	

NOSS HEAD (Lat. 58 28 38 N., Lo 3 3 5 W.)

To Duncansby	NE by N	
Pentland Skerries Lights	NE	
Fair Isle	ENE	
Sumburgh Head	NE by E ½ E	

TARBERTNESS LIGHT (Lat. 57 51 Long. 3 48 W.)

To Troup Head	SE ¼ E	
Cowsey Point	SE by S ¼ S	
Burgh Head	S ¾ W	
Nairn	SW ¼ S	

KINARD'S HEAD (Lat 57 42 N., Lo 2 1 W.)

To Rattry Brigs	SE by S ⅜ S	
Helmsdale	NW by N	
Noss Head	N by W	
Duncansby Head	N ½ W	
Copinsha Island	N by E	
Fair Isle	NE by N	

BUCANNESS LIGHT (Lat. 57 28 15 Long. 1 46 11 W.)

To Peterhead, S.H.	NNE	
Rattry Brigs	NNE	
Sumburgh Head	NE by N	
Bell Rock	SW	
St. Abb's Head	SW ⅜ S	
Girdleness Light	SW ½ W	

THE GIRDLENESS (Lat. 57 8 15 N., Lon 2 3 2 W.)

To Bucanness	NE ½ E	
St. Abb's Head	SSW	
Bell Rock	SW ¼ S	
Flambrough Head	S ½ W	19

MONTROSE (Lat. 56 42 N., Long. 2 27 W.

To St Abb's Head	S by W ½ W	
Bell Rock	SSW	
May Island	SW by S	
Flambrough Head	S	17
Longstone Light, Ferns	S ½ W	

BELL ROCK (Lat. 56 26 3 N., Long. 2 2 6 W.)

To Montrose entrance	NNE	
Girdleness Lights	NE ¼ N	
Bucanness Light	NE	
Flambrough Head	S ¼ E	15
Buttonness	NW ½ W	
Arbroath	N by W ½ W	
Dunbar Harbour	SW ½ S	27
St. Abb's Head	S by W ½ W	32
Fifeness	SW by W ⅜ W	11½

MAY ISLAND (Lat. 56 11 8 N., Long. 2 33 20 W.)

To Fifeness	N ¾ E	
Arbroath	NE by N ¾ N	21
Bell Rock	NE ¾ E	16
St. Abb's Head	S ¾ E	21
Inchkeith	W ¼ N	22

NCBKEITH (Lat. 56 2 N., Long. 3 8 W.)

		MILES.
To Kirkaldy	N by E ½ E	6
Elieness	E by N ½ N	14
Fidra Island	E by S ¼ S	12½
Fisherow	S ¼ E	6
Colm Island	NNW	7
Garvy Island	W by N ¾ N	9
May Island	E ½ S	22

ST. ABB'S HEAD (Lat. 55 55 N., Long. 2 9 W.)

		MILES
To Buttonness	N	37
Bell Rock Light	N by E ½ E	32
Aberdeen, Girdleness	NNE	72
Bucanness Light	NE ⅜ N	95
Bass Rock	NW by N	11
Elieness	NW by N ¾ N	25½
May Island	N by W	20

EAST COAST OF IRELAND.

POINT CARNSORE TO ST. JOHN'S POINT.

Point Carnsore is the S.E. point or extremity of Ireland, and lies about 42 leagues from Cape Cornwall, bearing N. by E. ½ E.; from the Small's Light N. by W. ½ W., distant 37 miles. Nearly E. by S. from Carnsore Point, distant 6 miles, lies the TUSKAR, a very remarkable rock, 20 feet above the level of the sea at high water, upon which stands a lighthouse similar to that on the Eddystone, elevated 81 feet from its base. The light revolves every two minutes, showing two faces bright, and one red. The red light is visible 10 miles, and the bright 15 miles. During foggy weather a bell is tolled every half minute. This rock bears from the Smalls Lighthouse N. ½ W., distant 33 miles. Ships coming from the westward and bound for St. George's Channel, should endeavour to see this rock before they shape their course to the northward.

Blackwater Bank, in front of Wexford Bay, is a narrow sandbank running nearly in the direction of the coast, at the distance of from 4 to 5 miles. A buoy is placed at each extremity of this bank. Moored off the north end, in 20 fathoms, at low water, spring tides, is a Light Vessel, which exhibits two White Lights—one Revolving, the other Fixed. The Revolving Light, which attains its greatest brilliancy once every minute, is shown from the mainmast, and the Fixed Light from the foremast of the vessel. The Revolving Light can be seen at a distance of about 10 miles. The vessel has three masts, and carries a Ball at the fore and main-mast-heads; is painted Black, with a White Band, having the word "*Blackwater,*" in white letters, on her sides; and lies about 1½ miles E. ¾ S. of the black buoy on the north end of the Blackwater Bank, with the following marks and compass bearings:—Arklow Light Vessel, N.E., 13 miles; Cahore Point, N. by W., 5 miles; Tuskar Lighthouse, S.W. ¾ S., 18 miles. A gong is sounded in foggy weather.

Wexford Harbour is capacious and sufficiently sheltered, but is obstructed by a bar extending across it, over which there are at times but 7 feet water. Buoys are laid in the deepest water across the bar; but to enter this harbour a pilot is necessary.

Arklow Bank is a narrow sandbank off Arklow Bay, about two leagues from the land, and nearly 10 miles long from N.E. by N. to S.W. by S., and from ½ to ¾ of a mile broad; the shallowest part is near the N. end, where the least water is 1 foot; the S. end has from 8 feet to 3 fathoms on it, and except at slack water, you will perceive its ripple; near to its East side are from 13 to 20 fathoms: approach it no nearer than 30 fms. The marks for its southern end are Arklow Rock N.W. ½ N. distant 7 miles, and in one with the northern declivity of the Copper Ore mountains; and the Great Sugar Loaf open to the eastward of the Ballynacarrig Hills, and also of Mizen Head, bearing about N. ½ E. The marks for its northern end are the top of Carrig Mc Rely just open to the northward of Maughry Point, bearing N.W. ¾ N., and the Great Sugar Loaf open to the eastward of Wicklow Head, N. ½ W. Wicklow Head bearing N.N.W. clears it. Off this end of the bank is a striped beacon buoy, moored in five fathoms, with Wicklow Head bearing N. ½ W., 5 miles, and Mizen Head W. ½ N., 5½ miles. A Light Vessel is moored, in 22 fathoms, one mile south-east of the southern end of it. It shows a steady bright light, visible 10 miles, and carries a ball; during foggy weather a gong is sounded.

On **Wicklow Head** are two lighthouses, each showing a bright fixed light. The upper may be seen at 21, and the lower 16 miles off. The lights bear from each other N.W. by W. ¾ W., and S.E. by E. ¾ E., 180 yards, and, when in one, lead between the India and Arklow Banks.

Wicklow Harbour, fit for small craft only, there being only 9 feet in the entrance at high water, spring tides, and 6 at neap tides. To make its entrance better, a new channel has been opened; this is formed by 2 Piers about half a furlong to the westward of the Old Bar, and there the depth is 12 and 14 feet.

The **Wicklow Banks** are 2 narrow patches of sand, lying about 5 miles E. from Wicklow Head. The southern Patch, called the India Bank, is about one mile long, N.N.E. ½ E., and S.S.W. ½ W, and ⅓ of a mile broad. On its middle are 2 fathoms, on its N.E. part 3½ fathoms, and on its S.W. end 3¼ fathoms; at its S. W. extremity is a black buoy, from which Wicklow Head Lights bear W. ¾ S., 5 miles. The lights in one, bearing N.W. by W. ½ W., lead 2¾ miles to the southward of this buoy, in from 12 to 30 fathoms; and the buoy is a guide to pass between Wicklow Head and the Banks. To sail between this Bank and Wicklow Head, bring Wicklow Head lights in one; keep them so until the Sugar Loaf Hill bears N. ¾ W.; then steer by this course, and you go clear, and to the southward and westward, of the India Banks.

The **South Ridge** lies at the N. end of the India bank, separated by a narrow channel of 5 fms., about a cable's length in width; it is 1½ miles long, and ⅓ of a mile broad, with 3½ to 5 fms. water on it. Its direction is N.N.E. ½ E., and S.S.W. ½ W., and its N.W. end is nearly 5½ miles S.E. by E. from Six Mile Point.

The **Codling Bank.**—The south end of this bank lies N.E. by E., 3 miles from the South Ridge; it then runs N. by E., 3 miles, and turns suddenly to W. by N. for 2 miles, then curving round to the S.E. till it joins the south point. In the middle of the bank, which is 2 miles broad, are from 3¼ to 5 fathoms. The Great Sugar Loaf open north of the Gap, N.W. ¾ N., leads between the Codling and the South Ridge. A Black Buoy is placed on each extremity of the Codling, and lying off the south-eastern end, in 8 fathoms, low water, spring tides, is a Black Spiral Buoy, surmounted by a Staff and Globe, and marked "*Codling Bank*," with the following marks and compass bearings:—Carrickgollogan Hill, in one with Bray Point, N.W. ¾ N.; Great Sugar Loaf, N.W. ¼ W.; Wicklow Head, W. by S. ¾ S.

The **Bray Bank** lies N.E. by E. and S.W. by W.; is 2 miles long and ½ a mile broad, with twelve feet on it. In the Channel, between the Codling and the Bray, which is nearly half a mile wide, there are 8 to 10 fathoms. Carrickgollogan Hill 2 degrees open north of Bra Head, N.W. ¼ N., clears the Codling t the northward. This mark will lead acro the bay, in 3 fathoms at low water. Th south hummock of the Little Sugar Lo in one with Windgate Hill, W.N.W. ¼ W leads between the Bray and the Kis Banks in 3¼ fathoms. There is a whit buoy at the N. end of the Bray Bank.

The **Kish** is a long, narrow sand stretching N. by E. ½ E., and S. by W. W., about 6½ miles, and is from ½ to ¾ of mile broad; on its southern extremity a black buoy. From it Dublin Lighthous bears N. by W. ½ W., 12½ miles; Howt Head Light N. 11½ miles; and Bray Hea W.N.W. ½ W., 6 miles. On the Kish ar from 9 feet to 3 fathoms, the latter dept being near its northern end; here a whit buoy is placed, which lies from Howt Head Lighthouse S. S. E., distant 6 mile and from Dalkey Island E. ¾ S. about th same distance. Three-quarters of a mil from the northern extremity of the Kish, Floating Light Vessel is moored, with th following mark and bearing:—Ireland' Eye a little open of Howth Head, an Dublin Lighthouse, N.W. ½ N., distan 7½ miles. This vessel bears 3 lights o lanterns, on three separate masts equi distant from each other, the centre lanter being the highest. Three miles to th southward of the white buoy is a bea con buoy, lying in 1½ fathom wate and points out the middle and mos dangerous part of the Kish; at this spo the Great Sugar Loaf Hill appears on th saddle of Bray Head, bearing W. ½ S., and Ireland's Eye just open, and shut with the Head of Howth, N. ¼ W.

Bennett's Bank.—The S.E. end of this bank lies about 2 miles N. E. ½ N. from the North Buoy of the Kish, and 5 miles S. E. from Howth Head Lighthouse; it is about 1¾ miles in length, and has 5 to 5½ fathoms on it; at ½ mile southward are 8 or 9 fathoms.

The **Burford Bank,** at the entrance to Dublin Bay, is narrow, and runs in a N.N.E. ¼ E. and S.S.W. ¼ W. direction, being about 1½ mile long, and one-third of a mile broad. Nelson's Pillar kept open to the southward of the Pigeon-house on Dublin Quay, will lead clear of its southern extremity in 4½ and 5 fathoms water; and the same pillar, or Shallows Bath Light, open to the northward of Poolbeg Lighthouse, will clear its northern end, in 5½ and 6 fathoms water. The mark to go clear to the eastward of it, is Ireland's Eye open to the Nose of Howth. Upon each end of this bank is a buoy; that on the southern end is vertically striped red and white, and that on the northern chequered black and white.

Sailing for Dublin Bay from the Southward. — From the Tuskar to Wicklow Head the bearing and distance are N.E. ¾ N. nearly 46½ miles, but to pass to the eastward of the Arklow Bank the course is N.E., observing to make due allowance thereon for the set of the tide, whether flood or ebb. When Wicklow Head Lights bear N. by W. you will be clear of the Arklow Bank; then to sail within the Wicklow or India Banks, bring the Great Sugar Loaf Hill well open of Wicklow Head, bearing N. by W., or Wicklow Lights in one; either of these will lead between the Arklow and India Banks; and when within 2 and 2½ miles of the shore, a N. by E. ½ E. course will carry you past Moulditch Bank and Dalkey Island. If with a westerly or S.W. wind, you may haul close round the Mugglins, and proceed along shore, avoiding the Bullock Rock, which lies about a mile from Dalkey. In working up between the banks and the shore with a flood tide and northerly wind, do not stand further from the land than four miles; for at about that distance the stream turns off to N.E. by E., and with little wind may drift you upon the banks; while near the shore the stream commonly makes to the southward 1½ hours before high water.

Stopping Places. — In moderate weather vessels may stop almost anywhere within the banks between Wicklow and Dublin, except off the Giant's Bed, where lies the Moulditch Bank; the best part, with westerly winds, is between Bray Bank and the main, from ½ to 2 miles from the shore. Here is very little stream of tide, and the violence of the sea is considerably broken by the banks.

In **Killynee Bay** vessels may anchor in 5 or 6 fathoms, sheltered from W.N.W. to N.N.E. winds, and also in 7 fathoms off Wicklow Church, sheltered from S.W. and westerly winds.

Dublin Bay.—There is good anchorage in the mouth of Dublin Bay when the wind does not blow hard from the E. and S.E.; with these winds a great sea sets in when it blows hard, so that vessels are obliged to run for some place of safety; with north-easterly winds, vessels run for Kingstown harbour, which lies on the S. side of Dublin Bay, and is enclosed by two large piers; on the head of the eastern of which is a lighthouse shewing a revolving light, presenting white and red faces alternately, and attaining their greatest brilliancy at intervals of thirty seconds. During foggy weather a bell is tolled. There is also a fixed red light on the west pier-head. The entrance to this harbour faces the N.E., and has 4 fathoms water; within, from 4 to 2½ fathoms at low water. When going in, leave the revolving light on the larboard hand, and round it close to. BAILEY LIGHT, exhibited from the S.E. point of Howth Peninsula, is stationary, and is visible at a distance of fifteen miles. About a mile to W.S.W. of the lighthouse lies the Rosebeg Bank, which is easily distinguished in blowing weather by the sea breaking over it; and on which are from 2¾ to 3 fathoms water. The Revenue Barrack on with the Poolbeg Lighthouse, bearing N.W. by W.¾ W., leads clear to the southward of it.

Dublin Harbour lies between two banks, the North and South Bull, and is protected by two walls built on piles, the southern one of which is carried 2¾ miles into the bay, and has a lighthouse on its extremity, called the Poolbeg, exhibiting a fixed light all night, and a lower light, much fainter than the upper, from half-flood to half-ebb: in the day a ball is hoisted during the same period. At the extremity of the north wall there is a beacon. There is also a small light further in the harbour, called the Shallows Bath, or City Light. A bar lies across the entrance, on which are 6 to 12 feet at low water. Between the bar and lighthouse are 14 to 27 feet. A red buoy is moored on the bar, in 12 feet at low water: it lies a mile E.S.E. ¼ E. from the lighthouse. Pass about a cable's length to the southward of this buoy, observing the beforementioned mark, and you will carry 12 feet over the bar at low water. On the north side of the channel, and bearing E., 3-10th's of a mile from the lighthouse, is a white buoy, moored in 9 feet at low water, between which and the lighthouse are from 14 to 27 feet. The south bar buoy (black) lies S. ¼ W. 2-5th's of a mile from the lighthouse, on the southern extremity of the south bar patches, which commence about ⅛ of a mile S.E. from the lighthouse, extending in that direction nearly ½ a mile; then turning to the westward about the same distance, when they terminate where the black buoy is placed. On these patches are only from 4 to 5 feet. At nearly three-quarters of a mile within the lighthouse, a white buoy is placed, which must be passed to the northward. The channel is regularly buoyed on the north side with black buoys, and on the south with red buoys, from the Pigeon House to Ringsend. Between Poolbeg and the Pigeon House there are several places where vessels may anchor, in from 16 to 20 feet at low water, the channel having been greatly improved by means of powerful steam dredges. Ships in general, with suitable draughts of water sail over the bar to the northward of the east buoy. This is called the East Channel, and the mark for it is

the Church of Irishtown just open to the northward of the lighthouse. This mark will lead you about a cable's length to the northward of the east buoy in no less depth than 15 feet at half-flood. So soon as you are over the bar, the depth will increase to 18 and 20 feet. Keep about mid-channel between the Spit Buoy and the lighthouse, and when about ½ a mile within the latter you may anchor in 15 or 16 feet at low water. This is called Poolbeg, and although a tolerably good place in summer, it is not so good in winter time; it is then best to go a mile further up, so as to take the ground about half-ebb, or to lie along the wall or along the quay above Ringsend. To sail in through the West Channel, you must pass to the southward of the South Buoy; when the lighthouse bears N.E. ¼ N., and on with Baldoyle Chapel, or the ruins of Kilbarrack Church, steer for it in that direction, giving it a berth on your larboard hand, as you haul round to the westward. When coming from the southward, keep Sandy Cove Tower on with the eastern extreme of the pier at Kingston, S. ¼ E., until you bring the lighthouse on the above bearing: this will lead you in the best water, and well to the westward of the south bar buoy. In the channel are only 6 feet at low water, spring tides. The tide flows at the lighthouse, on full and change days, 10 hours 47 minutes, and rises 13 feet on springs. Vessels coming from the northward, bound for Dublin, must give the Hill of Howth a berth, to avoid the bank called Rosebeg. To avoid it on the east side, bring the eastern extreme of Howth open of the Bailey, or the Bailey Light N.E. ¼ N.; and on the south side, Poolbeg Lighthouse, N.W. by W. ¾ W.

Ireland's Eye is a small island 1½ miles to the north of Howth Head; on its eastern side is anchorage in 6 fathoms; on its north in 7; but the best is on the west side in about 4 fathoms, with the Stack open to the southward of the height, and from whence it is easy to run for the pier of Howth in case of necessity.

Howth Pier Harbour, to the S. of Ireland's Eye, is capable of receiving vessels of 11 or 12 feet draught. There are two piers, on the easternmost of which stands a lighthouse exhibiting a fixed light of a red colour, of essential use to to clear the dangers off Ireland's Eye. There are also two small lights upon the west pier, which are intended to lead vessels going in from the northward, or from between Ireland's Eye and Lambay Island.

Harbour of the Skerries.—This Harbour may be easily known by Rockabill and St. Patrick's Islands; the former is a remarkable rock, always above water, and steep-to all round, having from 9 to 18 fathoms close to it. It lies 4 miles E. by S. of the Skerries, and about 2½ miles from St. Patrick's Island. To sail in, after you have rounded St. Patrick's Island steer N.W. by W. until all the town of Skerries appears open of the pier-head; you will then be clear of the Cross, and may round into the road, where you will have 4 or 5 fms. of water. Here the riding is safe, unless it come to blow hard from the E. or N.E.; but if you intend going up to the pier, stop about a cable's length from the pier-head, in 3 fathoms, until the tide serves.

Balbriggan Harbour is sheltered from the east by a Pier, on the S. side of the Bay, which runs northward. Within the Pier Head, at high spring-tides, are 12 feet water, and with neap-tides, 9 or 10. On the pier, S. side of entrance, is a white lighthouse, exhibiting a fixed light visible at the distance of 10 miles, between W. S. W. and S.S.E. ½ E.

Drogheda Bar lies 27½ miles N. of Dublin, about 10 miles N. of Skerries, and 7 miles from Balbriggan, the river running due E. and W. Formerly the river from the Maiden Tower to the bar had a tendency to run N.E., but an annual outlay of nearly £6000 a-year in its improvements has contributed to give the entrance to the river an E. and W. direction thereby enabling vessels to take the bar with much more safety than heretofore. The parallel walls at the mouth of the river having been extended within the last few years 1800 lineal yards seaward, and now nearly reaching the bar, has caused the water in the river adjacent to the bar to be comparatively smooth in the severest weather. These walls have also had the effect of deepening the channel, and directing its course in a more southerly direction, thereby making the bar much easier of access in bad weather. The continual dredging of the river has removed the banks and shoals which previously existed, leaving the navigable channel of a uniform depth, not less than from 18 ft. 6 in. to 19 ft. at high water of ordinary spring tides. The water on the bar at spring tides is 22 ft., with 17 ft. 6 in. at neaps, 4 ft. 6 in. at low water of spring tides, and 6 ft. 6 in. at neaps. There is an excellent tug-boat in attendance on vessels requiring her assistance, with a number of experienced licensed pilots always looking out for vessels bound for this port. There are fifty sailing vessels, with five first-class paddle-steamers, having in the whole a registered tonnage of 7327 tons trading to this port, exclusive of other vessels which frequent this place with occasional cargoes. Four lighthouses are placed at the entrance of the river,

number of stone towers built on side, with wooden perches for rks on the S. side; the centre n them denoting the channel. The bearings of the E. and W. Lights occasionally changed, as the nks alter their places. The present e of the river, keeping these two none, is W. by N., until you come of the large Stone Pillar on the ide, then steer N.W. ½ W. for the Red Light. There has lately been at the East end of the North Wall e Wooden Perch, with Cage and placed on the top of it, and must t about 100 feet on the starboard coming in. Ships drawing 10½ feet have at least 4 hours' flood tide weather before taking the bar.

ndalk.—Sailing N. you will pass er Head and reach Dunany Point, ich, about a mile E. of high water lies a small rock, drying with low spring tides. The first buoy is in oms at low water, about 4 miles Dunany, bearing from it N. by E., ng Clogher Head well open, and g from Cooley Point W. by N., t about 4 miles. The second and buoys bear N.N.W. ¼ N. from the uoy. The second buoy is in 3½ fa- s at low water; and the third is on ar, on which there are, at low water gs, 3, and at low water neaps, 6 . The depth on the bar at high water gs, varies from 24 to 18 feet; and s, from 16 to 13 feet. These depths inue up to Soldier's Point, whence, e quays, the depth is at high water gs, 19 feet, and neaps 13 feet. From ar to Soldier's Point, the W. side of hannel is perched throughout; and he E. side near to Soldier's Point, at ce called *the Rock*, there is a perch two balls on its top; and at night e is a Red light on it, provided the r perches from Lighthouse to quay lighted. A Lighthouse, on screw , has been erected at the entrance of Harbour Channel. The Light is a d Light, varied by Flashes, giving a h once in every 15 seconds; its focal t 33 feet over the level of the sea, at h water; and in clear weather it is ble at the distance of about 9 miles. seaward the Light appears of the ural colour, Bright, between the bear- s of W. by N. and N. ¼ W.; it is sked in the direction of the Dunany efs, between the bearings of N. ½ W. N. by E. ½ E.; it is coloured Red ards the west side of Dundalk Bay; d shows Bright towards the Harbour annel, northerly. The Lighthouse is rne on screw piles of red colour, braced o an open framing below the dwelling, hich is of octagonal form, and coloured white: over this the Lighthouse has a dome-formed top. It stands within the entrance of the Channel in lat. 53° 58′ 40″ N., and lon. 6° 18′ W.; and bears from Castle Rocks, off Cooley Point, N W. ¾ W., distant 5¼ nautic miles; from Dundalk Patch (rocky shoal), N. by W. ¾ W., distant 6¼ nautic miles; from Dunany Reefs, eastward of Dunany Point, N. ¼ W., distant 6½ nautic miles. The Channel formerly northward of the Lighthouse now runs southward of it; and on passing it outward the course alters. Masters of vessels are cautioned to give the piles a sufficient berth. When vessels bound to Dundalk come between Cooley Point and Clogher Head, they are required to hoist a signal for a pilot. Vessels wanting the use of a Steam Tug are requested to hoist by day an Ensign to the Fore-top-gallant-mast-head; by night, Two Lights, one above the other. Masters of vessels necessitated to enter the Harbour, without being able to obtain a pilot, should observe, that after passing the Lighthouse, the Channel is perched on the west side as far as a place called the Rock Hole, on the side of which there stands a Perch with two Balls on its top, one above the other, which is to be kept on the starboard hand, after passing which the river is perched on the east side to the Quays.

DUNANY AND IMOGENE ROCKS, DUNDALK BAY.—A *black conical buoy*, surmounted by a staff and ball, has been placed in 3¼ fathoms, at low water, spring tides, to mark the position of the Imogene Rocks, which lie about a mile and three quarters S.S.E. off Cooley Point, north side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Dundalk High Chimney, open of Rathcor Point, N.W. ½ W.; Cooley Point, N.N.W. ½ W.; Carlingford Lighthouse, N. E. ½ N.—A *red conical buoy*, surmounted by a staff and ball, has been placed in 4 fathoms, low water, spring tides, on the outside of the Dunany Reefs, which lie off Dunany Point, south side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Clogher Head, S. W. ¾ S.; Dunany Church, W. ½ S.; Dundalk High Chimney, N. by W. ½ W.; Tipping Mountain on with a saddle in the distance, N. ¼ W.

Loch Carlingford lies two leagues to the eastward of Dundalk Harbour entrance, and forms a large well-sheltered bay, the ground good, and water sufficient for the largest ships; but there are several rocks and dangers which must be attended to. Its entrance is between Ballaggan and Cranfield Points, which bear from each other nearly E. by N. and W. by S., distant 1½ miles; it is well buoyed, red on the starboard hand and black on the port. The Helly Hunter, upon which a

large Red Buoy has been placed, is a rocky shoal lying to the eastward of the entrance of the Loch, and stretching about 1 mile S.W. and N.E.; its western end dries with extraordinary low tides only, and on the other parts the least water is 6 feet. To avoid the Helly Hunter, as you sail to Carlingford from the E. or S., do not bring Mount Culy to the westward of W. ½ N., until the Blockhouse comes on with the top of Foy Mountain, bearing N.W. ½ N. Then steer for the N. end of Blockhouse or Haulbowline Island, giving the Point of Cranfield and the Island a berth of a cable's length each from the high-water mark. Between the W. side of Blockhouse Island and Ballaggan Point are several rocks and shoals, and consequently this passage must not be attempted.

Carlingford Loch Light, situate on Greenore Point, on the larboard side in going up Carlingford Loch, revolves, is of the natural appearance, attains its greatest magnitude every 45 secs., and is visible at a distance of 9 miles.

To Sail into Loch Carlingford, take flood-tide, and with the Blockhouse bearing from N. by W. ½ W. to N.W. N., sail in for the E. side of the Islan giving it a berth of a cable's length two on the larboard. Steer thence fo Greenore Point, keeping between ½ a ca ble and 2 cables' length from it; then ru N. by W. up the middle of the channel and abreast of Killean Point, or above i nearest the E. side, drop your anchor, i from 2 to 6 fathoms water. Small vesse may lie on the W. side, easy and saf about 2 cables' length eastward of Ca lingford Castle, on soft mud.

Carlingford Lights are show from a tower erected on Haulbowlin Rock, which lies upon the bar ½ a mil W. by N. from Cranfield Point, on th larboard side of the entrance to th Loch. The upper is a fixed light, an the lower revolving. The higher ligh is shown throughout the night, and ma be seen like a star of the first magn tude, at the distance of fifteen mile The lower light, having also a starlik appearance, is exhibited from half-floo to half-ebb. In the day, during the sam period, a ball is hoisted; and in fogg weather, a bell is tolled every half minut

NORTH-EAST AND NORTH-WEST COASTS OF IRELAND.

ST. JOHN'S POINT TO SLIGO BAY.

St. John's Point. — On this Point in lat. 54° 13′ 10″ N., and lon. 5° 39′ 50″ W., is erected a tower, shewing an intermitting light, appearing of its full brightness during 45 secs., and obscure 15 secs. The light bears from Newcastle pier, (Dundrum bay) E. by S. ½ S., 7¼ miles, and from the Calf of Man revolving lights N.W. ½ W., 33 miles, and can be seen seaward from W. by N. ½ N. to E. ½ N. The light kept open will lead clear of Gun's Island and of the St. Patrick's rock, off the entrance of Strangford Lough.

Dundrum Harbour.—On making St. John's Point, the entrance to the inner bay lies 6 miles within the bight of it, about 2½ miles to the eastward of the town of Newcastle, at the mountain foot. In the middle of the entrance channel a black buoy is laid down in 14 feet, low water, spring tides. It may be picked up by keeping the old castle that stands above the town a sail's breadth in on the west point that forms the entrance. Steering north from this, you will arrive at a smaller buoy lying in the middle of the river; then by steering N.W. by W. you will come up with the first perch on the banks to the west, having on it a small barrel—give this a berth of half a cable's length on your larboard hand; after which, by changing your course N. by E., you reach the second perch, having a triangle on it: allow this the same berth as the first. The third perch has a round black top. From the second perch, from which you have the town and pier open, steer N.N.W. up the river until abreast of a red-topped perch, to which give a berth of half a cable's length on your starboard hand, and then keep for the pier-end.

Killough, half a league East of St. John's Point, has a good roadstead in off-shore winds, and, within, offers to coasters a safe dry harbour, with a muddy

ottom. **Killough Pier** is built from the Vest side, and, between it and a smaller ier on the East side, called Coney Island, es the entrance to the port. Outside the ntrance of the bay an Iron Perch marks he Water Rock, which is covered only at igh water: to avoid it, bring a remark-ble two-storied house, with white front nd roofs, (called Cotter's House, and ituated inside the harbour,) one-third board from the West Pier-head, until ou have passed the Perch; then keep ore to the Eastward till you bring the ouse over to the extreme end of the Pier. wo cables N.N.E. ½ E. from the Perch is he Little Plate Rock, and half a cable N. rom this is the Big Plate, both covered xcept at spring ebbs; and, consequently, hen there is water to enter the harbour, here is also water over these rocks. The arter, on which is an Iron Perch, is a dge of foul ground which runs off from he Western side of the bay, under the Old ill Stump. There is also a spit of rough tones, called Crane's Point, extending S. W., a short distance from Coney Island; ut by keeping Cotter's House midway etween the two Pier-ends, when you ome within two cables' length of them, ou avoid this spit. The best anchorage n the Bay is within the Water and Plate Rocks, in from about five to seven fa-thom, with shelter from all but southerly winds.

Ardglass Harbour, 2½ miles E. of St. John's Point, is easily known by several old Castles and a rising town on the W. side of the bay. You can anchor at the mouth of the bay, between Ringfad and Fennick Points, in from 6 to 10 fa-thoms water, but if the wind blows on shore, a small vessel may shelter inside the pier under the middle castle in from 1½ to 2½ fathoms water, or run aground on the beach. A temporary red light is shown from the inner shore of harbour, 2 cables' length from entrance N. by W.

Loch Strangford lies N.E. at the distance of 60 miles from the Hill of Howth, and nearly E.N.E. ½ E. 28 miles from Loch Carlingford. The stream at the entrance is very rapid, and when the tide is ebbing and wind strong at S., S.E., or E., the sea is short and broken, which gives the bar across the river the appearance of a ridge of sunken rocks; but there are not less than four fathoms at low water on any part of the bar, and it is quite free from rocks. Few places afford such safety to wind-bound vessels as this Loch, ships having at all times of tide abundance of water, not only on the bar, but also in the two principal roadsteads, *Ballahenry* on the N.E., after passing Portaferry, and *Audley's Road* on the S. W. side of the river, after passing Strangford. An Iron Perch with a square head has been erected on Patrick Rock, which is covered at half-flood, and is about three quarters of a mile off Killard Point. Vessels from the southward can pass close to this Perch, on either hand, in making for the North Bar, the only safe entrance for strangers; and as there has been erected a round Tower of masonry on Rock Angus, and there are Perches on the Garter on the port hand, and Pladdylug rocks on the star-board hand, which lie near its mouth, no danger need be apprehended in daylight; but a good offing should be kept from the E. shore to avoid Pladdylug; and on the other hand do not stand too far towards the Garter, as the flood has somewhat of a westerly direction towards it. Having passed the Tower on Rock Angus a mile and a half, in case of necessity, come to anchor opposite a White Beacon on the south shore, called Cross Roads, where you can stop a tide until you can get to Ballahenry or Audley's Road, 2 miles fur-ther, and just beyond Strangford and Portaferry towns. On hoisting a signal, experienced pilots can be had.

South Rock Light is erected on the South Rock, about 2 leagues northward from the entrance to Loch Strangford. The light revolves, attaining its greatest lustre every 1½ minutes, and is visible at a distance of 12 miles. A reef of rocks called the Ridge, extends 1½ miles to the N.E. of the lighthouse, on the extremity of which is a red buoy, which bears about S. by E. from the North Rock Beacon. The North Rock, about a mile N. by W. of the lighthouse, is marked by a solid Beacon, like a small church spire, erected in 1856. The Butter Pladdy, about 1½ miles S.W. of the lighthouse, is marked by a black buoy, to be left on their outer hand by vessels taking the "Sound of the Light"—a channel much frequented by coasters and now well marked, between the lighthouse and the North Rock Bea-con. Sailing along the Downshire shore, from the Copeland to the North and South Rock, the South Light should be kept outside of Burr Isle, or the Black-head of the Gabbans, in Isle Magee, a sail's breadth outside of Donaghadee shore, or the Copeland Light North, to clear Scullmartin Rock that lies N. ¼ E. 3½ miles from Burr Isle, and S.E. 1 mile from the town of Ballywater. To the northward of Scullmartin, on which is a Beacon, lie Ballywater Rocks, which stretch out about ½ a mile, commencing at Ballyferris Point, and run S. two miles. The S. end is seldom covered, the middle is covered at ½-tide, the N. end seldom bare. Six and a half miles N. of Ballywater is

Donaghadee, which has 14 feet in between the two pier-heads at low water;

but after passing the pier-heads, at 7 fathoms distance, and nearly in the middle, there is a shoal of loose rubble rock, with only 8½ feet on it at low water. The harbour has gradually filled up, to the extent of 3 feet generally, but where the packets formerly used to lie as much as 7 feet. From the S.E. pier head a Light is shown, red to seaward from N. by E. ½ E. to S. ½ E., and bright towards the harbour and the entrance of Belfast Bay. Sailing in from the southward keep above ½ a cable's length from the shore until the harbour is open, then run in and let go your anchor inside the pier-head. No buoys are allowed to anchors on account of the steam packets. Mariners must be on their guard not to lose sight of the red part of the light in sailing N. or S. of Donaghadee. About a mile north of Donaghadee is Foreland Point, from whence extends a ledge of rocks to the E., with an iron Perch on it, and outside of that again is a large black buoy, which should not be rounded too close, particularly at low water. Deputy Rock, on which is a red buoy, lies half way between Donaghadee and Copeland, and has about 8 ft. at low water. The proper course through the sound is between the Foreland and Deputy buoys: but there is a channel on the E. side of the latter, keeping one-third from the Copeland, as a shelf of foul ground runs out after passing the Deputy. Cairn Point, at N.W. end of Copeland, must have a good berth on the starboard hand, to avoid a rock called Gordon's Bush, that lies a cable's length S. of it, and is seldom bare at low water. These are all to be feared in the Sound of Donaghadee.

Copeland Island lies 2½ miles N. E. ½ N. from Donaghadee, and one mile to the eastward of Nout Head. E.N.E., one mile from Copeland, are the Cross and Mew Islands, between which is a narrow channel not navigable. On the Cross Island is the Copeland Light. Between these small islands and the Copeland is the outer sound. On the E. side of the Copeland, near the south point, is a ledge of rocks extending above two cables' length to the eastward: there is also a ledge extending from the Mew Island to the westward; between these is the channel. Half way between the sound of Copeland and Cross Island, is a small rock called the Pladdins, over which are, with common spring tides, 3 or 4 feet of water: it bears S. ¼ W. off the light. To avoid this rock on the E. side, bring the lighthouse N. by W.; on the S. side, bring the S.W. house in Donaghadee in sight with the S. end of Copeland Island: in this sound the currents are strong, and, as there are no buoys, is to be avoided by strangers.

Belfast.—The entrance to Belfa Lough is immediately to the N. of Cop land Light, and lies between Paid Lig and Black Head; the latter bearing fro the former N.N.W., distant about eig miles. At the larboard side of the e trance, about a mile to the W. of Orloc Point, is a rocky ledge called the Brigg stretching out three quarters of a mi and upon which is a red buoy. About miles to the W. of the Briggs is Gr Point, and, in a sort of bight betwe them, is the town and harbour of Bango fit for small vessels only. Two miles fu ther W. from Grey Point, a small ridge rocks runs out from the shore rath more than a quarter of a mile. On t opposite side of the Lough, and bearir W. by N. ⅝ N. from Orloch Point, dista 9 miles, is the town of Carrickfergu where there is a pier, having, with spri tides, 10 feet water, and with neaps 7 fe As a guide to the entrance of this harbo at night, a red light is shown two hou before and two hours after high wate this light to be brought immediately ov a street lamp in Governor's-place—t red light showing about 2 feet *above* t white light, and from a vessel coming due north. Off this town, to the S. a W., is a bank running out 1½ miles fro the shore, and extending N. 1¼ miles; t least water over it is 7 feet. Extendi a mile from the shore on the S. side of t Lough, and opposite the village of Holl wood, is Hollywood bank, on which is lighthouse built on screw piles, whi shows a pale red light, visible 8 miles clear weather. Between the Hollywo and middle bank is the commencemer of the pool of Garmoyle, which exten from abreast the large red buoy on th starboard hand, having from 3 to 4 fathom at low water. From Garmoyle, the chan nel up to Belfast is now straight, havin above 10 feet at low water, spring tides; is well buoyed—red on the larboard an black on the starboard hand going up t the quays. There is also a green light o Hollywood Bank, with three more of th same colour towards Belfast, all of whic are to be left on the port side when goin up. There is also a red light S.W. of th stone Beacon, to be left on the starboar side. Large ships usually anchor off th town of Carrickfergus, near the middle o the Lough. Vessels drawing not more than 16 feet water may anchor higher up in the Folly Roads—between the Carrick bank and abreast of White Abbey; smaller vessels in Whitehouse Roads. Large ves sels drawing 18 feet water, intending to reach the quays, may anchor in Gar moyle. A large pilot cutter is constantly under way during the daytime, at night also (weather permitting), and generally boards vessels bound to Belfast below

Grey Point. The Briggs of Kilroot, now a Perch on them, lie on the N. side of the Lough, and stretch almost from Kilroot Point to White Head, and about a quarter of a mile from the shore, to avoid which keep Black Head open with the White Head, and a vessel will be clear of all danger.

Loch Larn.—A lighthouse is erected on Farres Point, on the larboard hand going into this spacious Loch, opposite which are the Maiden or Hulin Rocks. Sailing into Larn from the S.E., pass Muck Island, Brown's Point and Bay; give Barr's Point a berth near half a mile, as a ridge of rocks runs off above a quarter of a mile; give Farres Point, on which is the Lighthouse, a berth of half a cable's length; run for Corran Point on Larn side, on which stand the ruins of an old castle, giving Isle Magee side a large berth, as a long shoal runs out from it very near half way across to the steam-packets' wooden wharf opposite the salt pans, and continue to near the Point of Racknow, round which is Yellow Stone Roads, sheltered from all sea, and little tide. There is a long flat runs out from the N.W. side of the entrance which when covered, is so deceitful to strangers, that they should open the mouth of the Loch well; keep no more than two cables' length from the lighthouse, run up past the wooden wharf, giving it a berth on the starboard hand. Anchor ⅔ of a cable's length from Isle Magee shore. Small vessels from above the wharf should run up abreast of Corran Point in two fathoms, keeping one-third from Corran shore, and two-thirds from the Island. Large vessels should come to further out, about one-third from Corran side. There are no rocks in Larn Loch, and should a vessel run too far, she will only go on soft sand or mud. A stranger going in, in the night, should take his soundings from Isle Magee shore; but going to the Yellow Stone Roads should take a pilot. Vessels may run in without anchors or cables—there are no rocks nor shoals to interrupt them, coming from the southward, except Barr's Point, before mentioned, and Hunter's Rock. Four miles off the mouth of Larn Loch, and 4 miles N. ½ W. from Knee or Muck Island, the Sound of Muck appears open, and Corran Castle on with Larn Lighthouse.

Maiden, or Hulin Rocks Light. Two lighthouses, marked with broad red and white belts, are erected on the Maiden or Hulin Rocks. These Rocks bear by compass from the Mull of Cantyre Light, S.S.W., distant 24 miles; from Sanda Island, S.S W. ½ W., 18¾ miles; from Ailsa, W.S.W., 23 miles; from Copeland Island Light, N. ½ E., 16½ miles, and from the eastern extremity of Rachlin Island, S. by E. distant 29 and a half miles. The lights are distant from each other 320 fathoms, and bear N.W. by W. and S.E. by E. The mariner in passing should give them a wide berth, there being a number of sunken rocks extending upwards of 3 miles N. and 1½ miles S. of them.

Ballicastle Harbour.—Opposite Church Bay, on the Irish Coast, is Ballicastle Harbour, formed at the mouth of a small rivulet near the town, affording shelter for small vessels drawing 7 feet water, for at high water there are 9 or 10 feet between the pier heads, with spring-tides, and 8 feet with neap. In summer ships may ride near the W. side of the bay in 9 or 10 fathoms water, the glass-house bearing S.S.W., Sheep Island being shut in with Kinbane Head, and Clare House bearing on the top of the cliff near it; but it will not be prudent to lie long here. Should the wind blow from the N. or N.W., and a swell begin to set in, weigh anchor, and rounding Tor Point, make for Cushinden, Cushindaal, or Larn.

The **Skerries** lie W. by N. 5 miles from Bengore head, and about a mile from the shore: on the south side of the largest of these islands, where it appears lowest, a vessel may anchor in 6 or 7 fathoms water, a little more than a cable's length from shore. In sailing into this anchorage be careful of the Stirks on the east side, and of the Kers on the west side: they lie a little to the southward of a cluster of rocks about half a mile westward of the Skerries, and dry at four hours' ebb.

Port Rush is much improved by a pier and quay; there are from 8 to 24 feet within the harbour, while off the mouth of the port a vessel may anchor in 6 to 8 fathoms, on a bottom of sand. On entering the harbour you must give the North Pier a berth of at least fifteen yards, to clear the stones which have been placed to break off the swell, and which are covered at ⅔ flood.

Loch Foyle is a capacious harbour, where the largest ships may ride in safety in all weathers; but the best place for large ships is on the N. side, 3 or 4 miles within the entrance, in from 5 to 8 fathoms water: but vessels of 11 or 12 feet draught will ride easiest between Quigley's Point and Ture, in from 2½ to 3 fathoms. The danger to be avoided is the Tuns Bank, which lies on the S. side of the entrance, having a channel between it and the land, on the N. side, ⅔ of a mile wide. To sail into Loch Foyle, wait for flood tide, or a brisk leading wind to stem the ebb, which runs at the rate of 3½ knots in the entrance: keep

Glenegad Head 2 or 3 ships' length open off Inishoan Head, until the mouth of Derry River at Kilmore Point is a little open of Magilligan's Point; then steer for the entrance, keeping ⅛ of a mile from the N. shore, and you will pass between it and the Tuns Bank: when you are within Magilligan's Point, you may keep at a greater distance from shore, and run up to the anchorage. On Donagree Point, a little to the S. of Inishoan Head, are two lighthouses, bearing from each other E. and W., distant 153 yards. The lights are fixed, visible 13 miles, and when in one lead clear of the Tuns Bank.

Inistrahul Island, on the N.E. part of which a lighthouse stands, is 6 miles N. ½ E. from Glenegad Head, and 4 miles from the nearest shore. The light makes a revolution every two minutes.

Loch Swilly.—The entrance of this Loch lies 7 miles W. by S. from Malin Head, and is about 3½ miles wide, from shore to shore. Fannet Point is a low point at the W. side of the entrance: it is distinguished by a lighthouse which displays a steady light, which, when seen from sea, appears of a deep red colour, but from within the Loch, bright. This is a safe harbour for vessels of any size; but the best anchorages are off Burncranah House, 2 or 3 cables' length from shore, in from 4 to 8 fathoms, or between the Island Inch and Rathmullin, rather nearer to the latter, in from 5 to 8 fathoms.

Mulroy Harbour is known at a distance by Tory Island, Horn Head, and Rosgull Hill; it has water sufficient for the largest ships; but a part of the channel is narrow and difficult. Strangers should always take a pilot.

Sheephaven & Downing Bays.—Few vessels like to run for Sheephaven as many get on shore, yet some are compelled, not being aware of the excellent anchorage in Downing Bay, which lies on the E. side, at the bottom of Sheephaven. The bay is formed by points called Downing and Morlach. Close under Morlach Point is the anchorage, in from 4 to 6 fathoms. In running for it from Hornhead, the course will be S.E. by S., distant six miles, care being taken to give a berth to two half-tide rocks about a cable's length N.N.W. from Downing; when the sea breaks on them, which it generally does, they may be approached as mos convenient: there are no other dangers

Tory Island, the east end of whic lies 7¼ miles N.W. from Horn Head, ha no good anchorage on its S. side; bu in the summer season, with S. winds, vessel may stop on the north side in 1 or 20 fathoms, within half a mile of th shore. On its N.W. end is a lighthous exhibiting a steady bright light, visibl from seaward 16 miles all round; bu when passing to the S.E. of the island, i shut in behind the heights between N.W by N. and N.W. ½ W.

Rathlin-O-Birne.—This island lie 2 miles S.W. ¼ W. from Malin More Head and is about ½ a mile long and ⅛ of a mil wide. A lighthouse has been erected up on it, in N. lat. 54° 40′ and W. long. 8° 50′ exhibiting a flashing light, at an interva of 20 seconds, visible at a distance of 1 miles, but red towards the mainland an sound, eastward of the island.

Donegal Harbour is on the E. sid of the peninsula, called the Hassens, o Green Islands, 2 miles below the Tow of Donegal, where small vessels ma ride in 2 or 3 fathoms water at abou a cable's length from shore. To sail in take half-flood, and keep about ½ a mil from the shore on the larboard or N. side until you are near the Black Rock; the steer E. ½ N. until you are a cable' length past it; you may then steer di rectly for the Green Islands, giving th north shore a berth of about two cables length.

Sligo Bay is to the southward of th point of Raugly, and at the N.E. side o the bay is the entrance to Sligo Harbour S. by E. ½ E. from Raugly point is Blac Rock, covered at high water, on whic is a fixed bright light, shewing from S. W. seaward to S. E. by S. and seen a a distance of 13 miles. To sail in kee about 2 cables' length to the northward o the lighthouse, in order to avoid the shoa water on the N. side of the rock. Th only place where a vessel will lie afloat a all times of the tide, is Oyster Island Har bour, but the bottom is rocky, and doe not hold well. On this island are tw fixed lights, bearing N.N.W. ¾ W. an S.S.E. ¾ E., 165 yards from each othe After passing the bar, the lights in o clear the Bun Gar Bank, and lead to th entrance of the harbour, or up to th Metal Man Beacon.

SOUTH-EAST COAST OF IRELAND.

WATERFORD TO BALTIMORE.

Waterford Harbour.—From Great ıltee Island to Hook Point, on which aterford Lighthouse is erected, the bear- g and distance are, W. N. W. 13 miles; ıd from the Longship Lighthouse off the ınd's End, N. ½ E. 43 leagues. When ming from the S. or the E. for Water- rd, bring Sleanaman Mount, a re- arkable mountain inland, to bear N.E. ıtil you see Hook Lighthouse on the E. le of the entrance of Waterford Harbour, om which a bright and steady light is hibited. Go not nearer Hook Point an about 2 cables' length, to avoid fall- g into irregular streams of tide that run ear it. Having passed the Hook, and tending to proceed for the anchorage at assage, take a flood-tide or a leading ind, and steer for Credan Head, giving a berth of at least ½ a cable's length. rom Credan Head steer N. E. by N. for uncannon Fort, carefully avoiding the and banks which extend from both shores hat on the starboard side begins at Bluff Head, extends more than half a mile from hore, and terminates at Duncannon Fort Between Bluff Head and Duncannon Fort is Ballistraw Bay. The sand on the other side, called Drumroe Bank, extends more than a mile from shore, and narrows the passage abreast Duncannon Fort to about a quarter of a mile. Two lights in Dun- cannon Fort, one above the other, are ex- hibited to direct vessels to that point. On the flat, or what is known as "the bar," 4 feet of water can be had on the lowest spring tides. This shallow lies nearly midway between Credan Head and Dun- cannon, extends for about a mile in ngth, and is composed of hard sand; he course by compass over it is from . N. E. ½ E. to N. N. E. ¼ E. Another ghthouse, having a fixed bright light, erected N.N.E. ¼ E, from Duncannon ort lighthouse, distant ½ a mile. These wo lights kept in a line, will lead in the st channel across the bar between the stern and middle buoys. The lower ht from the Fort is exhibited only from alf-flood to half-ebb. When above the hts keep near the eastern side, steering out N. ½ W. for the church of Ballihak, ıtil the perch, which is fixed in the per end of Drumroe Bank, comes on th the town of Passage; you may then er upward N.W. by N. in mid-channel, reast of this perch are ten or eleven thoms. The usual anchorage is about mile above Passage Town, in five or six thoms. Two or three miles above Pas- ge is very good anchorage, and there e stream is much weaker than at Pas- sage. In proceeding for this place, avoid a spit of sand called the Seedes Bank, which stretches off about W.S.W. from Buttermilk Castle, extending about half- way over to the opposite side; the least water on it is 9 feet. Avoid also a small rock of 9 feet at low water, and 14 feet at half-tide, which lies abont 2 cables' length from shore, on the S. side of Cheek Point. In proceeding about low water, keep in the middle between the two points, or ra- ther nearest to Buttermilk Point; if the flood-tide be running, keep in the rough part of the stream, and you will clear the shoal. Vessels drawing 20 or 22 ft. water may go up to Waterford, where there are 2 fathoms at low water, a ship's length from the quay. The safest channel to Waterford is on the north side of Little Island: the channel on the other side is deeper, but it is narrow, and subject to eddy-tides, which make it dangerous. Pilots may always be had at the entrance of the harbour.

Dungarvan Bay.—A lighthouse has been erected on Ballinacourty Point, on the northern side of Dungarvan Bay, with the following marks and compass bear- ings:—Helvick Head, S. ½ W., 1½ miles; Carrickapane Rock, S. S. E., 9 Cables' length; and Whitehouse Spit, W. by N., 3½ cables' length. It shows a fixed bright light, visible between the bearings of W. and S.E. ¾ S.; green, bearing from W. to N.W. by W.; and red in the direction of Carrickapane Rock. Its white appearance can be seen at the distance of about 10 miles in clear weather.—The intermittent light on Mine Head, S. W. by W., 4 miles from Helvick Head, marks the approach from the westward to Dungarvan Bay, and can be seen farther eastward than the range of Dungarvan Light. A vessel in the entrance of Dungarvan Bay must keep clear of the red colour of the light to avoid Carrickapane Rock; and on the northern side of the bay keep to the southward of the green light to avoid Carricknagaddy, and the rocks which extend half-a-mile eastward of Ballina- courty Point.

Youghall Harbour lies about 13 miles W.S.W. from the entrance to Dun- garvon. During high water, spring tides, ships drawing fully 17 feet may go in, and ride off the middle of the town. Across the mouth of the harbour is a bar, which extends above a mile south from the en- trance, and has 6 to 9 feet on it at low water. Except when the wind blows from

the south, south-east or south-west, there is always smooth water on this bar: 14 to 15 feet water are on it at high water, neap tides. When Cable Island bears W.S.W. you are on the outer edge of the bar. When sailing for Youghall Bay from the southward, keep Knockmeldown Mountain N. by E. To anchor when waiting to go over the bar, the best places are on the S. side of the bar, the harbour mouth bearing N.N.E., in 3 or 4 fathoms; or on the north side of Cable Island, in 3 to 6 fathoms, about 2 cables' length from the shore. From a tower on the west side and within the entrance, is shown a fixed bright light, open to the harbour, and seaward to S.W. by S., and may be seen at a distance of 6 miles.

Cork Harbour.—From a tower on Roche Point, at the east side of the entrance, is shown a fixed light, red towards the sea, to the harbour bright, and visible at the distance of 14 miles. From it Cork Head bears S.W. by W. about 4 miles. From the Longship Lighthouse off the Land's End, to the entrance of Cork Harbour, is 46 leagues N. by W, ½ W. Coming from the southward, and bound to this harbour, keep Knockmeldown Hill about N.E. by E. until you see the Old Head of Kinsale, a bluff point of land with a lighthouse on it. From this Head the entrance of Cork Harbour lies E. ¾N., distant about 5 leagues. When off the harbour Roche Tower with its lighthouse is remarkable. A little without the point, on E. side of the entrance, lie the Stag Rocks There is clean ground in a moderate depth without the harbour's mouth, where ships may, with a northerly wind, wait the flood or daylight. A white buoy is placed on the edge of the bank off Fort Camden; another white buoy about a mile further in, to the northward of the entrance to Cross Haven; a third, of the same colour, off the east side of Spike Island; and a white buoy on the eastern extremity of East Haulbowline Bank. Each of these buoys is numbered. There are also several black buoys on the side opposite, on the edge of the mud flat: they lie in 4 fathoms, and are likewise numbered. Above these, at the entrance of the E. passage, are also the keg buoys of the quarantine ground. Having passed the narrows, which is about 450 fathoms over, the channel continues that width on a N. by E. and N.E. direction, between the white buoys on the W., and black buoys on the E. side, to the anchorage E. of Spike Island, on sandy ground: thence it leads upwards, narrowing round the beacons on the northern side of the Spit extending E.S.E. from Haulbowline Island, close in to Cove Town on the north shore, At the entrance of the passage to Queenstown is a white buoy; and at about 160 fathoms to the S.W. of this in 2½ fathoms, is the Mower Spit Buoy quartered black and white on the top with alternate black and white rings o the side. The Upper Spit Buoy, white lies in 9 feet, N.W. by W. ½ a mile fro the lower Spit Buoy. Here the tide run 2 or 3 knots: it is high water on the fu and change at half-past 4, and the tid rises from 9 to 13 feet.—Large ships goin in at or near low water, must be carefu to avoid the Harbour Rock, which lies little within the Stag Rocks, on the eas side. On it are two buoys, about cables' length apart: one on the eastern white with red rim; the other on th western edge, red with black rim. It ha 15 feet on it at low water spring-tides. About ⅓ of a mile N. by E. ½ E. from th Harbour Rock lies the S. end of Turbo Bank, extending thence N.W., and whic has on its shoalest part, the N. end, 1 feet low water, average springs. Th middle of this bank lies with a remarkabl dark stone building, on the precipitou part of Kenly Cove, bearing W.S.W., and touching the projecting part of the land south-eastward of Temple Breedy Church. It has on it two buoys, about a cables' length apart: one on the east, white with a black rim; the other on the west side, red with a white rim. In order to avoid the Shoals on the E. side, keep within 2 cables' length of the eastern shore; or bring the lower part of the white wall, which stands to the southward of the fort upon Dog's Nose, on, or under the W. bastion of that fort. To go to the westward of the Harbour Rock and Turbot Bank, keep the fort on Dog's Nose open to the westward of the lower part of the white wall above-mentioned; or when without the harbour, bring and keep a village, which appears on a hill upon Great Island, over some pine trees, touching the point of Dog's Nose, bearing N. 21 deg. E. which will lead clear of all dangers on that side. To go between the Shoals, keep the flag-staff in the fort of Dog's Nose, on, or over, the lower part of the white wall. To avoid the Harbour Rock on the S. side, keep the Crow Rock on with Poor Head. The Turbot Bank may be avoided by keeping nearer to the E. than to the W. side of the entrance. Between the Harbour Rock and the E. point are 5 or 6 fathoms; between the Harbour Rock and Turbot Bank are 6 and 7 fathoms; and between the bank and the western shore are 5 and 6 fathoms at low water. About a mile S.N. by E. ¼ E. from Haulbowline Island, extends the Spike Sand, which begins to dry on the north side at half ebb, and shelters the anchorage at Queenstown. On the east elbow of this bank a lighthouse has been erected on screw piles, in 9 feet: it exhibits a fixed red light, visible from N.N.E. ½ E. to S.E. by

E. ½ E, round by eastward, and at a distance of 8 miles. Masters of vessels are cautioned not to cross the bank between the lighthouse and Haulbowline Island, and to give the lighthouse and detached beacon-pillar sufficient berth in passing. In going from Dog's Nose for the Cove, keep Dog's Nose Point S. by W. ¾ W.; or steer for the E.most part of the fort on the N. shore, between the black and white buoys, to ovoid a flat which extends in some parts a mile from the E. shore, and also a rock that lies to the westward of Cork Beg, which appears at half-ebb. The best place for large ships to anchor is off the garrison, in from 8 to 5 fathoms. Merchant ships may ride off the Cove, in smoother water and less tide, they may go also further up the harbour of Passage, and ride any where between the first houses and Ronan's Point. In proceeding from Queenstown to Passage, do not approach nearer than ¼ a cable's length to the S. side of Black Point; and give the W. side of it a berth of about a cable's length, to avoid a sand which extends from that shore, and dries at low water. You may go westward from Haulbowline Island, until you see Ronan's Point in the channel of Passage; then steer N'ward along the W. side of the channel, for the anchorage. Vessels drawing 16 feet may, with spring tides, go up to Black Rock or to the town of Cork, and lie at the quays with 9 feet at low water, average tides. Between Passage and Horse Head is a spit of sand, of 6 feet water, extending above a cable's length eastward from the Clay Cliff: you will avoid the extremity of this spit by keeping Dunkettle House on with a grove of trees which stand on the top of a hill above the House. The point of this spit lies with Belveley Castle and Ronan's Point in one; and vessels which anchor near it, should have the castle fairly without Ronan's Point, or wholly shut in with it. In a small creek called Cross Haven, within the entrance of Cork Harbour, and on the west side, opposite Dog's Nose, vessels may ride in 10 or 12 feet.

Kinsale Harbour.—A new lighthouse has been erected on the Rocky Point at the S. end of the Old Head, distant half-a-mile S.S.W. ½ W. from the old lighthouse, bearing from Bulman's Rock S.W. ¾ W. 4¼ miles. This light is a fixed bright light, similar to that heretofore shown from the old lighthouse, and is visible from N.E. ¾ N. seaward to W. by N., and at the distance of 21 miles. In sailing towards the harbour from the southward, keep Knockmeldown Hill N. E. by E. until you see the Old Head of Kinsale; after making that, which is about 3½ miles S.W. by S. from the entrance of the harbour, run in until the old lighthouse on it bears W.N.W., about 3 miles; then run in N.W. by W. until the old lighthouse bears S.W. by S.; and then steer N.E. by N. until you are abreast of the lower cove, where you may anchor in 6 fathoms. The only danger near Kinsale Harbour is Bulman Rock, which lies about a cable's length S.S.W. ½ W. from Hangman's Point on the E. side of the entrance, and has 4 feet on it at low water. This rock is buoyed, and may be passed on either side, but the channel on its W. side is the safest for ships coming in or going out.

Baltimore Harbour lies about 5½ miles to the north eastward of Cape Clear, and is very convenient for ships bound either eastward or westward. Small vessels may ride 2 or 3 cable-lengths N.N.W. of Baltimore Town, in 10 or 11 feet at low water, sheltered from all winds.

BRISTOL CHANNEL.

LIGHT VESSELS AND BUOYS.

Light Vessels are moored, and Buoys laid in this Channel as follow:—

Light Vessels.

A Light Vessel, exhibiting a bright light, which revolves every minute, and is visible 10 miles, lies near the English and Welsh Grounds, on the south side of the Bristol Channel, and in lat. 51 deg. 26 min. N., and long. 2 deg. 58 min. W. This vessel is painted red, carries a ball during the day, has the words *English and Welsh Grounds* upon her sides, and is moored in 6 fathoms, with the high land of Minehead on with Flatholm Light Tower, W. by S.; the Usk Light Tower, N. by E. ½ E.; a remarkable Peak on the distant Land (See-me or See-me-not), on with St. Thomas' Head, S. ½ W. A gong is sounded in foggy weather.

A Light Vessel, bearing a bright light, which revolves every minute, and is visible 10 miles, lies off the western

end of the Helwick Shoals, and in lat. 51 deg. 31 min. N., and long. 4 deg. 24 min. W. This vessel is painted red, shows a ball in the daytime, has the word *Helwicks* upon her sides, and is moored in 16½ fathoms, with Oxwich Point, E. by S.; Worm's Head, N. E. by E. ½ E.; Caldy Lighthouse, N. W. by N. ½ N. During foggy weather a gong is sounded.

Buoys.

SAND RIDGE, White, lies in 4 fathoms low water spring tides, with the Valley of Rocks Hotel, midway between Linton church and a conspicuous house on a hill westward, bearing S.S.W.; Hurtstone, apparently a cable's length outside the Foreland, E. S. E.; Rillage bearing W. by N. ½ N.

GORE, Black, lies in 18 feet, with Burnham High Light three times its apparent breadth open southward of the Low Light, E. by S. ½ S.; Flatholms Island, its apparent length open west of Steepholms; the Lighthouse, N. N. E. ½ E.; Sand Point appearing open of Brean Down Point, N. E. by E. ½ E.

WEST CULVER, Red and White striped, with Beacon, lies in 4 fathoms, with Swallow Cliff, a little open of the South of Steepholme Island, E. ¼ N.; Willet's Tower, well open to the Westward of West Quantocks Wood, S.S.W. ¼ W. Westerly; East Culver Buoy, E. by S.

EAST CULVER, Red, lies in 6½ fathoms, with Penarth Head, on with Lavernock Point, N.N.E. ½ E.; Black Nose Point, just open Southward of Steepholm Island, E. by N. ¼ N.; Flatholm Lighthouse, N. E. ½ E.; Burnham Church Tower, S.E. by S.

ONE FATHOM, Black, lies in 4½ fathoms, with Barry Church (with Belfry) twice its apparent breadth on the West end of Barry Island, N. by W.; Lavernock Point, N. E. by E.; Flatholm Lighthouse, E. ½ N.; Steepholm Flagstaff, E. by S. ½ S.; Brean Down, E.S.E.

HONEYCOMB, Black, lies in 5 fathoms, with Weston-super-mare Church on with W. end of Piggot's Summer House, S.E. ¾ E.; Kewstock Church about a ship's length open N. of Breanbeck Island, E. by S.; Brean Down Point, S. W. ¼ W.; Swallow Cliff Point, N.E. by E. ¾ E.; Flatholm Lighthouse, N.W. ¼ W.

NEW PATCH, White, lies in 9 feet, with the high land of Minehead just open Southward of the South end of Flatholm Island, W. by S.; Grounds Light E. by N. 6 5-10 miles; Cardiff Church Tower, and the two Glass House Chimnies at Cardiff, apparently at equal distances, the Church Tower being the Eastern object, N. ¼ E.; Hayes' Windmill over the East end of Sully Island N.W. ¼ W.; Penarth Church, N. ¾ W.

WOLVES, Red and White chequered, lies in 5 fathoms, half a cable's length westward of the rocks, with Hayes' Windmill on with the West end of Sully Island, N. W. Northerly; Penarth Head, N. by E. ½ E.; Flatholm Lighthouse, S.E.

SOUTH WEST PATCH, Red, with Beacon, lies in 4 fathoms, with Worle Mill in line with the western side of Middle hope Beach, S. ½ E.; Flatholm Lighthouse, W.S.W.; Usk Lighthouse, N. by E. ¾ E.; Grounds Light Vessel, S.E. ¾ E.

WELSH HOOK, Black, lies in 5 fathoms low water spring tides, with Aust Hes a ship's length open southward of Denny Island, E. by N. ½ N.; See-m and See-me-not on with Clevedon Ol Church, S. S. W. ¼ S.; Grounds Light Vessel, W. ½ S.

RANNEY FLOATING BEACON, lies in 4 fathoms low water spring tides. Sailors Home at Cardiff, just open off Penarth Head, N. by E. ½ E.; the Western par of Brean Down on with Flatholm Island at low water; the Lighthouse S. by E. ¼ E.; Ball Point, W. ¼ N. the highest part of Sully Island, W. ¼ S.

WEST CARDIFF, Black, with Beacon, lies in 4½ fathoms, with the Monkstone Beacon in line with Clevedon New Church, E. by S.; the Eastern side of Steepholm, just open West of Flatholm, at high water, the Lighthouse S.; Sully Island open a ship's length Southward of Ball Point, W. ¼ S.; Penarth Church, N.

EAST CARDIFF, Red, lies in 6 feet, low water, spring tides; Monkstone Beacon on with S.E. end of Steepholm, S.S.W. ½ W.; Penarth Church, W. ¼ S.; Usk Lighthouse, E.N.E.

CARDIFF HOOK, Black and White chequered, lies in 2 fathoms, with Cardiff Church Tower its apparent length open Eastward of a conspicuous Clump of Trees, N. N. W. ¼ W.; Peterstone Church Tower apparently midway between the Spire of Newport New Church and the Tower of the Old Church, N.E. by E.; the Usk Light Tower, N. E. by E. ¾ E.

NORTH WEST SPIT, Black and White, Vertical Stripes, lies in 2 fathoms low water spring tides; West Cardiff Buoy 2 cables distant, S. S. E. Easterly; the eastern part of Steepholms on with the western high water mark of Flatholms, S. ½ E.; Penarth Church, N. ½ W.

BREAKSEA, Black and White striped ho-

rizontally, with Beacon, lies in 5 fathoms, about one cable's length from low water mark, and ½ a cable's length without the Rocks, with the Nash Low Light Tower apparently midway between the High Light Tower and the White Beacon upon St. Donant's Cliff, N.W. ½ W.; Evans' Farm House, apparently midway between a large Yellow Dwelling House and Limpert House, the latter being the Eastern object, N. by E. ½ E.; Brereton Windmill, N. N. W. ½ W.

AST NASH, Black and White chequered, lies in 4 fathoms, with Groes' House, (yellow) twice its apparent width open Westward of the Tower upon Dunraven Promontory, N. Easterly; the North side of the Nash High Light Tower on with the South side of the Low Light Tower, S. E. by E. ¼ E.; Nash Swatchway Buoy, N.W. ¼ W., 4¼ miles; Tusker Beacon, N.N.W. ¼ W. 4¾ miles; the fair channel course from the Mumbles to this buoy inside the sands, with the Mumbles Light Tower N. N. W. ¾ W., and the Nash Low Light Tower S.S.E. ½ E.

NASH SWATCHWAY, Black, lies in 2½ fathoms, with Sker House on with Rhwychwyn Point, N. ½ E.; Newton Down Windmill, its apparent length open Northward to Newton Nottage Church Tower, N.N.E. ¾ E.; the Nash High Light Tower, its apparent length open Northward of the Low Light Tower, S.E. ¼ E.; Tusker Beacon, N. E.; East Nash Buoy, S.E. ¼ E., 4 miles; West Nash Buoy, N. W. ½ W., 2¼ miles.

WEST NASH, Black and White chequered, with Beacon, lies in 6 fathoms, with Newton Down Windmill on with the centre of the Breakwater at Porth Cawl, N. E. by E. ½ E.; the Nash Low Light Tower, S. E. ¼ E.; East Skerweather Buoy, N., 2 6-10 miles; West Skerweather, N. W. ¼ N., 6½ miles; Mumbles Light Tower, N. by W. ¾ W.; Nash Swatchway Buoy, right between the Lighthouses, S. E. ¼ E., 2¼ miles; Tusker Beacon, E. ¼ S., 2½ miles.

EAST SKERWEATHER, Red and White striped, lies in 6 fathoms, with a conspicuous Shaft on the summit of the highest Hill, open Eastward of Constantinople Cottages, the apparent length of them, N.N.E. ¾ E.; Margam Trees, on with the West end of a long stone wall terminating near the Beach E. ½ N.; the Windmill inland of Cwm Mawr on with Dunraven Point, S. E. ¼ E.; Kemfig Church 2¼ points open Westward of the Scar House, N. E. by E. ¼ E.; Nash Low Light Tower, S. E. ¼ S.; Mumbles Light Tower, N. N. W. ¼ W.; West Nash Buoy, S., 2 4-10 miles; West Skerweather Buoy, N. W. by W. ½ W., 5 miles; Mixon Buoy, N. N. W. ½ W., 9 miles; Tusker Beacon, S. E. ½ E.

WEST SKERWEATHER, Red, with a Beacon, lies in 4½ fathoms, with Constantinople Cottages on with the mouth of Aberafon Harbour, E.N.E. Northerly; Margam Trees open Southward of Sker House three times their apparent width E. by S.; Nash High Light Tower, S.E., 14 miles; Mumbles Light Tower, N. ¼ E., 6 miles; East Skerweather Buoy, S E. by E. ½ E., 5 miles.

HUGO, Black, lies about a cable's length from the dry sand on the N.E. side of the Bank, with a large square House on with the South end of the large Store House at Porth Cawl, S. E. ¼ E.; Kemfig Church its apparent breadth open South of a White Cottage (the Northernmost in the Village), E. ½ N.; Nash Low Light Tower, S. E. by S.; Mumbles Light, N. N. W. ½ W.; Constantinople Cottages N. E. ½ N.; East Skerweather Buoy, S. by E.

INNER GREEN GROUNDS, Red Nun, lies in 3½ fathoms, about one and a half cable's length from 5 feet on the S.E. end of the Shoal, with Kilvey Old Mill, ⅛ distant from the Inn (a large brick house), towards Tennant's Look-out House, N.E. by N.; Mumbles Lighthouse, W. ½ N.; Woodland Castle, N.W. ¼ N.

OUTER GREEN GROUNDS, Black and White chequered, lies in 2½ fathoms, with the Tut between the two Houses on the Mumbles Point, W. ¼ N.; Woodland Castle, N.W. by N. ¼ N.; Swansea Pier and Lighthouse, N.E. by N.; Kilvey Old Mill, N.E. ½ E.

MIXON, Black, with Bell, lies in 10 fathoms, with Porth Einion Point on with Oxwich Point, W.N.W. Westerly; Kilvey Old Mill Tower on with Swansea East Pier Head, N. E. ¾ E.; Mumbles Light Tower, N. E. ¾ N.; West Skerweather Buoy, S., 5 miles.

WEST HELWICK, Black, lies in 5½ fathoms, with Rhossily Parsonage on with East Crow of Tableland of Worms Island; Porth Einion Point, E. by S. ½ S.; Worms Head, N. E. by E. Easterly; Helwick Light Vessel, S. W.; Caldy Lighthouse, N.W. ¼ N.

HELWICK SWATCHWAY, Black and White striped, lies in 4½ fathoms, with Burry Holmes appearing in the centre of Worms Sound, N.N.E. ¼ E.; Oxwich Point on with Porth Einion Point, E.S. E., Easterly; East Helwick Buoy, E. S.E., 3½ miles; Worms Head, N. ¼ W., 2 4-10 miles; West Helwick Buoy, W. N.W., 2½ miles.

EAST HELWICK, Black, lies in 2½ fathoms, with Rhossily Point open westward of Tears Point the supposed breadth of a ship, N. N. W. ¾ W.; a White Building upon the high land, apparently midway between two White Cottages below that building, N.N.E. ½ E.; Helwick Swatchway Buoy, W. N. W., 3½ miles; West Skerweather Buoy, S.E., 12 miles; Mixon Buoy, E. by S. ¾ S., 9¼ miles; Worms Head, N. W. ½ N., 4 1-10 miles.

COCKBURN SHOAL, Black, lies in 4 fathoms, about 20 fathoms S.E. from the shoal, with the Avon Lighthouse one-third between Penpole House and Miles' House, S. E.; High water mark of Black Nose Point on with Portishead Point, W. ½ S.

TUSKER AND MONKSTONE.—A mast with a large red ball attached is erected as a beacon upon each of these rocks. From the Tusker Beacon, Porth Cawl Point, N. ½ W., is 1½ miles; Nash Low Light Tower, S. S. E. ½ E., 5 miles; East Skerweather Buoy, N. W., 3½ miles; East Nash Buoy, S.S.E. ¾ E., 5 miles; West Nash Buoy, W. ¼ N., 2½ miles.

BEACON ON THE WOLF ROCK.—This Beacon consists of an artificial cone bearing a mast having a large ball upon its summit at an elevation of 36 feet above the level of the sea at high water; the mariners are to observe that spring tides rise at this station 19 feet, and that at low water of those tides, the rock is uncovered to the height of 15 feet. St Michael's Mount open of Lemorn Cove leads 2½ miles to the Eastward of it Longships Lighthouse touching Cape Cornwall leads 1¼ miles Westward of it The Bearings and Distances of the undermentioned objects from this Beacon, are as follows, viz.:—Longships Lighthouse N. E. Northerly, 7¾ miles; Scilly Lighthouse, W. by N. ½ N., 21 miles; Runnelstone Rock, which covers at half-flood E. by N. ½ N., 7 miles; Seven Stones centre thereof, N. W. ¼ N., 13½ miles Lizard Lighthouses, S. E. by E. ¾ E., 2 miles.

WEST COASTS OF ENGLAND AND WALES.

SMALLS LIGHT TO THE PORT OF LIVERPOOL.

Smalls Light is placed on Smalls Rocks, lying off St. David's Head in Pembrokeshire, and bearing from St. Ann's Point, N.W. by W., distant 18 miles. This light is stationary, appearing like a star of the first magnitude, at the distance of 13 miles. To avoid these rocks, keep above a mile from the highest on all sides, and do not attempt to pass inside of them without a good chart and ample directions, or a pilot; with these there is excellent anchorage to be found in St. Bride's Bay in 8 or 9 fathoms.

South Bishop Light.—The Bishop and Clerks are a number of dangerous rocks, with great overfalls, lying northwest of Ramsey Island, at the distance of 2½ miles. On the southernmost, called the South Bishop, is a lighthouse, exhibiting a revolving light, visible in all directions, and appearing with great brilliancy at intervals of 20 seconds, whereby it will be readily distinguished from the Smalls and other lights in its vicinity; it can be seen at the distance of 17 miles. This light is the principal guide the mariner has to enable him to know his exact situation, when sailing near this dangerous part of the coast of Wales. The light must be always passed to the westward, and when to the northward of it never bring it to the westward of south, until you are 3½ or 4 miles from it, particularly on a flood tide, in moderate weather, for then you have the tide nearly on the beam, which runs rapidly through amongst the islands; at spring tides nearly 5 knots and causes several overfalls. The passages between the rocks must not be attempted by strangers.

From St. David's Head to Strumble Head the course is E. N. E. ½ E., distance 10½ miles; between them at the distance of 5½ miles from the former, is Abercastle Island, lying close to the land. In sailing from St. David's Head to Cardigan Bay you must give the shore a good berth, for several rocks under water lie scattered about, some of which are nearly a mile from shore; they are called the Sledges, and are 2 miles eastward of St. David's Head.

Fishgard Bay.—Three miles to the eastward of Strumble Head you open Fishgard Bay, having good anchorage with any wind, except from the N. to the E., the ground holding well. The best anchorage will be to the southward of the Cow Rock, which is always above water, in 4 or 5 fathoms, the rock bearing N. by E. ½ E., distant a ¼ to ½ a mile. This bay is more desirable for vessels seeking shelter in gales from S. and W. than Studwall's Road, which is 5 1½ miles to the leeward, as it is well sheltered from these gales, which Studwall's Road is not, and the bay affords a more ready outlet to the S. or N. than any place in the neighbourhood.

Newport Bay opens when you are 6 or 7 miles distant from Strumble Head.—The bar and channel to Newport lie about ¼ a cable's length from the shore, directly below the village of Newport. On the bar are 13 feet water with spring tides, and 7 or 8 at neaps. When a vessel is over the bar, she will be sheltered from all winds.

Cardigan Bay.—The Buoy on the Causeway in Cardigan Bay has been moved, and now lies near the extremity of the Causeway Reef, in five fathoms at low water springs, with the following marks and compass bearings: Slandebrog Mill in line with the east side of West Island at St. Studwall, N. by. E.; Penkilan Head, N. by W.; Bardsey Lighthouse, N. W. ½ W.

Cardigan Harbour is adapted for vessels, drawing about fifteen feet. In the channel over the bar, which is liable to shift, are 14 feet water with spring-tides, and 8 or 9 feet with neap; but in Cardigan Road a ship may stop, in moderate weather, almost any part without the bar, about two cables' length from the shore, in 6 fathoms water.

Aberystwith Harbour is fit for vessels which draw 15 feet. There are land-marks to lead you over the bar, one of which is moored on wheels, as the bar shifts. When any vessel is seen off the place in the evening, there are lights put upon the marks, which must be brought in one, to direct you over the bar.

Aberdovey is about 3 leagues to the northward and eastward of Aberystwith, and 6 miles to the south of the Diamond Beacon on Beach Head. This harbour has a shifting bar about a cable's length broad, and about half that in and out. The Trinity Board have placed a large Black Buoy at the entrance, outside, and a Red one inside the bar. A good look-out should be kept for a small Buoy between the Black and Red Buoys, which makes the angle of the passage if any. These Buoys are all placed in the fairway. Vessels may come to anchor half a mile above the Red Buoy, and which is about the same distance below the town, where from 12 to 15 sail, drawing from 12 to 15 feet water may ride in safety and in good holding ground.

Barmouth Bay may be known at a distance by the highest mountain on that coast: it has two tops—the southmost is highest; and when seen from the westward, is in a line with the N. side of the entrance of Barmouth. From the N. side of the Bay, and about 1 mile from the main, a shoal called the Causeway, extends W. by S. 3 leagues: at low water there is not more than 2 or 3 feet water all along the edge of it, where at a cable's length the compass is so affected by magnetism, as to vary 90 degrees, and, as you approach nearer, quite reverse the points.

Studwall's Road affords excellent anchorage for the largest ships, sheltered from all winds except from E. to S. E. by E. It is easily known by two Islands that lie off the point, and there is no danger except a small rock about ¼ of a mile eastward of the Islands, between which there is a good passage, as well as between the westernmost and the main, at a cable and a half's length from them.

Bardsey Island is separated from the mainland by a channel more than a mile and a half wide, having from 15 to 25 fathoms in it. On the S. W. part of this Island is a lighthouse exhibiting a bright fixed light, visible seaward from E. ¾ S. to N.E. ¼ E., and at a distance of 17 miles; but masked between the bearings of N. 50 deg. E. to S. 70 deg. E. If in a gale of wind from the W.N.W. vessels should be unable to weather Bardsey Island, this light will point out a secure asylum in Studwall's Road, enabling them to preserve a proper position until daylight, when they can proceed to the anchorage therein. Vessels bound for Studwall's Road, or laying-to for daylight, must not bring the light to bear to the westward of W.N.W.; and if they lose sight of the light when it bears from them nearly in that direction, they will be too far to the northward, and in danger of getting embayed in Hell's Mouth.

Carnarvon. — From Brauchypool Head the shore lies nearly E. N. E. to Carnarvon Bar, and from thence nearly N. by W. ½ W. to Holyhead Island, forming Carnarvon bay. Vessels going in are to leave the outer or Black Buoy on the port hand, the Red Buoys on the starboard hand, and the Perch beacon on the

port hand. The black and white chequer Buoy is placed in mid-channel. Nun Buoys, painted green, denoting sunken rocks, are placed off Llanddwyn Point. This Point may be distinguished, in the day time, by two white towers, (a large and a small one) and during the night. by a fixed red light, visible, in clear weather, about five miles to seaward, between the bearings (from Llanddwyn by compass) of N.W. by N., and S.W. by W.; and which is intended solely as a leading light for the entrance to the Menai Straits. The bar should not be attempted until daylight, nor by vessels drawing more than 10 feet before half flood. During gales from W. to N., vessels may find shelter on the S. E. side of Llanddwyn Point. The proper anchorage is about a quarter of a mile from the shore, with the small tower a little open to the northward of the large tower. In running in, give a good berth to the sunken rocks (the green Buoys indicating which are placed to seaward); but it is much preferable for strangers to heave to outside sufficiently to windward, and make a signal for a pilot, four of whom are stationed at Llanddwyn, with a life-boat and Marryat's code of signals. Vessels wishing to communicate will be answered from the large tower.

South Stack Light. — Off the N. W. point of Holyhead Island is the South Stack Rock, upon which is a lighthouse, bearing a brilliant light, which revolves every minute, whereby it will be readily distinguishable from the light on the Skerries, which is a stationary light, and bears from the light on the South Stack N. E. ½ E., distant 8 miles, and may be seen through a great part of Carnarvon Bay, During foggy weather, a smaller bright light, revolving in 1½ min., is occasionally shown, about 40 ft. above the sea, and 30 yards north of the main lighthouse.—Any vessel making either of these two great lights, can find no difficulty in navigating round the head, or into the harbour of Holyhead, if the wind permits; and no directions that could be given would serve equal to that of having the two lights in sight, as will be the case in the situation above mentioned.

Holyhead Refuge Harbour is chiefly formed by an immense breakwater, the heel resting on Soldier's Point, from whence it projects N.E. by E. nearly one and a half cables' length, then E.S.E. about five cables' length, and then E.N.E. to its end, which is marked by a red light, visible at a distance of 3 or 4 miles. The end of the breakwater is N. N E., one mile from the Old Harbour Light.—To sail into Holyhead Refuge Harbour, give the end of the breakwater a good berth, as a strong tide sets to the westward nine hours out of the twelve, and strkes hard upon it. Having rounded the breakwater, steer to the W.S.W., between it and the outer Platters, leaving all the black buoys on the port hand, and anchor well in, close to the beach. There are passages between the Platters and Salt Island; but these should never be attempted by strangers. Vessels should have both anchors ready for letting go, with 50 to 60 fathoms of chain ranged according to the weather, and should be careful to anchor well up, or they will have to shift birth. Vessels disabled or without ground-tackle may be laid on a beaching-slope at the head of the harbour, which has been prepared for the purpose.

Old Harbour of Holyhead.—A wooden pier has been recently built, extending from the Old Hardour Lighthouse in a direction E. by S, : two red lights of equal height mark its end.—All vessels bearing up for Holyhead Harbour should be prepared with both bower anchors ready to let go, and the end of a good warp for a boat to take to one of the dolphins, moored along the passage for that purpose. The course round the pier, up the harbour, is W. by N., then W.N.W.; therefore, with the wind at N., and to the westward of that point, a press of sail should he carried, especially after-sail; run the jetty close on board, and neither start tack nor sheet till the vessel is well inside the lighthouse and the packets' moorings, then act as circumstances may require. Rise of water at spring tides, 17 feet; depth of water at the entrance, at low water, spring tides, about 12 feet. Holyhead harbour being a tide harbour, and frequently with many anchors down in the way, vessels drawing 12 feet should not run in until about two hours' flood, and those of a heavy draught should, if possible, keep off till four hours' flood. In tempestuous weather no vessel should run for the harbour at night-time. There is no occasion to use this as a harbour of shelter now the new harbour is established. All vessels anchoring outside must keep a light up during the night.

Holyhead Harbour Lights, situate on the starboard hand in entering the harbour, are stationary. The higher, a bright fixed light, is visible at the distance of 11 miles; and the lower, red, is visible from S.S.W. to S.W. only, serving as a mark to clear the Platters, and rocks on both sides. Vessels entering the harbour are in the fairway when they see the RED light, and steer for it. A red light is shown from the eastern extremity of the new breakwater; and two red lights, of equal height, are exhibited from the end of the temporary wooden jetty

which has been recently built out from the Old Harbour Lighthouse in a direction E. by S.

The Skerries is a cluster of islets and rocks 1 3-5ths mile to the northward of Carmel Point, occupying a space of about half a-mile. Upon the centre and highest islet of the group is a lighthouse 54 feet high, showing a fixed bright light at 117 feet above the level of high water, visible 15 miles. The position of this lighthouse is lat. 53° 25′ 18″ N., and long. 4° 36′ 24″ W. A short distance all round the islands is deep water, except on the northern side of the group, where is a dangerous rock of 2¾ fathoms, called the African, lying with the lighthouse in one with Pengarn Hill bearing S.S.E. Upon this rock there is a great overfall when the tide is running either way. Between the Skerries Islets and Carmel Point is a dangerous ledge of rocks, drying with spring tides only, called the East Platters. Close-to all round are 8 to 16 fathoms, and there is a strong rippling when the sea is heavy. You may sail between the rocks and the Skerries by bringing the South Stack Bridge over the North Stack, and between them and Carmel Point, by bringing the South Stack and North Stack in one. The Beacon on the West Mouse Rock in one with the Middle Mouse, also clears it on the south side.

Point Lynas lies S.E. by E. ¼ E. of the eastern point of Amlwch Bay, distant 1½ mile, and is situated in lat. 53° 25′ N., and long. 4° 17′ W. It is a bold conspicuous point of land both from the eastward and westward. A lighthouse is erected on the high pitch of the point, and is a castellated building, with a white basement. It exhibits a flashing light, which becomes instantaneously obscured at intervals of 10 seconds, and remains obscured 2 seconds only, so that it is readily distinguishable from the Skerries and other lights in the vicinity. From Lynas Lighthouse to Great Orms Head, S.E., 16 miles; N.W. Lightship, Liverpool, E.S.E., 37 miles; Calf of Man, N.¼ W., 42 miles; Buoy Nelson, off Preston, E., 41 miles; St. Bee's Head, N.E., 70 miles.

Port of Amlwch, Anglesea,—In the day time, when the Breakwater Balks are down, a Ball is fixed on a pole at the easternmost point of the harbour. When too many vessels lie at the entrance of the harbour, a Red Light will be shown, and when the entrance is clear a White Light

To Sail into Beaumaris Harbour, THROUGH THE SOUND IN LOW WATER.—Steer in for Table Land, till the W. end of Puffin Island comes open with the E. end of Penmaenmawr Hill. These marks will clear the Dinmora Bank on your starboard hand. You then have the Sound fairly open; but to avoid the rocks off Trwyndu Point, keep more to the Perch on your left; and when Beaumaris comes open off Trwyndu Point, haul up for the red buoy off Penman, keeping it on your starboard hand, and off the red buoy of the Causeway on your left. Anchor in 4 fathoms off Penman red buoy, clean and good holding ground, well sheltered from a north-westerly wind; but if one hour's flood, you will carry 16 feet over the Flats off Penryn Point. Steer for the black buoy on the Spit of the Levan Sand, abreast of Friar's House, where anchor in 5 fathoms low water spring tides, or at ½ flood steer for the town, keeping the red buoy on Watch House Point on your starboard hand, in 6 and 7 fathoms. Keep that depth of water until the Church at Beaumaris bears N.N.E. by compass, when you may anchor in 9 fathoms at that time of tide. Thence you will see Bangor Pool, which is above Ferry Point. But if any of the buoys should be missing, as you steer up, keep the Church Tower and Lodge Hill in one.—Opposite the Friar's House, in mid-channel, is a sandbank, marked by a red and white chequered buoy: in sailing up to Beaumaris, keep this buoy on the starboard hand.

To Sail out of Beaumaris Harbour, FROM THE ANCHORAGE OFF THE TOWN,—Weigh at high water, and drop down to Friar's Road, Give the black buoy off the Spit a berth on your starboard hand, and the red buoy off Penman on your larboard. At half ebb, take the eastern passage, keeping off the red buoy of the Causeway on your larboard hand. From the latter, steer for the east end of Puffin Island, on your larboard hand, keeping off it half a cable's length, and the black buoy off the Dutchman's Spit the same distance on your starboard hand.

Menai Lighthouse is erected at the north-eastern entrance of the Menai Straits. The Light is STATIONARY and of a RED colour, visible from N.W. ¾ W. seaward, to S.W. ¼ W. excepting that by the intervention of Puffin Island the Light will be eclipsed to vessels upon the bearings from it of E. by N. ½ N. to E. ½ S. A ledge of rocks extending under water from the base of the Lighthouse nearly 50 yards, it is advisable not to approach the building within that distance.

Conway Harbour.—There are two channels leading into this harbour—the west and north. For the west channel, steer from the N.W. black buoy to the second black buoy, leaving them on your larboard hand; keep the red buoy off

Penmaenbach, the chequered red and white buoy, the two red buoys, and the perch, on your starboard hand; haul up, and steer for the quay, keeping close to Deganwy Point on the larboard hand. The entrance to the north channel is marked with a black perched buoy: the second, third, and fourth are all black, and moored in the best of the channel. Vessels drawing from 10 to 12 feet may lash alongside the quay, on mud and sand, dry at low water.

To Sail from Point Lynas to the Great Ormshead.—The course from Point Lynas to the Great Ormshead is S.E. per compass; from whence keep the Ormshead as the line is drawn on the chart, till Rhyland Castle and St. Asaph Church are in one; then haul in till the south mark on Helbre and Bidstone Lighthouse come in one. Steer forward on that line which is the deepest water along the shore. It will also clear the Middle Patch on the left, which is dry at low water, spring tides. Buoys are placed here; red on the starboard, and black on the larboard hand, coming in. Give the Point of Ayr Lighthouse a berth of a mile on the starboard hand; and when it bears W. haul up S.S.E. for mid-channel. At that time the rippling of the tide on the edge of the Salisbury Bank will be very perceptible, as well as on the Welch side. Continue that course, in mid channel, till the Grange Mill bears N.E. by E. by compass, then haul quick for Dawpool, and keep that bearing till Burton Mill comes over the town of Parkgate. That course clears the south end of Salisbury Bank, and the Bagilt Flats on your right. As you advance, keep the lead going, and borrow on the Haswell Church side of the shore. It will carry you clear to Bearhouse Pool, where anchor till you obtain a pilot. The leading mark for passing at high water across the Salisbury Bank to Hoylake is Helbre Eye on with the Grange Mill.

Chester Bar is a narrow sandbank between 3 and 4 miles in length, stretching rather circularly from S.E. to N.W.; its South end is near to Nant House, and is called the Middle Patch, sometimes drying; the middle of it is called Earwick, and dry at low water; but much the greater part of it never dries, having from 3 to 6 feet water over it at all times. To clear the Earwick to the eastward, bring Nant House and the barn above it in one. To sail over Chester Bar in a ship drawing 12 feet, take half-flood; and when Craig Disart Hill bears S. S. E., which with Middle Hill and Comb Hill form an equilateral triangle, keep the two Ormsheads shut below, and a little open above; by this you will avoid all danger on the southward. To avoid the banks and shallows on the north side, open the Ormsheads below near a ship's length, but not more. If a vessel comes to Chester bar before half-flood, and is apprehensive of not having sufficient water to cross it, she may sail between the Middle Patch and the Earwick, keeping the Ormsheads a little open below: and when Craig Disart Hill and Middle Hill are in a line, steer N.E. by E. until you deepen your water to 4 or 5 fathoms, and sail along Hoyle Sand for the Point of Air, giving that point a berth of half-a-mile. To avoid that part of Hoyle which is opposite to Air, keep Bidston Windmill to the south of Helbre Summerhouse; this will carry you through the swashway toward Hoyle Lake. But the mark which leads clear of the north part of the Hoyle Sand, and directly into Hoyle Lake, is the Point of Air Lighthouse open to the northward of Helbre Island.

The River Dee.—Vessels may stop a tide about 1 mile to the eastward of the Point of Air, upon which a lighthouse is erected. The tide runs, when strongest, 3½ miles an hour; and when the tide and wind are contrary to each other, make a rough sea here. At this place, which is called Wild Road, you can anchor in 5 or 6 fathoms; or you may proceed higher up to the anchorage off Linacre Creek, where, in 6 or 7 fathoms, you will be much better sheltered than in Wild Road from north-westerly winds, and ride on ground that holds well. To sail from Wild Road to Dawpool, a distance of near 6 miles, bring the southernmost house of Dawpool, which stands below a clay cliff, exactly in a line with the barn having a white end, standing on the top of the cliff, but the barn must not be brought on either side of the house; anchor about 2 cables' length from high water mark in 3½ or 4 fathoms at low water. Here the stream runs 5 miles an hour when strongest. At Parkgate, which is more than 4 miles up the river, vessels must lie aground on the beach; for though there are 2½ fathoms in the channel, off the town, and 3 fathoms above it, yet the stream is so strong, and the ground so indifferent, that a vessel would drag its anchor. Take the ground about 2 hours before high water, below the houses of Parkgate. Vessels in making their passage to Parkgate must use the utmost caution to avoid the Salisbury Bank, a dangerous shoal, and lying in the direction of the river. The channel now to Parkgate is opened into a swashway by Bagilt and Flint; four red buoys are placed on the edge of the Mostyn and Bagilt Banks, and two black ones on the Salisbury bank; the former of these are

to be left on the starboard side, the latter on the larboard. A black buoy lies on the SELDOM SEEN ROCKS in the channel between the Salisbury bank and the Lime Wharf. There are three small islands or rocks, called the Helbre Islands, lying to the southward of the Hoyle Sands: on the northernmost, which is called Great Helbre, are two wooden beacons or marks, distant from each other 653 yards.

BAY AND HARBOUR OF LIVERPOOL.

In the vicinity, and to the northward and westward of the Rivers Dee and Mersey, lie the banks which form the several channels to Liverpool, viz., the Hoyle Banks, the Burbo Sands and Flats, the Jordan Banks, Formby Point Flats, &c. The principal channels are, the Horse and Rock Channels, the Victoria Channel, the Queen's Channel, the Old Formby Channel, and the Crosby or Main Channel.

The principal lights and sea-marks of Liverpool Bay are as follow:—

The NORTH-WEST LIGHT VESSEL, off the Horse and Helbre Channels, in 7¾ fathoms, low water, has three masts, each bearing a lantern, so disposed as to form a triangle, and showing brilliant fixed lights of the natural colour, which may be seen at the distance of 10 miles; in the day she carries a black ball. Her hull is painted black, with a broad white streak. In thick or foggy weather, either by day or night, a bell and gong is sounded alternately. This Light Vessel is now more particularly distinguished by the burning of a blue light, of 2 or 3 minutes' duration, at the following periods, namely, during the months of November, December, January, and February, at 6, 8, 10, and 12 o'clock, p.m., and 2, 4, and 6 o'clock, a.m. During the months of March, April, September, and October, at 8, 10, and 12 o'clock, p.m., and at 2 and 4 o'clock, a.m. During the months of May, June, July, and August, at 10 and 12 o'clock, p.m., and 2 o'clock, a.m. The instant of ignition is as near Greenwich mean time as possible; but those approaching under difference of time at ship should look out around the anticipated bearing five minutes before the respective hours.

The FORMBY LIGHT VESSEL, at the elbow of the Crosby and Queen's Channels, moored in 25 feet at low water, shows two bright fixed lights upon separate masts, visible 8 miles; a red ball is exhibited during the day. Her hull is painted red. In foggy weather a bell is tolled. Crosby Lightship, S.E. ½ S., 2½ miles; N.W. Mark, E. by N. ¼ N., 3⅞ miles; Buoy Q. Fy. (bell beacon), N.W. by W. ½ W., 2⅜ miles.

The CROSBY LIGHTHOUSE, situated to the north-eastward of Crosby Point, shows a fixed red light, elevated 96 feet above the level of the sea at half-tide, and visible between the bearings of S.S. E. ¼ E. and E., which limits indicate respectively when a ship is westward of Formby Spit, or to the southward of Crosby Lightship.

About a mile and a quarter to the north-eastward of Crosby Lighthouse is the FORMBY OLD LIGHTHOUSE, the light from which has been discontinued. Near the latter, on the strand, is a beacon, which formerly formed a leading mark for Victoria Channel; further to the northward is the Life Boat House; and near it, just round Formby Point, is the North-west Mark. This mark in one with another on Mad Wharf, bearing S.E. by E. ¼ E., is the leading direction for entering the Old Formby Channel.

The CROSBY LIGHT VESSEL, at the north-east elbow of the Great Burbo Bank, moored in 44 feet at low water, shows a bright fixed light, visible 8 miles, and carries a red ball at the mast-head in the daytime. Her hull is painted red. From hence the fairway course up the Mersey is S. by E. ½ E. In sailing through Crosby Channel during ebb-tide, to avoid the indraught through the gullies in Great Burbo Bank, vessels should be kept well to the eastward of a line drawn between the Rock Lighthouse and Crosby Lightship.

At Bootle, near Liverpool, are two obelisks on the shore, and behind Bootle, near Walton Church is a beacon, called Bootle Inner or Walton Mark.

On the south side of Liverpool Bay, on the peninsula separating the Mersey from the Dee, are many objects used as sea-marks, several of which will have been seen before arriving at the North-west Light Vessel. Off the west end of the peninsula are the islets, called the Great and Little Helbre, upon which are placed two beacons. On the mainland, within two miles S.E. by S. of the Helbre Islets, are the village and church of Kirby, to the east of which is Grange Hill, surmounted by a beacon, in the form of a pillar, at 173 feet above half-flood. Within two miles S.S.E. from Kirby, is Irby Hill, with its mill and wood.

About a mile and a quarter north of Kirby, near the shore, is the Hoylake Hotel, and within half-a-mile E.N.E. from this are the HOYLAKE LIGHTHOUSES,

showing fixed lights, which mark the eastern entrance to the roadstead of that name. The upper one exhibits a brilliant light at 71 feet above half-flood, which may be seen at the distance of 13 miles. This light is decidedly and strongly lighted on a north aspect, and so masked as suddenly to appear when coming in, or disappear when going out, immediately it bears south by compass, thereby indicating when Bidston and Leasowe Lights must be crossed to clear the Six Feet Flats, when inward-bound, or the Spit-Elbow of East Hoyle, when outward-bound. It is masked so as not to show further to the westward than the bearing of south, or midway between the buoy of the flats (H 1, Black with perch and ball) and the buoy on the S. E. shoulder of East Hoyle Bank (H 3, Red Can). The lower light is 47 feet above the same level, and may be seen at the distance of 11 miles. This light is so lighted as to open abruptly when coming from the westward, or shut when going westward, directly it bears S. by E. ¾ E. by compass, thereby indicating when you are approaching the line of N.W. Spit Buoy of East Hoyle (H 1, Red, with Perch), and that you may haul into the Horse Channel (when Bidston and Leasowe Lights open their breadth eastward) when the said Hoylake light bursts forth to view; or haul from the Horse Channel to the westward when it disappears. It will thus serve as a guide round the Spit of Hoyle (even should the N. W. Light Ship be missing), with the like effect as the Upper Hoylake Light at present indicates when to cross the line of Bidston and Leasowe Lights, to clear the Six Feet Flats. The two Hoylake Lights in a line indicate the turning point from the Horse into the Rock Channel, or the contrary. At a mile to the eastward of the lower Light are the Dove Beacons, erected as a mark for the eastern passage into Hoylake, the interior channel of communication between Helbre Swatch and the Horse Channel, which is, at times, a very desirable harbour.

The Old Bell Beacon lies at the entrance of the Rock Channel. It bears a self-acting bell, and is marked, "R. 1, Spencer's Spit."

The next conspicuous object is the LEASOWE LIGHTHOUSE, which is white; its light brilliant and fixed, 110 feet above the level of half-tide, is seen 5 leagues off, and is so masked as to give a defined light in the Rock Channel, within certain limits, and suddenly disappears, bearing S.W. ½ S. to vessels inward-bound, when off West Wharf Buoy, R. 3, Red, and suddenly appears when outward-bound. This is succeeded inland by the BIDSTON LIGHTHOUSE, upon the summit of Bidston Hill, with its church and mill. This lighthouse is of stone, but appears of a dark colour, and shows a brilliant fixed light at 244 feet above the level of half-tide. Its light can be seen 23 miles off. This light is so masked as to give a defined light in the Rock Channel, within certain limits, and to vessels inward-bound it suddenly disappears on the bearing of S. by W. ½ W. when abreast of East Wharf Buoy, R. 4, Red, and suddenly appears when outward-bound. The lights of Leasowe and Bidston are called the Sea Lights. At three-quarters of a mile eastward from the Leasowe Light is Mockbeggar Hall, and at 2¼ miles farther east is the Black Rock Lighthouse, standing upon the reef, so called, at the entrance of the Mersey.

The BLACK ROCK LIGHTHOUSE is built on the rocks off New Brighton, on the west side of the entrance of the River Mersey, and is a handsome round tower of Anglesea limestone. It is surrounded by water at nearly half-tide. The height of the building, from the lantern to the base, is 75 feet, and the whole height above the level of the sea is 88 feet. The light revolves, exhibiting alternately from the same light room, two bright lights, and one of a red colour, each at intervals of a minute, the whole revolution being completed in 3 minutes. Having acquired their brightest state, they gradually become less luminous, and are eclipsed. The light in clear weather can be seen about 5 leagues off. A bright fixed light from a lower chamber is also shown down the Rock Channel and up the River while 11 feet water remain in the Gut, and a black ball denotes the same by day. Three bells toll in succession during foggy weather; and a blue flag summons the Magazine lifeboat when distress appears.

Garston Dock.—This Dock, which is 4 miles south of the Liverpool Docks, and on the same side of the river, is free from the Liverpool dock rates, vessels entering it being only liable for the harbour and light dues. The channel from Liverpool is buoyed with red and black buoys similar to those in the Victoria Channel.

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RICHARD LEWIS, Secretary of the Life-boat Institution.

FRANCIS LEAN, Secretary of the Shipwrecked Mariners' Society.

All the Agents of the Shipwrecked Mariners' Society will receive Contributions for the Life-boat Fund.

List of LIFE BOATS on the Coasts of the United Kingdom, distinguishing the Place where each Boat is Stationed.

Name of Station.	County.	No. of Boats.	Name of Station.	County.	No. of Boats.
Aberdeen	Aberdeen	2	Cove Bay	Aberdeen	1
Aberdovey	Merioneth	1	Cromer	Norfolk	1
Aldborough	Suffolk	1	Cullercoats	Northumberland	1
Alnmouth	Northumberland	1			
Appledore	Devon	2	Dungarvon	Waterford	1
Arbroath	Forfar	1	Donna Nook	Lincoln	1
Ardmore	Waterford	1	Dover	Kent	1
Ardrossan	Ayr	1	Drogheda	Louth	1
Arklow	Wicklow	1	Dundee	Forfar	1
Ayr	Ayr	1	Dungeness	Kent	1
			Dundalk	Louth	1
Bacton	Norfolk	1			
Ballycotton	Cork	1	Eastbourne	Sussex	1
Barmouth	Carnarvon	1	Exmouth	Devon	1
Berwick	Berwick	1			
Boulmer	Northumberland	1	Filey	Yorkshire	1
Blyth	Ditto	2	Fleetwood	Lancashire	1
Braunton	Devon	1	Fishguard	Pembroke	1
Bridlington	Yorkshire	1	Fraserburgh	Aberdeen	1
Broadstairs	Kent	2			
Buddoness	Forfar	1	Gorleston	Suffolk	2
Bude Haven	Cornwall	1	Groomspoint	Down	1
Brighton	Sussex	1			
Burnham	Norfolk	1	Hartlepool	Durham	4
			Hastings	Sussex	1
Cahore	Wexford	1	Hartlepool, East	Durham	1
Caister	Norfolk	2	Harwich	Essex	1
Camber	Kent	1	Hauxley	Northumberland	1
Cardigan	Cardigan	1	Holyhead	Anglesea	1
Carnarvon	Carnarvon	1	Holy Island	Durham	1
Castletown	Isle of Man	1	Hornsea	Yorkshire	1
Carnsore	Wexford	1	Howth	Dublin	1
Cemlyn	Anglesea	1			

Name of Station.	County.	No. of Boats.	Name of Station.	County.	No. of Boats.
Ilfrancombe	Devon	1	Saltburn	Yorkshire	1
Irvine	Ayr	1	Scarborough	Ditto	2
			Seaham	Durham	1
Kilmore	Wexford	1	Seaton Carew	Ditto	1
Kingstown	Dublin	1	Sennen Cove	Cornwall	1
			Sherringham	Norfolk	1
Liverpool	Lancashire	7	Shields	Northumberland	3
Llandwdyn	Anglesea	1	Shoreham	Sussex	1
Llanelly	Glamorgan	1	Skegness	Lincoln	1
Lowestoft	Suffolk	1	Skerries	Dublin	1
Lyme Regis	Dorset	1	Southport	Lancashire	1
Lytham	Lancashire	1	Southwold	Suffolk	1
			Spurn point	Yorkshire	1
Margate	Kent	2	St. Andrew's	Fife	1
Moelfre	Anglesea	1	Stonehaven	Aberdeen	1
Montrose	Forfar	1	Sunderland	Durham	6
Mundesley	Norfolk	1	Sutton	Lincolnshire	1
			Swansea	Glamorgan	1
Newbiggin	Northumberland	1			
Newcastle	Down	1	Teignmouth	Devon	1
Newhaven	Sussex	1	Tenby	Pembroke	1
N. Sunderland	Northumberland	1	Thorpness	Suffolk	1
			Theddlethorpe	Lincolnshire	1
Padstow	Cornwall	1	Tramore	Waterford	1
Pakefield	Suffolk	1			
Palling	Norfolk	1	Walmer	Kent	1
Penmon	Anglesea	1	Westport	Mayo	1
Penzance	Cornwall	1	Whitburn	Durham	1
Pool Beg	Dublin	1	Whitby	Yorkshire	1
Port Madoc	Carnarvon	1	Whitehaven	Cumberland	1
			Wicklow	Wicklow	1
Ramsgate	Kent	1	Wick	Caithness	1
Redcar	Yorkshire	1	Winterton	Norfolk	1
Rhoscolyn	Anglesea	1	Worthing	Sussex	1
Rhyl	Flint	1			
Robin Hood's Bay	Yorkshire	1	Yarmouth	Norfolk	2
Rye	Sussex	1	Youghal	Cork	1
Rosslare Point	Wexford	1			

The object of the Royal National Life-boat Institution, as declared in its title, is to afford assistance to every wrecked person around the coasts of the United Kingdom.

The chief means by which the Society hopes to carry this object into effect are:

To build, station, and maintain in repair, Life-boats of the most perfect description; to furnish them with all necessary Appurtenances, including Houses to preserve them in, and Carriages for their conveyance to the spots where their services are called for; and further, to provide, through the instrumentality of Local Committees, for their proper management, and the occasional Exercise of their Crews.

To confer Honorary Rewards in the form of Medals and Votes of Thanks, and also to grant Pecuniary Remuneration to all persons who, at the risk of their own lives, save, or attempt to save, those of others on board vessels wrecked, or in distress, upon any part of the coast of the United Kingdom.

As an index of the necessity for the provision of such a machinery as the above, it may be stated—that the average loss of lives from shipwreck on the shores of the United Kingdom is 800 per annum.

Donations and Annual Subscriptions are urgently solicited; and payments may be made by cheques (crossed), or by Post-office Orders, to all the London and Country Bankers; or to the Secretary of the Institution, 14 John Street, Adelphi, London, W.C.

PRICE TWO SHILLINGS.

COMPANION TO THE NAUTICAL ALMANAC

OR TABLES OF PREPARATION,

By which the Elements from that Volume may be Corrected at Sight, and the Altitud Corrections of all the Heavenly Bodies used in Navigrtion taken out in ONE TERM.

With the Memoir and Heroic Death of the Author, late Capt. J. J. KELLY, of Dundalk, author of the "Mate and His Duties."

LIVERPOOL: ROCKLIFF BROTHERS, 44 CASTLE-STREET.

Sold by Mrs, Taylor, and Imray and Son, Minories, and Wilson, Leadenhall-stree London; Rockliff Brothers, 44 Castle-street, Liverpool; Hill and Price, 2 Broad Quay Bristol; Stevans, 15 Parade, Plymouth; Bird and Son, Duke-street, Cardiff; Crosth waite & Co., Whitehaven; Fisher (late Fisher and Son), Yarmouth; Crowe, High street, Lowstaff; Vint and Carr, Sunderland; Cail, 42 Quayside, Newcastle-on-Tyne Grant, 40 Queen-street, Hull; M'Gregor, 24 Clyde-place, Glasgow; M'Grego Greenock; Reid and Son, 36 Shore, Leith; Chambers, 10 Castle-street, Dundee Buckley, 14 Lower Sackville-street, Dublin; Moore, 114 High-street, Belfast; Pur cell, 20 Patrick-street, Cork; M. A. Quiggin, 52 North Quay, Douglas; and a Nautical Booksellers.



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Next door but one to the Carron Warehouse, near the Custom House,

LIVERPOOL.

Hot and Cold Water for the convenience of Customers.

Gentlemen's Wigs and Scalps Made to Measure and in Great Variety, from 30s. and upwards.

CARLINGFORD LOUGH.—NOTICE.

Notice is hereby given, that Iron Nun Buoys, 11 feet by 7, have been laid down as under, at the expense of the Right Honourable Lord Clermont, over Carlingford Lough:—

BLACK Buoy on the Shoal N.E. of the Lighthouse in 7 feet water at low water, Lighthouse S.W., distant about 40 fathoms; Blockhouse W.N.W.

RED Buoy off the tail of the Scar, Cranfield Bay, in 8 feet water, Lighthouse S.W.; Greencastle North.

RED Buoy on the South End of the Earls Rock and Shoal in 8 feet water, Greenore Point W. by S.; Greencastle E.; distant from Greenore Point ¾ mile.

RED Buoy on the S.W. End of Ballyedmond Bank in 9 feet water, Monument N.; Old Castle, Carlingford W.S.W.

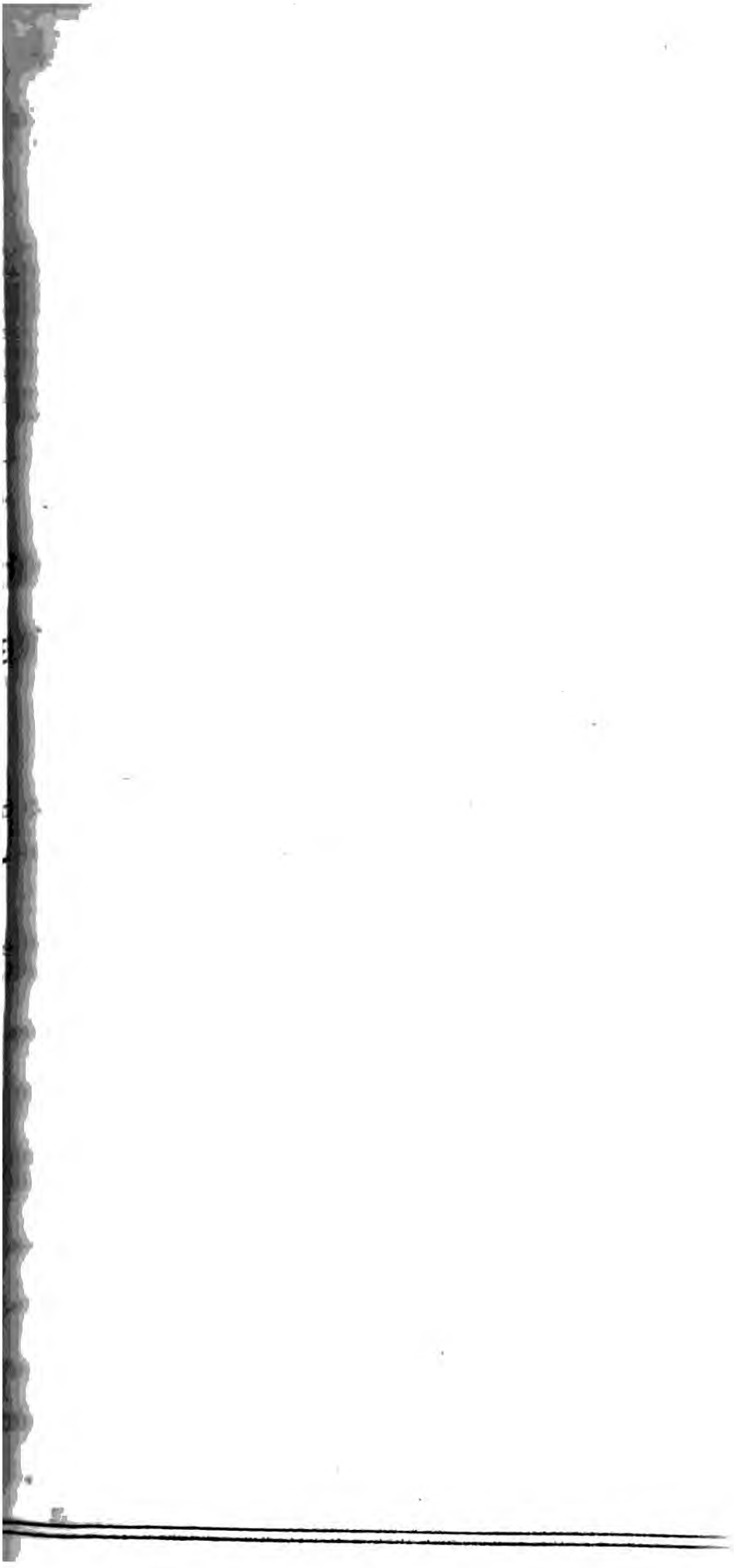
BLACK Buoy on the Eastern Edge of Carlingford Bank in 8 feet water, Greenore S.S.E.; Old Castle of Carlingford S.W. by S.

The above Buoys are laid down at Low Water Spring Tides. Bearings per Compass.

When Inward Bound, Masters of Vessels will keep the Red Buoys on the Starboard hand, and Black Buoys on the Port.

(By Order,) LEONARD WATSON.

Warrenpoint, June 20th, 1859.



HES TO LI

D



QUIGGIN'S

LE OF MAN

MANACK,

R THE YEAR OF OUR LORD

1861,

First after Bissextile or Leap-Year,

th OF THE REIGN OF HER PRESENT MAJESTY;

WITH CORRECT

IDE TABLES,

FOR THE

K SILL, LIVERPOOL, AND THE
BERLAND GATES, BRISTOL;

AND

NERS' COMPANION;

ALSO EVERY CALCULATION NECESSARY FOR

KING A LUNAR DISTANCE.

MEAN TIME, IN LATITUDE 54° 10′ N. AND LONGITUDE 4° 30′ W.

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erpool Tides are calculated for Greenwich mean time.

Y-SIXTH ANNUAL IMPRESSION.

OUGLAS, ISLE OF MAN:
AND PUBLISHED BY M. A. QUIGGIN,
52, NORTH QUAY.

PHASES OF THE MOON.

Last Quarter,	4th day, at	1h. 54m. morning.
New Moon,	11th day, at	3h. 27m. morning.
First Quarter,	19th day, at	4h. 0m. morning.
Full Moon,	26th day, at	5h. 6m. evening.

	Day	Twil.	☉'s	☿ *Mercury.*		♀ *Venus.*		♂ *Mars.*		♃ *Jupiter.*		♄ *Saturn.*		M.
.	brek.	ends.	semi.	rises.	sout.	rises.	sout.	sets.	sout.	rises.	sout.	rises.	sout.	D.
1	6 m 7	6 a 0	16 18	7m 9	10m 50	5m46	9m48	11 a 5	5 a 7	7 a 46	3m13	9 a 2	4m 3	1
3	6 6	6 7	16 18	7 35	11 8	6 6	9 57	11 6	4 57	7 14	2 43	8 33	3 35	3
5	6 3	6 16	16 18	7 57	11 27	6 22	10 7	11 7	4 47	6 43	2 14	8 3	3 7	15
2	5 58	6 27	16 17	sets.	11 51	6 34	10 17	11 8	4 37	6 11	1 43	7 33	2 38	22
9	5 49	6 39	16 16	4 a 13	0 a 10	6 42	10 27	11 9	4 27	5 39	1 12	7 3	2 9	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Height.	Evening. Time.	Height.	Equation of Time.
							′ ″
1	Tu	**Circumcision.**	1 55	16 7	2 18	17 7	3 56 Clock before Sun.
2	W	Gen. Wolfe born	2 41	16 2	3 4	17 0	4 26
3	Th	B. of Princeton, 1777	3 28	15 6	3 51	16 2	4 54
4	F	Newton born, 1642	4 15	14 5	4 42	15 0	5 22
5	S	Bank Dividends due	5 11	13 6	5 47	13 10	5 48
6	F	**2 Sun. aft. Christmas**	6 23	12 10	7 2	13 2	6 13 Add to Apparent time.
7	M	*Proper Lessons.* [Isa. xli; Lkue iii to v. 23 — xliii; John ii to v. 12	7 43	13 0	8 24	13 3	6 41
8	Tu	Pollux souths 9 a 52	8 58	13 9	9 31	13 11	7 7
9	W	Sirius souths 11 a 31	10 1	15 0	10 27	14 9	7 32
10	Th	Royal Ex. built, 1838	10 53	16 3	11 14	15 7	7 56
11	F	Hilary Term begins	11 37	17 1	11 57	16 0	8 20
12	S	Lavater died, 1801	— —	— —	0 15	17 7	8 43 Subtract from Mean time.
13	F	**1 Sun. aft. Epiphany**	0 35	16 5	0 53	17 9	9 6
14	M	*Proper Lessons.* [Isa. xliv; Matt. ii. — xlvi; Rom. ii.	1 11	16 4	1 29	17 6	9 28
15	Tu	Brit. Musm. opd. 1759	1 47	16 1	2 6	16 11	9 49
16	W	Battle Corunna, 1809	2 22	15 5	2 39	16 1	10 10
17	Th	Battle of Falkirk, 1756	2 54	14 8	3 10	15 0	10 30
18	F	Prisca, V. & M.	3 26	13 9	3 45	13 10	10 49
19	S	James Watt born, 1736	4 4	12 8	4 26	12 6	11 8
20	F	**2 Sun. aft. Epiphany**	4 51	11 9	5 22	11 4	11 23
21	M	*Pro. Les.* [Isa. li; Matt. xviii. — liii; 1 Cor. ii.	6 1	11 0	6 40	10 9	11 42
22	Tu	Sirius souths 10 a 43	7 19	11 1	7 59	11 0	11 58
23	W	Pleiades souths 7 a 26	8 37	12 0	9 10	12 1	12 14
24	Th	Day increased 1 hour	9 39	13 6	10 6	15 2	12 28
25	F	Conversion of St. Paul	10 32	15 5	10 53	15 1	12 42
26	S	Dr. Jenner died, 1823	11 14	16 11	11 36	16 7	12 55
27	F	**Septuagesima Sun.**	11 56	18 5	— —	— —	13 7
28	M	*Proper Lessons.* [Genesis i; Matt. xxiv. — ii; 1 Cor. viii.	0 15	17 10	0 37	19 5	13 18
29	Tu	Geo. III died, 1820	0 56	18 5	1 17	19 10	13 28
30	W	Pleiades souths 6 a 58	1 39	18 6	2 1	19 6	13 38
31	Th	Hilary Term ends	2 20	17 11	2 42	18 5	13 47

	Bristol Tides.				SUN.						MOON.				M	ASPECTS AND WEATHER.
	morn.	even.	height		rises.	sets.	rt. ascen.	declin. S.			rises.	souths	declin.	age	D.	
	H. M.	H. M.	F. I.		H M	H M	H. M. S.	° ′ ″			H. M.	H. M.	° ′			
1	9 52	10 13	31 1		8 22	3 46	18 48 27	22 59 28			9 a 52	3m29	7N35	20	1	♄ ☌ ☾, 7 a 44
2	10 33	10 53	30 4		8 22	3 47	18 52 51	22 54 8			11 19	4 18	1 16	21	2	*The year*
3	11 13	11 33	28 9		8 22	3 48	18 57 16	22 48 21			morn	5 7	5 s6	22	3	*will*
4	11 57	— —	26 5		8 21	3 49	19 1 39	22 42 6			0 46	5 57	11 12	23	4	*probably*
5	0 22	0 53	24 2		8 21	3 51	19 6 3	22 35 24			2 14	6 48	16 39	24	5	*begin with*
6	1 24	2 6	23 5		8 21	3 52	19 10 26	22 28 15			3 43	7 43	21 8	25	6	*hard*
7	2 56	3 44	24 8		8 20	3 53	19 14 49	22 20 40			5 7	8 40	24 16	26	7	*frost,*
8	4 21	4 55	26 5		8 20	3 55	19 19 11	22 12 38			6 23	9 39	25 48	27	8	♀ ☌ ☾, 5 a 39
9	5 27	5 54	28 1		8 19	3 56	19 23 32	22 4 11			7 22	10 38	25 38	28	9	*which*
10	6 24	6 48	28 10		8 18	3 58	19 27 53	21 55 17			8 4	11 34	23 51	29	10	☿ ☌ ☾, 1 m 48
11	7 13	7 36	29 9		8 17	4 0	19 32 14	21 45 57			sets.	0a28	20 43	N	11	*may*
12	7 56	8 16	30 8		8 16	4 1	19 36 34	21 36 12			5a53	1 17	16 33	1	12	☿ in Aphelion
13	8 33	8 50	31 0		8 15	4 3	19 40 53	21 26 2			7 8	2 3	11 43	2	13	*continue*
14	9 7	9 24	30 9		8 14	4 4	19 45 12	21 15 28			8 24	2 46	6 29	3	14	*until*
15	9 41	9 56	29 9		8 13	4 6	19 49 29	21 4 29			9 38	3 26	1 6	4	15	*the*
16	10 12	10 24	28 9		8 12	4 8	19 53 47	20 53 6			10 49	4 7	4N14	5	16	*middle*
17	10 37	10 50	27 0		8 11	4 9	19 58 3	20 41 19			11 58	4 47	9 24	6	17	♂ ☌ ☾, 3 a 23
18	11 7	11 23	24 11		8 10	4 11	20 2 19	20 29 8			morn	5 29	14 11	7	18	*of the*
19	11 42	— —	22 7		8 9	4 13	20 6 34	20 16 34			1 10	6 13	18 27	8	19	*month;*
20	0 4	0 30	20 3		8 8	4 15	20 10 48	20 3 38			2 24	6 59	21 58	9	20	*then*
21	1 5	1 41	19 4		8 7	4 17	20 15 2	19 50 19			3 37	7 50	24 31	10	21	*rainy*
22	2 24	3 13	20 7		8 6	4 19	20 19 14	19 36 39			4 48	8 44	25 49	11	22	♅ ☌ ☾, 9 m 52
23	3 57	4 33	22 0		8 4	4 21	20 23 26	19 22 36			5 45	9 40	25 39	12	23	*for*
24	5 3	5 32	25 11		8 3	4 22	20 27 37	19 8 12			6 31	10 37	23 53	13	24	*some*
25	6 0	6 24	27 2		8 1	4 24	20 31 47	18 53 28			7 15	11 33	20 32	14	25	*days.*
26	6 47	7 12	29 10		8 0	4 26	20 35 57	18 38 22			rises.	morn	— —	F	26	*Now*
27	7 34	7 55	32 5		7 58	4 28	20 40 5	18 22 56			6 a 2	0 28	15 50	16	27	♃ ☌ ☾, 11 a 48
28	8 18	8 37	34 1		7 57	4 30	20 44 13	18 7 11			7 31	1 21	10 5	17	28	*expect*
29	8 57	9 18	34 11		7 55	4 32	20 48 20	17 51 6			9 1	2 12	3 43	18	29	*some fine*
30	9 38	9 55	34 5		7 54	4 34	20 52 27	17 34 42			10 30	3 2	2s53	19	30	*weather.*
31	10 15	10 34	33 0		7 52	4 36	20 56 32	17 17 59			11 59	3 53	9 16	20	31	☿ ☌ ☉, 10m26

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon.			3 Hours.			6 Hours.			9 Hours.			Midn.			15 Hour.			18 Hour.			21 Hour.		
	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
1	123	53	26	122	14	54	120	36	21	118	57	46	117	19	9	115	40	32	114	1	54	112	23	16
2	110	44	37	109	5	59	107	27	21	105	48	44	104	10	8	102	31	32	100	52	58	99	14	25
3	97	35	54	95	57	25	94	18	58	92	40	33	91	2	10	89	23	50	87	45	32	86	7	17
4	84	29	5	82	50	56	81	12	51	79	34	48	77	56	50	76	18	54	74	41	3	73	3	15
5	71	25	32	69	47	53	68	10	18	66	32	48	64	55	23	63	18	2	61	40	47	60	3	37
6	58	26	32	56	49	33	55	12	40	53	35	53	51	59	13	50	22	38	48	46	11	47	9	50
7	45	33	37	43	57	31	42	21	33	40	45	42	39	10	0	37	34	26	35	59	1	34	23	45
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13w	27	44	25	29	10	16	30	35	53	32	1	16	33	26	25	34	51	20	36	16	1	37	40	29
14	39	4	45	40	28	47	41	52	37	43	16	15	44	39	41	46	2	56	47	25	59	48	48	52
15	50	11	35	51	34	9	52	56	32	54	18	47	55	40	53	57	2	51	58	24	42	59	46	25
16	61	8	2	62	29	33	63	50	58	65	12	19	66	33	34	67	54	46	69	15	54	70	37	0
17	71	58	3	73	19	5	74	40	5	76	1	6	77	22	6	78	43	7	80	4	9	81	25	13
18	82	46	19	84	7	29	85	28	42	86	49	59	88	11	22	89	32	50	90	54	24	92	16	5
19	93	37	54	94	59	50	96	21	55	97	44	10	99	6	34	100	29	8	101	51	54	103	14	51
20	104	38	0	106	1	23	107	24	58	108	48	48	110	12	51	111	37	10	113	1	45	114	26	35
21	115	51	42	117	17	6	118	42	47	120	8	47	121	35	4	123	1	41	124	28	37	125	55	52
22	127	23	27	128	51	23	130	19	39	131	48	16	133	17	14	134	46	34	136	16	15	137	46	18
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.
30r	128	40	2	126	58	44	125	17	32	123	36	28	121	55	33	120	14	46	118	34	9	116	53	41
31	115	13	23	113	33	15	111	53	18	110	13	32	108	33	57	106	54	33	105	15	21	103	36	21

Explanations

The Liverpool Tides on the left-hand Calendar pages are this year calculated for Greenwich mean time; with the height above the level of the Old Dock Sill, now represented by the marks on the east side of the Canning Dock, and include the diurnal inequality in the height of each Tide.

PHASES OF THE MOON.

Last Quarter,	2nd day, at	9h. 59m. morning.
New Moon,	9th day, at	8h. 5m. night.
First Quarter,	18th day, at	0h. 19m. morning.
Full Moon,	25th day, at	4h. 43m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.
1	5m46	6 a 43	16 16	4 a 33	0 a 19	6m44	10 m31	11 a 9	4 a 23	5 a 25	0m59	6 a 50	1m56
8	5 35	6 55	16 15	5 22	0 41	6 43	10 41	11 11	4 13	4 52	0 23	6 19	1 27
15	5 22	7 8	16 13	6 14	0 1	6 42	10 50	11 12	4 3	sets.	11a53	5 48	0 57
22	5 8	7 21	16 12	7 2	1 15	6 36	10 58	11 14	3 54	7m 1	11 22	sets.	0 28
28	4 54	7 32	16 10	7 26	1 17	6 26	11 4	11 15	3 46	6 36	10 55	7 m 9	11a58

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time
1	F	St. Bridget.	3 5	16 9	3 26	16 11	13
2	S	Purifica. B. V. Mary	3 49	15 4	4 12	14 11	14
3	F	**Sexagesima Sunday**	4 39	13 8	5 11	13 0	14
4	M	*Proper Lessons.* [Genesis iii; Mark iii. — vi; 1 Cor. xv.	5 53	12 3	6 38	11 9	14
5	Tu	Agatha, V. & M.	7 23	12 1	8 11	11 8	14
6	W	Dr. Priestley d., 1804	8 51	13 11	9 26	12 7	14
7	Th	Day long, 9h. 11m.	9 57	14 4	10 23	13 10	14
8	F	Mary Q. of Scots beh.	10 47	15 9	11 6	15 1	14
9	S	Dr. Maskelyne d. 1811	11 25	16 10	11 42	17 4	14
10	F	**Shrove Sunday**	11 59	17 7	— —	— —	14
11	M	*Proper Lessons.* [Gen. ix. to v. 20; Luke x. — xii; 2 Cor. vi.	0 15	16 8	0 32	18 1	14
12	Tu	**Shrove Tuesday**	0 47	17 0	1 2	18 0	14
13	W	**Ash Wednesday**	1 19	16 11	1 33	17 6	14
14	Th	Valentine, Bishop	1 48	16 5	2 2	16 9	14
15	F	Bp. Atterbury d. 1732	2 18	15 8	2 33	15 10	14
16	S	Regulus souths 0 m 17	2 49	15 1	3 4	14 4	14
17	F	**1 Sunday in Lent**	3 21	13 7	3 40	12 8	14
18	M	*Pro. Les.* [Gen. xix. to v. 30; Lu. i. to v. 39 — xxii.; 2 Cor. xiii.	4 2	12 3	4 28	11 4	14
19	Tu	Galileo born, 1564	5 0	11 1	5 44	10 4	14
20	W	Ember Week	6 30	10 9	7 16	10 3	13
21	Th	Trinadad taken, 1797	8 1	11 6	8 42	11 5	13
22	F	Fren, Revolution, 1848	9 18	13 3	9 45	13 4	13
23	S	Sir J. Reynolds d. 1792	10 10	15 8	10 32	15 5	13
24	F	**2 Sunday in Lent.**	10 53	17 7	11 14	17 4	13
25	M	*Proper Lessons.* [Genesis xxvii; Luke vii — xxxiv; Ephes. i.	11 34	19 4	11 53	18 10	13
26	Tu	Day increa. 3h. 16m.	— —	— —	0 12	20 7	13
27	W	Hare Hunting ends	0 33	19 7	0 53	20 11	12
28	Th	Elliott's Engagement off Ramsey, 1760.	1 15	19 7	1 36	20 3	12

To reduce the Liverpool Tides for the Isle of Man generally, subtract twelve minutes—the Tides at the Island being so much earlier than at Liverpool; and the height, or rise of the water is diminished one sixth to give the approximate rise at Douglas.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height P. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age	M. D.	ASPECTS AND WEATHER.
1	10 52	11 12	30 6	7 50	4 38	21 0 37	17 0 57	morn	4m45	15 s 4	21	1	☿ gr. H. L. S.
2	11 32	11 56	27 0	7 48	4 40	21 4 40	16 43 38	1 28	5 39	19 54	22	2	♀ in ♓, 6a 38
3	— —	0 23	23 5	7 47	4 42	21 8 43	16 26 1	2 55	6 35	23 27	23	3	*Snow*
4	0 58	1 39	21 4	7 45	4 44	21 12 46	16 8 7	4 15	7 33	25 28	24	4	*or rain*
5	2 29	3 24	22 1	7 43	4 46	21 16 47	15 49 56	5 16	8 31	25 51	25	5	*may be*
6	4 13	4 50	24 6	7 41	4 48	21 20 48	15 31 28	6 3	9 27	24 38	26	6	*expected*
7	5 22	5 49	26 8	7 39	4 50	21 24 47	15 12 45	6 36	10 21	22 1	27	7	♀ ☌ ☾, 7 a 59
8	6 16	6 38	27 9	7 37	4 52	21 28 46	14 53 47	6 58	11 11	18 16	28	8	*with*
9	6 59	7 18	29 6	7 35	4 55	21 32 45	14 34 33	sets.	11 57	13 44	N	9	*changeable*
10	7 37	7 55	30 8	7 33	4 57	21 36 42	14 15 5	6 a 6	0a41	8 39	1	10	☿ ☌ ☾, 4 a 56
11	8 13	8 28	31 7	7 31	4 59	21 40 39	13 55 22	7 18	1 22	3 19	2	11	*weather*
12	8 42	8 58	31 8	7 29	5 1	21 44 35	13 35 26	8 31	2 3	2 N 4	3	12	*for some*
13	9 11	9 25	31 1	7 27	5 3	21 48 30	13 15 17	9 43	2 43	7 19	4	13	*days.*
14	9 38	9 52	29 11	7 25	5 5	21 52 24	12 54 55	10 54	3 24	12 15	5	14	♅ stationary
15	10 6	10 19	28 5	7 23	5 7	21 56 18	12 34 20	morn	4 7	16 43	6	15	♂ ☌ ☾, 2 a 18
16	10 32	10 46	26 4	7 21	5 9	22 0 11	12 13 33	0 6	4 52	20 31	7	16	*Frosty,*
17	11 2	11 21	23 9	7 19	5 11	22 4 3	11 52 35	1 19	5 40	23 27	8	17	*unless*
18	11 44	— —	21 0	7 17	5 13	22 7 54	11 31 26	2 30	6 31	25 18	9	18	♅ ☌ ☾, 6 a 23
19	0 11	0 50	18 10	7 15	5 15	22 11 45	11 10 6	3 34	7 25	25 49	10	19	*the wind*
20	1 31	2 20	18 2	7 13	5 17	22 15 35	10 48 36	4 27	8 20	24 52	11	20	☿ in ♌, 8 a 46
21	3 15	4 3	22 1	7 10	5 19	22 19 24	10 26 56	5 9	9 16	22 22	12	21	*be southerly,*
22	4 42	5 9	25 10	7 8	5 21	22 23 13	10 5 6	5 41	10 12	18 23	13	22	*and if so*
23	5 36	6 0	29 6	7 5	5 23	22 27 1	9 43 7	6 4	11 6	13 9	14	23	*expect*
24	6 24	6 47	31 2	7 3	5 25	22 30 49	9 20 59	6 23	11 59	6 59	15	24	♃ ☌ ☾, 4 m14
25	7 10	7 31	34 1	7 0	5 27	22 34 35	8 58 43	rises.	morn	— —	F	25	*rain*
26	7 52	8 14	36 3	6 58	5 29	22 38 22	8 36 19	8 a 2	0 51	0 18	17	26	*more or less*
27	8 34	8 55	36 10	6 56	5 31	22 42 7	8 13 48	9 35	1 43	6s2	18	27	☿ gr. elong E.
28	9 15	9 33	36 1	6 54	5 33	22 45 53	7 51 9	11 8	2 36	12 43	19	28	*at the end.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1E	101 57 34	100 18 58	98 40 35	97 2 24	95 24 27	93 46 42	92 9 10	90 31 50
2	88 54 44	87 17 51	85 41 11	84 4 44	82 28 30	80 52 29	79 16 42	77 41 7
3	76 5 45	74 30 36	72 55 41	71 20 58	69 46 28	68 12 11	66 38 6	65 4 14
4	63 30 35	61 57 8	60 23 54	58 50 52	57 18 3	55 45 26	54 13 2	52 40 49
5	51 8 49	49 37 1	48 5 26	46 34 2	45 2 50	43 31 51	42 1 4	40 30 29
6	39 0 6	37 29 55	35 59 57	34 30 11	33 0 37	31 31 16	30 2 8	28 33 13
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
11W	19 5 29	20 28 3	21 50 32	23 12 57	24 35 17	25 57 31	27 19 39	28 41 42
12	30 3 39	31 25 30	32 47 16	34 8 56	35 30 30	36 51 59	38 13 24	39 34 43
13	40 55 58	42 17 9	43 38 16	44 59 20	46 20 20	47 41 18	49 2 13	50 23 6
14	51 43 58	53 4 49	54 25 38	55 46 28	57 7 18	58 28 9	59 49 0	61 9 54
15	62 30 49	63 51 47	65 12 49	66 33 54	67 55 3	69 16 17	70 37 37	71 59 3
16	73 20 35	74 42 14	76 4 1	77 25 56	78 48 0	80 10 13	81 32 36	82 55 10
17	84 17 55	85 40 52	87 4 1	88 27 23	89 50 59	91 14 48	92 38 53	94 3 13
18	95 27 48	96 52 41	98 17 50	99 43 17	101 9 1	102 35 5	104 1 28	105 28 10
19	106 55 12	108 22 36	109 50 20	111 18 26	112 46 54	114 15 45	115 44 58	117 14 34
20	118 44 34	120 14 58	121 45 46	123 16 58	124 48 35	126 20 37	127 53 3	129 25 55
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
28E	133 29 44	131 47 7	130 4 44	128 22 36	126 40 45	124 59 10	123 17 52	121 36 51

The Equation of Time is given to the nearest second for Greenwich mean noon; and as the difference between the equation of time for mean noon and apparent noon does not in any instance amount to the fifth part of a second, the given minutes and seconds may be used for reducing mean time into apparent time, or the contrary. When the column is headed "Clock before Sun," the Equation is to be *subtracted* from *mean* time to reduce it to *apparent*; or, in the case of a celestial observation, the result being apparent time, the equation must be added to reduce it to mean time. And when "after Sun," the equation must be added to *mean* time, to reduce it to *apparent* time, or subtracted from *apparent* time to reduce it to *mean* time.

PHASES OF THE MOON.

Last Quarter,	3rd day, at 7h. 16m. evening.
New Moon,	11th day, at 1h. 37m. afternoon.
First Quarter,	19th day, at 5h. 32m. evening.
Full Moon,	26th day, at 2h. 15m. afternoon.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* sets.	sout.	♀ *Venus.* rises.	sout.	♂ *Mars.* sets.	sout.	♃ *Jupiter.* sets.	sout.	♄ *Saturn.* sets.	sout.	M D.
1	4m54	7 a 35	16 10	7 a 28	1 a 15	6m25	11m5	11a15	3 a 44	6m 32	10a51	7m 5	11a54	1
8	4 34	7 50	16 8	7 14	0 52	6 15	11 11	11 16	3 35	6 3	10 20	6 36	11 24	8
15	4 16	8 4	16 6	rises.	0 8	6 4	11 17	11 17	3 27	5 34	9 50	6 8	10 55	15
22	3 56	8 19	16 4	5m 24	11m 20	5 51	11 21	11 18	3 18	5 5	9 21	5 40	10 25	22
29	3 24	8 36	16 3	5 4	10 46	5 35	11 26	11 18	3 10	4 37	8 51	5 12	9 56	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Height	Evening. Time.	Height.	Equation of Time. ′ ″
1	F	St. David	1 57	18 11	2 18	18 10	12 32
2	S	Chad, Archbishop	2 40	17 5	3 2	16 9	12 20
3	F	**3 Sunday in Lent**	3 24	15 7	3 50	14 6	12 7
4	M	*Proper Lessons.* [Genesis xxxix; Luke xiv. — xlii; Philippians ii.	4 18	13 8	4 51	12 2	11 54
5	Tu	Regulus souths 11 a 6	5 35	12 2	6 23	10 9	11 40
6	W	Pleiades sets 1 m 14	7 12	11 9	7 59	10 11	11 26
7	Th	Perpetua, M.	8 39	12 10	9 14	12 5	11 12
8	F	Castor souths 8 a 18	9 39	14 8	10 3	14 4	10 57
9	S	Sirius sets, 11 a 59	10 2	15 11	10 46	15 5	10 42
10	F	**4 Sunday in Lent**	11 3	16 7	11 18	15 11	10 26
11	M	*Proper Lessons.* [Genesis xliii; Luke xxi. — xlv; 1 Thes. i.	11 34	17 5	11 48	16 7	10 10
12	Tu	Gregory, M. B.	— —	— —	0 1	17 10	9 54
13	W	♅ discovered, 1781	0 16	17 1	0 30	17 10	9 37
14	Th	Admiral Byng shot	0 45	17 0	1 0	17 6	9 20
15	F	Julius Cæsar assass.	1 16	16 9	1 30	16 9	9 3
16	S	St. Patrick, 17th	1 45	16 2	2 1	15 8	8 46
17	F	**5 Sunday in Lent**	2 18	15 3	2 35	14 5	8 29
18	M	*Proper Lessons.* [Exodus iii; John iv. — v; 2 Tim. iii.	2 54	14 1	3 14	13 0	8 11
19	Tu	Princess Louisa born	3 35	12 10	3 58	11 7	7 53
20	W	Sir I. Newton d. 1727	4 27	11 8	5 9	10 5	7 35
21	Th	Benedict, Abbot.	5 55	11 1	6 41	10 4	7 17
22	F	Goethe died, 1822	7 28	11 11	8 9	12 0	6 58
23	S	Aldebaran souths 0m 8	8 43	14 5	9 14	13 11	6 40
24	F	**Palm Sunday.**	9 39	15 10	10 2	15 9	6 22
25	M	*Pro. Less.* [Exodus ix; Matt. xxvi. — x; Hebr. v. to v. 11	10 25	18 0	10 45	16 9	6 3
26	Tu	Lady Day, 25th	11 4	19 8	11 25	19 2	5 44
27	W	Pea. of Ameins, 1802	11 45	20 8	— —	— —	5 26
28	Th	Pleiades sets 11 a 47	0 6	19 10	0 27	20 9	5 7
29	F	**Good Friday**	0 48	20 1	1 1	20 7	4 49
30	S	*Pro. Les.* [Exodus xii; Romans vi. — xiv; Acts ii to ver. 22	1 33	19 2	1 57	18 1	4 30
31	F	**Easter Sunday**	2 21	17 5	2 46	16 6	4 12

Equation of Time.—Clock before Sun.—Subtract from Mean Time, or Add to Apparent Time.

	Bristol Tides.				SUN.							MOON.					M	ASPECTS AND WEATHER.
	morn.		even.		height		rises		sets.		rt. ascen.			declin. S.					D.	
	H. M		H. M.		F. I.		H	M	H	M	H. M. S.			° ′ ″						
1	9	53	10	13	33	10	6	51	5	35	22	49	37	7	28	23	morn	3m32	18 s 7	20	1	*Windy and changeable but generally fair.*
2	10	31	10	51	30	9	6	49	5	37	22	53	22	7	5	30	0 38	29	22 16	21	2	
3	11	12	11	36	26	10	6	47	5	39	22	57	5	6	42	32	2 1	5 27	24 51	22	3	
4	—	—	0	4	22	9	6	44	5	41	23	0	49	6	19	28	3 10	6 26	24 45	23	4	
5	0	42	1	25	20	0	6	42	5	43	23	4	31	5	56	18	4 2	7 23	25 1	24	5	
6	2	16	3	12	20	11	6	39	5	44	23	8	14	5	33	3	4 38	8 17	22 50	25	6	☿ stationary
7	3	59	4	37	24	6	6	37	5	46	23	11	56	5	9	44	5 4	9 8	19 29	26	7	☿ gr. H.L.N.
8	5	3	5	29	27	10	6	35	5	48	23	15	38	4	46	21	5 23	9 55	15 15	27	8	*Expect*
9	5	52	6	15	28	6	6	32	5	50	23	19	19	4	22	54	5 37	10 39	10 24	28	9	☿ in Aphelion
10	6	33	6	52	29	3	6	30	5	52	23	23	0	3	59	24	5 49	11 21	5 13	29	10	*rainy and*
11	7	10	7	25	30	7	6	27	5	54	23	26	41	3	35	51	sets.	0 a 1	0N16	N	11	
12	7	39	7	56	31	6	6	25	5	56	23	30	21	3	12	15	7a30	0 41	5 23	1	12	☿ ☌ ☾, 6m 6
13	8	11	8	26	31	8	6	22	5	58	23	34	1	2	48	37	8 39	1 22	10 25	2	13	*wet weather about*
14	8	40	8	55	31	3	6	20	6	0	23	37	41	2	24	57	9 50	2 4	15 3	3	14	
15	9	8	9	22	30	2	6	17	6	2	23	41	20	2	1	16	11 5	2 48	19 5	4	15	
16	9	36	9	52	28	8	6	15	6	4	23	45	0	1	37	34	morn	3 35	22 18	5	16	♂ ☌ ☾, 11 m 1
17	10	7	10	23	26	11	6	12	6	6	23	48	39	1	13	52	0 15	4 24	24 32	6	17	*this*
18	10	39	10	59	24	6	6	10	6	7	23	52	17	0	50	9	1 19	5 16	25 33	7	18	♅ ☌ ☾, 2 m35
19	11	16	11	42	21	9	6	7	6	9	23	55	56	0	26	27	2 18	6 9	25 14	8	19	*time.*
20	—	—	0	18	19	7	6	5	6	11	23	59	35	0	2	45	3 2	7 3	23 29	9	20	☉ enters ♈
21	0	58	1	41	18	6	6	3	6	13	0	3	13	N0	20	56	3 38	7 57	20 18	10	21	Spring com.
22	2	36	3	26	23	1	6	0	6	15	0	6	51	0	44	36	4 4	8 50	15 49	11	22	*Now*
23	4	5	4	38	27	2	5	57	6	17	0	10	29	1	8	14	4 24	9 42	10 14	12	23	♃ ☌ ☾, 10m27
24	5	4	5	28	30	4	5	55	6	19	0	14	7	1	31	51	4 41	10 34	3 54	13	24	*more fair.*
25	5	54	6	16	32	1	5	52	6	21	0	17	45	1	55	25	4 56	11 27	2s50	14	25	
26	6	38	7	1	34	10	5	50	6	22	0	21	23	2	18	57	rises.	morn	— —	F	26	*Changeable towards*
27	7	23	7	46	36	7	5	47	6	24	0	25	1	2	42	25	8a33	0 20	9 28	16	27	
28	8	8	8	29	36	11	5	45	6	26	0	28	39	3	5	51	10 9	1 16	15 29	17	28	☿ stationary
29	8	51	9	11	37	0	5	43	6	28	0	32	17	3	29	13	11 39	2 15	20 24	18	29	*the end*
30	9	33	9	55	33	1	5	40	6	30	0	35	55	3	52	31	morn	3 16	23 46	19	30	
31	10	16	10	39	30	0	5	38	6	32	0	39	33	4	15	45	0 56	4 16	25 22	20	31	♀ gr. H. L. S.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ″
1☉	119 56 9	118 15 45	116 35 40	114 55 54	113 16 28	111 37 22	109 58 35	108 20 9
2	106 42 3	105 4 17	103 26 52	101 49 48	100 13 4	98 36 40	97 0 38	95 24 55
3	93 49 33	92 14 32	90 39 50	89 5 29	87 31 27	85 57 45	84 24 23	82 51 20
4	81 18 36	79 46 11	78 14 4	76 42 16	75 10 46	73 39 34	72 8 40	70 38 3
5	69 7 43	67 37 40	66 7 53	64 38 23	63 9 8	61 40 10	60 11 26	58 42 58
6	57 14 46	55 46 47	54 19 3	52 51 34	51 24 18	49 57 17	48 30 29	47 3 54
7	45 37 33	44 11 24	42 45 29	41 19 47	39 54 18	38 29 7	37 3 58	35 39 7
8	34 14 29	32 50 5	31 25 53	30 1 56	28 38 13	27 14 44	25 51 30	24 28 33
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
13w	21 40 32	23 0 6	24 19 47	25 39 35	26 59 30	28 19 29	29 39 33	30 59 42
14	32 19 54	33 40 10	35 0 30	36 20 53	37 41 20	39 1 50	40 22 25	41 43 3
15	43 3 45	44 24 32	45 45 24	47 6 20	48 27 22	49 48 29	51 9 42	52 31 1
16	53 52 27	55 14 1	56 35 41	57 57 29	59 19 26	60 41 32	62 3 47	63 26 11
17	64 48 46	66 11 31	67 34 27	68 57 35	70 20 55	71 44 28	73 8 14	74 32 14
18	75 56 28	77 20 56	78 45 40	80 10 40	81 35 56	83 1 29	84 27 19	85 53 27
19	87 19 54	88 46 40	90 13 45	91 41 10	93 8 55	94 37 1	96 5 29	97 34 19
20	99 3 31	100 33 6	102 3 4	103 33 25	105 4 10	106 35 21	108 6 54	109 38 53
21	111 11 17	112 44 7	114 17 22	115 51 3	117 25 10	118 59 44	120 34 43	122 10 9
22	123 46 0	125 22 18	126 59 1	128 36 10	130 13 44	131 51 44	133 30 9	135 8 57
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
29☉	138 34 0	136 51 44	135 9 47	133 28 10	131 46 52	130 5 57	128 25 23	126 45 11
30	125 5 22	123 25 57	121 46 55	120 8 18	118 30 4	116 52 16	115 14 52	113 37 53
31	112 1 18	110 25 9	108 49 25	107 14 5	105 39 10	104 4 40	102 30 34	100 56 53

In the Tide Table for Bristol, on the right-hand pages, the heights are given of those Tides which happen nearest to noon in each day at the Cumberland Gates, without taking into account the diurnal inequality of the height.

PHASES OF THE MOON.

Last Quarter,	2nd day, at	6h. 24m. morning.
New Moon,	10th day, at	6h. 56m. morning.
First Quarter,	18th day. at	6h. 45m. morning.
Full Moon,	24th day, at	10h. 23m. night.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.
1	3m36	8 a 43	16 2	5m 0	10m 37	5 m32	11 m28	11a18	3 a 6	4m25	8 a 39	5 m 0	9 a 44
8	3 4	9 2	16 0	4 49	10 25	5 12	11 32	11 17	2 58	3 58	8 11	4 32	9 15
15	2 40	9 23	15 58	4 34	10 22	4 59	11 36	11 16	2 50	3 31	7 43	4 4	8 46
22	2 12	9 45	15 56	4 23	10 27	4 44	11 41	11 14	2 42	3 3	7 16	3 36	8 18
29	1 42	10 12	15 54	4 8	10 37	4 31	11 47	11 11	2 34	2 35	6 50	3 8	7 50

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. Clock before Sun. Subtract from Mean Time.
1	M	Easter Monday.	3 13	15 7	3 38	14 7	3 5
2	Tu	Easter Tuesday	4 6	13 8	4 40	11 9	3 33
3	W	Richard, Bishop	5 18	12 3	6 5	10 7	3 1
4	Th	Ambrose, Bishop	6 52	12 11	7 32	10 8	3 [illegible]
5	F	Cambridge T. begins	8 10	12 7	8 44	11 10	2 [illegible]
6	S	Old Lady Day	9 9	13 10	9 33	13 4	2 [illegible]
7	F	1 Sun. after Easter	9 54	15 0	10 13	14 5	2
8	M	Proper Lessons. [Num, xvi; Acts iv. — xxii; Heb. ix.	10 30	15 11	10 47	15 6	1 [illegible]
9	Tu	Lord Bacon d., 1626	11 1	16 8	11 15	16 2	1 [illegible]
10	W	Oxford Term begins	11 32	17 0	11 46	16 8	1 [illegible]
11	Th	Wm. & My. crnd., 1689	— —	— —	0 1	17 1	1 [illegible]
12	F	Dr. Young died, 1765	0 15	16 9	0 30	16 9	0 [illegible]
13	S	Handel died, 1759	0 47	16 6	1 2	16 2	0 [illegible]
14	F	2 Sun. after Easter	1 19	16 1	1 35	15 4	0 [illegible]
15	M	Proper Lessons. [Num. xxiii, xxiv; Acts xi. — xxv; James iii.	1 53	15 4	2 13	14 3	0 [illegible]
16	Tu	Easter T. begins, 15th	2 33	14 5	2 53	13 1	0 [illegible]
17	W	B. Franklin d. 1790	3 16	13 5	3 42	12 0	0 [illegible]
18	Th	Pleiades sets 10 a 27	4 13	12 6	4 49	11 2	0 [illegible]
19	F	Alphege, Archbishop	5 33	12 1	6 14	11 3	0 [illegible]
20	S	Spanish Armada, 1657	6 51	12 9	7 30	12 4	1 [illegible]
21	F	3 Sun. after Easter	8 4	14 3	8 36	13 11	1 [illegible]
22	M	Proper Lessons. [Deut. iv; Acts xviii. — v; I Peter v.	9 2	16 0	9 27	15 9	1 [illegible]
23	Tu	St. George, Martyr	9 52	17 8	10 14	17 5	1 [illegible]
24	W	Cromwell born, 1599	10 37	19 0	10 59	18 8	1 [illegible]
25	Th	St. Mark Evan.	11 20	19 8	11 45	19 4	2 [illegible]
26	F	Altair rises, 10 a 35	— —	— —	0 7	19 7	2 [illegible]
27	S	Sir W. Jones d. 1794	0 29	19 2	0 53	18 11	2 [illegible]
28	F	4 Sun. after Easter	1 18	18 5	1 42	17 3	2 [illegible]
29	M	Proper Lessons. [Deut. vi; Acts xxv. — vii; 1 John iv.	2 7	17 2	2 32	15 5	2 [illegible]
30	Tu	J. Montgomery d. 1854	2 59	15 7	3 25	13 7	2 [illegible]

Clock after Sun. Add to Apparent Time.

M. D.	Bristol Tides morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	☾ age	M. D.	ASPECTS AND WEATHER.
1	11 0	11 24	26 2	5 35	6 34	0 43 12	4 38 54	1m56	5m16	25s12	21	1	*Wind and rain may be looked for at this time,*
2	11 54	— —	22 5	5 33	6 36	0 46 50	5 1 59	2 38	6 12	23 27	22	2	
3	0 26	1 8	20 1	5 30	6 38	0 50 29	5 24 58	3 8	7 5	20 25	23	3	
4	1 53	2 42	20 9	5 28	6 40	0 54 8	5 47 52	3 28	7 53	16 53	24	4	
5	3 27	4 6	23 4	5 25	6 41	0 57 46	6 10 40	3 44	8 38	11 48	25	5	
6	4 33	4 58	25 11	5 23	6 43	1 41 26	6 33 21	3 57	9 20	6 46	26	6	
7	5 20	5 40	27 9	5 20	6 45	1 5 5	6 55 56	4 8	10 1	1 32	27	7	
8	5 59	6 18	28 6	5 18	6 47	1 8 44	7 18 24	4 19	10 41	3N 43	28	8	☿ ☌ ☾, 1 m 21
9	6 34	6 50	29 8	5 16	6 49	1 12 24	7 40 44	4 31	11 21	8 47	29	9	♀ ☌ ☾, 6 a 29
10	7 8	7 24	30 5	5 14	6 50	1 16 4	8 2 57	sets.	0 a 3	13 31	N	10	*which will*
11	7 39	7 56	30 8	5 11	6 52	1 19 45	8 25 1	8a53	0 46	17 44	1	11	
12	8 11	8 27	30 3	5 9	6 54	1 23 25	8 46 57	10 3	1 32	21 12	2	12	☿ gr. elon. W
13	8 41	8 57	29 7	5 6	6 56	1 27 6	9 8 45	11 11	2 21	23 44	3	13	♃ stationary
14	9 12	9 28	28 3	5 4	6 58	1 30 48	9 30 22	morn	3 11	25 8	4	14	♂ ☌ ☾, 5 m 53
15	9 47	10 3	26 9	5 1	7 0	1 34 29	9 51 51	0 12	4 3	25 15	5	15	*continue more or less*
16	10 20	10 39	25 1	4 59	7 1	1 38 11	10 13 9	1 0	4 56	24 1	6	16	
17	11 2	11 30	22 11	4 57	7 3	1 41 53	10 34 18	1 37	5 48	21 25	7	17	
18	— —	0 1	21 3	4 55	7 5	1 45 36	10 55 15	2 5	6 40	17 35	8	18	♂ ☌ ♅, 3 m 23
19	0 40	1 16	21 1	4 53	7 7	1 49 19	11 16 3	2 27	7 31	12 39	9	19	♃ ☌ ☾, 6 a 29
20	1 54	2 42	23 4	4 50	7 9	1 53 2	11 36 38	2 45	8 21	6 51	10	20	♄ ☌ ☾, 11 a 4
21	3 23	3 59	27 1	4 48	7 11	1 56 46	11 57 3	3 0	9 11	0 30	11	21	*until full moon.*
22	4 26	4 52	30 3	4 45	7 13	2 0 31	12 17 15	3 15	10 3	6 s 4	12	22	
23	5 18	5 43	32 11	4 43	7 15	2 4 15	12 37 16	3 30	10 58	12 22	13	23	☾ in Perigee
24	6 9	6 33	34 1	4 41	7 17	2 8 0	12 57 4	rises.	11 55	17 53	F	24	*Now more fair and fine weather.*
25	6 56	7 24	35 4	4 39	7 18	2 11 46	13 16 39	9 a 3	morn	— —	15	25	
26	7 48	8 10	35 3	4 37	7 20	2 15 32	13 36 1	10 32	0 56	22 7	16	26	
27	8 33	8 57	34 2	4 35	7 22	2 19 19	13 55 10	11 41	1 59	24 38	17	27	
28	9 18	9 41	32 0	4 32	7 24	2 23 6	14 14 6	morn	3 1	25 16	18	28	
29	10 3	10 26	29 5	4 30	7 26	2 26 54	14 32 47	0 30	4 1	24 6	19	29	
30	10 48	11 11	26 2	4 28	7 28	2 30 42	14 51 14	1 8	4 57	21 27	20	30	☿ gr. H. L. S.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 E	99 23 36	97 50 42	96 18 12	94 46 6	93 14 22	91 43 2	90 12 3	88 41 27
2	87 11 12	85 41 19	84 11 46	82 42 34	81 13 42	79 45 10	78 16 57	76 49 3
3	75 21 27	73 54 9	72 27 9	71 0 26	69 33 59	68 7 49	66 41 54	65 16 15
4	63 50 51	62 25 42	61 0 47	59 36 5	58 11 37	56 47 22	55 23 19	53 59 29
5	52 35 51	51 12 24	49 49 9	48 26 5	47 3 11	45 40 28	44 17 55	42 55 32
6	41 33 20	40 11 17	38 49 23	37 27 39	36 6 4	34 44 39	33 23 24	32 2 19
7	30 41 24	29 20 39	28 0 6	26 39 44	25 19 35	23 59 39	22 39 59	21 20 36
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
12 W	24 29 22	25 49 37	27 10 7	28 30 49	29 51 43	31 12 50	32 34 7	33 55 35
13	35 17 14	36 39 3	38 1 2	39 23 11	40 45 31	42 8 1	43 30 42	44 53 33
14	46 16 34	47 39 47	49 3 11	50 26 47	51 50 34	53 14 33	54 38 45	56 3 9
15	57 27 46	58 52 36	60 17 40	61 42 59	63 8 31	64 34 19	66 0 21	67 26 40
16	68 53 14	70 20 5	71 47 12	73 14 37	74 42 19	76 10 20	77 38 39	79 7 17
17	80 36 14	82 5 30	83 35 7	85 5 5	86 35 23	88 6 2	89 37 3	91 8 26
18	92 40 11	94 12 19	95 44 49	97 17 43	98 51 0	100 24 41	101 58 45	103 33 14
19	105 8 7	106 43 24	108 19 6	109 54 11	111 31 42	113 8 37	114 45 57	116 23 41
20	118 1 49	119 40 22	121 19 19	122 58 38	124 38 21	126 18 28	127 58 56	129 39 47
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
28 E	130 42 35	129 5 8	127 28 6	125 51 29	124 15 18	122 39 33	121 4 14	119 29 20
29	117 54 53	116 20 51	114 47 15	113 14 5	111 41 20	110 9 0	108 37 5	107 5 35
30	105 34 29	104 3 47	102 33 29	101 3 34	99 34 2	98 4 52	96 36 4	95 7 38

THE SUN'S RIGHT ASCENSION is given in time to the nearest second for Greenwich mean noon, and with the table of the right ascension of the principal fixed stars, given in page 29, is useful to find the time by the meridian distance of those stars.

The SUN'S DECLINATION is also given for *Greenwich mean noon*, and may be reduced to any other place by applying the proportional part of the daily difference.

PHASES OF THE MOON.

Last Quarter,	1st day, at	7h. 32m. evening.
New Moon,	9th day, at	11h. 7m. night.
First Quarter,	17th day, at	4h. 3m. afternoon.
Full Moon,	24th day, at	6h. 6m. morning.
Last Quarter,	31st day, at	10h. 25m. morning.

M D.	Day brek.	Twil. ends	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D
1	0m31	10a28	15 54	4m 7	10m41	4m27	11m48	11a10	2a32	2m27	6a43	3 m 0	7 a 42	1
8	0 45	11 16	15 52	3 55	10 59	4 15	11 54	11 5	2 24	2 0	6 17	2 32	7 15	8
15	noreal night.	noreal night.	15 51	3 54	11 25	sets.	0 a 1	10 59	2 17	1 34	5 52	2 5	6 48	15
22			15 50	sets.	11 58	8a21	0 9	10 51	2 9	1 8	5 27	1 37	6 21	22
29			15 49	9a17	0a35	8 43	0 17	10 42	2 1	0 42	5 3	1 10	5 54	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Height	Evening. Time.	Height.	Equation of Time.
1	W	St. Philip & St. James	3 52	14 1	4 23	12 1	3 4
2	Th	Camden born, 1551	4 56	12 10	5 34	11 2	3 11
3	F	Inven. of the Cross	6 11	12 5	6 44	11 2	3 18
4	S	Seringapatam taken	7 20	12 8	7 54	11 9	3 24
5	ℱ	Rogation Sunday	8 22	13 4	8 48	12 8	3 30
6	M	*Proper Lessons.* [Deut. viii; Matthew iii. — ix; Rom. iv.	9 12	14 0	9 32	13 7	3 35
7	Tu	Procyon sets 11 a 6	9 53	14 9	10 12	14 6	3 39
8	W	Easter Term ends	10 29	15 4	10 45	15 4	3 43
9	Th	Ascension Day	11 4	15 9	11 19	15 10	3 46
10	F	Battle of Lodi, 1778	11 36	15 11	11 50	16 1	3 49
11	S	Lord Chatham d. 1778	— —	— —	0 8	15 10	3 51
12	ℱ	Sun. af. Ascens. Day	0 23	16 3	0 41	15 7	3 52
13	M	*Proper Lessons.* [Deut. xii; Mat. x. — xiii; Rom. xi.	0 59	16 0	1 18	15 2	3 53
14	Tu	Fahrenheit born, 1686	1 37	15 8	1 59	14 7	3 53
15	W	Cuvier died, 1832	2 21	15 1	2 44	13 9	3 53
16	Th	O'Connell died, 1847	3 8	14 5	3 34	13 1	3 52
17	F	Dr. Jenner born, 1794	4 1	13 10	4 31	12 6	3 51
18	S	B. Franklin d., 1790	5 4	13 6	5 44	12 5	3 49
19	ℱ	Whit Sunday	6 20	13 9	6 51	13 0	3 47
20	M	*Pro. Les.* [Deut. xvi. to v. 18; Acts x, v. 34. Isaiah xi; Acts xix to v. 21.	7 23	14 7	7 53	14 1	3 44
21	Tu	Whit Tuesday	8 24	15 8	8 50	15 4	3 41
22	W	Oxford Term begins	9 18	16 9	9 47	16 8	3 37
23	Th	Linnæus born, 1707	10 15	17 7	10 42	17 9	3 32
24	F	Queen Victoria born	11 6	18 1	11 30	18 4	3 27
25	S	Princess Helena born	11 52	18 2	— —	— —	3 22
26	ℱ	Trinity Sunday.	0 16	18 6	0 41	17 3	3 16
27	M	[Gen. i; Matthew iii. —xviii; 1 John v.	1 6	18 1	1 30	16 7	3 9
28	Tu	Wm. Pitt born, 1759	1 53	17 3	2 16	15 4	3 2
29	W	K. Chas. II. restored	2 41	16 1	3 7	14 2	2 55
30	Th	Corpus Christi.	3 33	14 11	3 57	13 0	2 47
31	F	A. Pope died, 1744	4 22	13 10	4 47	12 2	2 38

Equation of Time. Clock after Sun. Add to Mean Time, or Subtract from Apparent Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N ☌ ′ ″	MOON. rise. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	11 39	— —	23 2	4 26	7 30	2 34 31	15 9 27	1m35	5m48	17s42	21	1	*Rainy*
2	0 7	0 40	21 2	4 24	7 31	2 38 20	15 27 25	1 52	6 35	13 12	22	2	*and*
3	1 13	1 46	21 2	4 22	7 33	2 42 10	15 45 7	2 5	7 18	8 15	23	3	*showery*
4	2 30	3 10	22 8	4 20	7 35	2 46 0	16 2 34	2 16	8 0	3 4	24	4	♄ stationary
5	3 43	4 11	24 7	4 18	7 37	2 49 51	16 19 45	2 27	8 40	2N 9	25	5	*weather,*
6	4 36	4 57	26 1	4 16	7 39	2 53 43	16 36 40	2 38	9 20	7 16	26	6	*ending*
7	5 19	5 39	27 4	4 14	7 40	2 57 35	16 53 19	2 50	10 2	12 5	27	7	*with*
8	5 58	6 17	27 11	4 12	7 42	3 1 28	17 9 40	3 5	10 44	16 26	28	8	♃ □ ☉, 4 a 3
9	6 38	6 55	28 6	4 10	7 44	3 5 21	17 25 44	sets.	11 30	20 8	N	9	*fine*
10	7 13	7 29	28 11	4 8	7 46	3 9 15	17 41 31	9a 2	0a17	22 58	1	10	☿ ☌ ☾, 1 m 9
11	7 48	8 4	29 1	4 6	7 47	3 13 10	17 57 0	10 4	1 8	24 42	2	11	☿ in sup. ☌ ☉
12	8 22	8 39	28 9	4 4	7 49	3 17 5	18 12 11	10 56	2 0	25 12	3	12	♂ ☌ ☾, 11 a 41
13	8 56	9 13	28 3	4 3	7 51	3 21 1	18 27 4	11 37	2 52	24 21	4	13	*and*
14	9 33	9 54	27 5	4 1	7 53	3 24 57	18 41 38	morn	3 45	22 10	5	14	*warm*
15	10 13	10 33	26 5	3 59	7 54	3 28 53	18 55 53	0 8	4 36	18 44	6	15	*days,*
16	10 55	11 19	25 2	3 57	7 56	3 32 51	19 9 49	0 39	5 25	14 14	7	16	*which*
17	11 46	— —	23 10	3 56	7 58	3 36 49	19 23 26	0 50	6 14	8 53	8	17	♃ ☌ ☾, 4 m 20
18	0 14	0 49	23 3	3 54	7 59	3 40 47	19 36 42	1 6	7 3	2 56	9	18	♄ ☌ ☾, 6 m 42
19	1 22	1 55	24 5	3 53	8 1	3 44 46	19 49 39	1 20	7 52	3 20	10	19	*will*
20	2 35	3 12	27 0	3 51	8 2	3 48 45	20 2 15	1 33	8 44	9 34	11	20	*continue*
21	3 47	4 14	29 4	3 50	8 4	3 52 45	20 14 31	1 48	9 38	15 20	12	21	*during*
22	4 43	5 13	31 3	3 48	8 6	3 56 46	20 26 27	2 8	10 36	20 9	13	22	☿ in sup. ☌ ☉
23	5 44	6 14	32 0	3 47	8 7	4 0 47	20 38 1	2 35	11 38	23 31	14	23	*the middle*
24	6 41	7 7	32 11	3 45	8 9	4 4 49	20 49 14	rises.	morn	— —	F	24	☿ in Perihel.
25	7 31	7 57	33 1	3 44	8 10	4 8 51	21 0 6	10a20	0 41	25 5	16	25	☿ ☌ ♀, 6m 10
26	8 21	8 45	32 6	3 43	8 11	4 12 53	21 10 36	11 3	1 44	24 45	17	26	*of the month.*
27	9 7	9 28	31 2	3 41	8 13	4 16 56	21 20 44	11 33	2 43	22 42	18	27	☿ ☌ ♅, 4 m 19
28	9 49	10 10	29 4	3 40	8 14	4 21 0	21 30 30	11 54	3 38	19 18	19	28	♀ ☌ ♅, 5 a 49
29	10 33	10 56	27 5	3 39	8 16	4 25 4	21 39 54	morn	4 28	14 57	20	29	*Expect*
30	11 17	11 39	25 1	3 38	8 17	4 29 8	21 48 56	0 10	5 14	10 2	21	30	*wet*
31	— —	0 1	23 3	3 37	8 18	4 33 13	21 57 35	0 23	5 57	4 50	22	31	*weather.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ″
1R	93 39 33	92 11 49	90 44 25	89 17 20	87 50 35	86 24 8	84 58 0	83 32 9
2	82 6 35	80 41 18	79 16 17	77 51 31	76 27 1	75 2 45	73 38 43	72 14 54
3	70 51 18	69 27 55	68 4 43	66 41 43	65 18 53	63 56 14	62 33 45	61 11 25
4	59 49 14	58 27 11	57 5 17	55 43 30	54 21 50	53 0 17	51 38 50	50 17 28
5	48 56 13	47 35 2	46 13 57	44 52 56	43 31 59	42 11 6	40 50 16	39 29 30
6	38 8 47	36 48 7	35 27 30	34 6 57	32 46 25	31 25 57	30 5 32	28 45 9
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
12W	28 25 34	29 50 0	31 14 40	32 39 34	34 4 42	35 30 4	36 55 39	38 21 28
13	39 47 30	41 13 45	42 40 14	44 6 56	45 33 52	47 1 1	48 28 24	49 56 1
14	51 23 52	52 51 57	54 20 17	55 48 51	57 17 40	58 46 44	60 16 4	61 45 39
15	63 15 29	64 45 36	66 15 59	67 46 38	69 17 35	70 48 48	72 20 18	73 52 6
16	75 24 11	76 56 34	78 29 16	80 2 15	81 35 33	83 9 10	84 43 6	86 17 21
17	87 51 55	89 26 48	91 2 2	92 37 34	94 13 26	95 49 39	97 26 11	99 3 3
18	100 40 15	102 17 47	103 55 38	105 33 49	107 12 21	108 51 11	110 30 22	112 9 51
19	113 49 39	115 29 47	117 10 12	118 50 56	120 31 57	122 13 16	123 54 52	125 36 44
20	127 18 51	129 1 14	130 43 52	132 26 43	134 9 48	135 53 5	137 36 34	139 20 13
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. .
27R	136 42 26	135 7 38	133 33 15	131 59 15	130 25 41	128 52 31	127 19 45	125 47 24
28	124 15 26	122 43 53	121 12 44	119 41 58	118 11 36	116 41 37	115 12 0	113 42 46
29	112 13 54	110 45 23	109 17 14	107 49 25	106 21 57	104 54 49	103 28 0	102 1 29
30	100 35 17	99 9 23	97 43 47	96 18 27	94 53 24	93 28 36	92 4 3	90 39 45
31	89 15 41	87 51 50	86 28 12	85 4 47	83 41 33	82 18 30	80 55 38	79 32 56

THE SUN'S RISING AND SETTING, and the MOON'S RISING, SOUTHING, AND SETTING are given, for Latitude 54° 10′ N., and Longitude 4° 30′ W.

THE MOON'S DECLINATION is given to the nearest minute for her transit over the meridian of Greenwich.

PHASES OF THE MOON.
- New Moon, 8th day, at 1h. 38m. afternoon.
- First Quarter, 15th day, at 10h. 16m. night.
- Full Moon, 22nd day, at 2h. 23m. afternoon.
- Last Quarter, 30th day, at 2h. 40m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no real ni.	no real ni.	15 48	9 a 36	0 a 50	8 a 51	0 a 21	10a38	1 a 58	0 m30	4 a 52	0 m5	5 a 43	1
8	this mon.	this mon.	15 47	10 10	1 21	9 8	0 31	10 26	1 50	0 5	4 29	0 31	5 17	8
15			15 47	10 19	1 41	9 20	0 41	10 14	1 42	11a35	4 5	0 4	4 51	15
22			15 46	10 9	1 51	9 27	0 51	10 0	1 34	11 10	3 42	11a34	4 25	22
29			15 46	9 47	1 49	9 30	1 1	9 45	1 25	10 44	3 19	11 7	4 0	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	S	Nicomede, Martyr	5 16	13 1	5 51	11 8	2 30
2	ℱ	1 Sun. after Trinity	6 21	12 6	6 49	11 6	2 20
3	M	*Pro. Les.* [Joshua x; Mark iii. — xxiii; 1 Cor. xvi.	7 18	12 5	7 49	12 0	2 11
4	Tu	Br. Inst. founded, 1805	8 18	12 10	8 46	12 8	2 1
5	W	Boniface, Bishop	9 12	13 3	9 35	13 5	1 50
6	Th	J. Bentham died, 1832	9 55	13 10	10 16	14 3	1 40
7	F	Reform Bill, 1832	10 38	14 5	10 57	15 0	1 29
8	S	Arcturus souths 9 a 0	11 14	14 11	11 33	15 8	1 17
9	ℱ	2 Sun. after Trinity	11 51	15 3	— —	— —	1 6
10	M	[Judges iv; Mark x. — v; 2 Cor. vii.	0 8	16 2	0 26	15 6	0 54
11	Tu	St. Barnabas, Apos.	0 46	15 5	1 6	15 5	0 24
12	W	Trinity Term ends	1 26	16 4	1 48	15 4	0 30
13	Th	Regulus sets 11 a 49	2 10	16 3	2 33	15 1	0 17
14	F	Battle Marengo, 1800	2 56	15 11	3 18	14 7	0 5
15	S	Antares souths 10 a 37	3 44	15 4	4 10	13 11	0 8
16	ℱ	3 Sun. after Trinity	4 38	14 10	5 10	13 7	0 21
17	M	*Proper Lessons.* [1 Sam. ii; Mark xvi. — iii; 2 Cor, xiii.	5 43	14 5	6 14	13 4	0 34
18	Tu	Battle of Waterloo	6 45	14 2	7 18	13 8	0 46
19	W	Magna Charta, 1215	7 53	14 7	8 27	14 6	0 59
20	Th	Queen's Accession	9 0	15 1	9 30	15 7	1 12
21	F	Queen Victoria Procl	9 59	15 11	10 29	16 8	1 25
22	S	Machiavelli d., 1527	10 56	16 6	11 22	17 6	1 38
23	ℱ	4 Sun. after Trinity	11 47	16 11	— —	— —	1 51
24	M	[1 Samuel xii; Luke vii. — xiii; Ephe, i.	0 9	18 0	0 32	16 11	2 4
25	Tu	B. of Bannockburn	0 54	17 11	1 16	16 6	2 16
26	W	Geo. IV. died, 1830	1 38	17 6	1 59	15 10	2 29
27	Th	Dr. Dodd execu, 1774	2 20	16 9	2 42	15 0	2 41
28	F	Lord Raglan d. 1855	3 2	15 10	3 20	14 1	2 53
29	S	St. Peter, Apostle	3 40	14 9	4 1	13 2	3 6
30	ℱ	5 Sun. after Trinity	4 23	13 7	4 48	12 4	3 17
		Proper Lessons. [1 Samuel xv; Luke xii. — xvii; Ephes. vi.					

Equation of Time.—Subtract from Apparent Time. Clock before Sun.—Add to Apparent Time. Clock after Sun.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′	N ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M. D.	ASPECTS AND WEATHER
1	0 24	0 55	21 10	3 36	8 19	4 37 18	22 5	51	0m35	6m38	0N 26	23	1	*Expect*
2	1 22	1 52	21 6	3 35	8 21	4 41 24	22 13	44	0 46	7 18	5 37	24	2	♅ ☌ ☉, 8 a 2
3	2 28	3 5	22 8	3 34	8 22	4 45 30	22 21	13	0 58	7 59	10 33	25	3	☿ gr. H. L. N.
4	3 39	4 9	24 1	3 33	8 23	4 49 37	22 28	20	1 12	8 41	15 4	26	4	*some*
5	4 36	5 0	25 3	3 33	8 24	4 53 44	22 35	2	1 29	9 26	18 59	27	5	*showery*
6	5 22	5 44	26 2	3 32	8 25	4 57 51	22 41	21	1 51	10 13	22 7	28	6	*and*
7	6 8	6 29	27 0	3 31	8 26	5 1 59	22 47	16	2 19	11 3	24 14	29	7	*wet*
8	6 49	7 9	27 6	3 31	8 27	5 6 7	22 52	48	sets.	11 55	25 9	N	8	♅ ☌ ☾, 4 m 17
9	7 30	7 49	28 2	3 30	8 28	5 10 15	22 57	55	9m37	0a48	24 43	1	9	♀ ☌ ☾, 5 m 47
10	8 7	8 26	28 9	3 30	8 29	5 14 23	23 2	37	10 10	1 41	22 54	2	10	♂ ☌ ☾, 5 a 6
11	8 44	9 4	29 1	3 29	8 29	5 18 32	23 6	56	10 36	2 33	19 47	3	11	*weather;*
12	9 24	9 44	28 10	3 29	8 30	5 22 41	23 10	50	10 57	3 23	15 34	4	12	*still*
13	10 5	10 25	28 8	3 29	8 31	5 26 50	23 14	20	11 13	4 12	10 27	5	13	♃ ☌ ☾, 4 a 23
14	10 43	11 6	28 5	3 28	8 31	5 30 59	23 17	25	11 27	5 0	4 43	6	14	♄ ☌ ☾, 2 a 45
15	11 29	11 54	26 7	3 28	8 32	5 35 8	23 20	5	11 40	5 48	1s21	7	15	☿ ☌ ♂, 6 a 15
16	— —	0 21	25 6	3 28	8 32	5 39 17	23 22	21	11 55	6 37	7 27	8	16	*inclined*
17	0 50	1 16	24 9	3 28	8 33	5 43 27	23 24	12	morn	7 28	13 15	9	17	*to*
18	1 46	2 28	25 4	3 28	8 33	5 47 36	23 25	38	0 13	8 23	18 19	10	18	*rain.*
19	3 11	3 49	27 4	3 28	8 33	5 51 45	23 26	40	0 36	9 22	22 14	11	19	*Now*
20	4 24	4 55	28 10	3 28	8 34	5 55 55	23 27	16	1 7	10 23	24 36	12	20	*more*
21	5 27	5 59	30 3	3 28	8 34	6 0 4	23 27	29	1 48	11 25	25 9	13	21	☉ en. ♋ 11 m 35
22	6 29	6 58	30 9	3 29	8 34	6 4 14	23 27	16	rises.	morn	— —	F	22	Sum. com.
23	7 25	7 49	31 6	3 29	8 34	6 8 23	23 26	38	9a32	0 26	23 52	15	23	*fair*
24	8 13	8 34	31 7	3 29	8 34	6 12 32	23 25	36	9 57	1 24	21 2	16	24	*and*
25	8 56	9 15	31 2	3 30	8 34	6 16 42	23 24	9	10 15	2 17	17 1	17	25	☿ gr. elon. E.
26	9 35	9 54	30 1	3 30	8 34	6 20 51	23 22	17	10 29	3 5	12 14	18	26	*fine*
27	10 14	10 30	28 10	3 31	8 34	6 25 0	23 20	1	10 41	3 50	7 1	19	27	*weather,*
28	10 45	11 2	27 2	3 31	8 34	6 29 9	23 17	20	10 52	4 33	1 39	20	28	*with some*
29	11 21	11 40	25 2	3 32	8 34	6 33 17	23 14	15	11 4	5 14	3N39	21	29	♀ in Perihel.
30	— —	0 2	23 2	3 32	8 34	6 37 26	23 10	45	11 17	5 55	8 44	22	30	*showers.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ″
1E	78 10 24	76 48 0	75 25 44	74 3 36	72 41 35	71 19 41	69 57 53	68 36 10
2	67 14 32	65 52 58	64 31 28	63 10 2	61 48 38	60 27 17	59 5 57	57 44 38
3	56 23 21	55 2 3	53 40 46	52 19 28	50 58 9	49 38 48	48 15 25	46 54 0
4	45 32 32	44 11 1	42 49 27	41 27 49	40 6 6	38 44 20	37 22 28	36 0 31
5	34 38 29	33 16 21	31 54 8	30 31 49	29 9 24	27 46 52	26 24 14	25 1 30
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
10W	22 27 34	23 56 16	25 25 12	26 54 23	28 23 48	29 53 27	31 23 19	32 53 24
11	34 23 42	35 54 14	37 24 58	38 55 55	40 27 5	41 58 28	43 30 3	45 1 51
12	46 33 52	48 6 5	49 38 31	51 11 10	52 44 1	54 17 5	55 50 22	57 23 51
13	58 57 33	60 31 28	62 5 36	63 39 57	65 14 30	66 49 17	68 24 16	69 59 29
14	71 34 54	73 10 33	74 46 24	76 22 28	77 58 45	79 35 16	81 11 59	82 48 56
15	84 26 5	86 3 27	87 41 3	89 18 50	90 56 51	92 35 5	94 13 31	95 52 9
16	97 30 59	99 10 2	100 49 17	102 28 43	104 8 22	105 48 12	107 28 13	109 8 24
17	110 48 47	112 29 20	114 10 2	115 50 55	117 31 56	119 13 7	120 54 26	122 35 54
18	124 17 28	125 59 10	127 40 59	129 22 53	131 4 53	132 46 58	134 29 7	136 11 20
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
26E	130 55 48	129 26 59	127 58 30	126 30 21	125 2 32	123 35 2	122 7 50	120 40 57
27	119 14 22	117 48 4	116 22 4	114 56 20	113 30 53	112 5 41	110 40 45	109 16 3
28	107 51 36	106 27 22	105 3 21	103 39 33	102 15 58	100 52 33	99 29 20	98 6 17
29	96 43 24	95 20 40	93 58 4	92 35 37	91 13 17	89 51 4	88 28 57	87 6 56
30	85 45 0	84 23 9	83 1 21	81 39 37	80 17 55	78 56 16	77 34 38	76 13 1

THE MOON'S SEMI-DIAMETER is given to the nearest second for Greenwich mean noon and midnight on page 26, and the HORIZONTAL PARALLAX on page 27.

THE LUNAR DISTANCES FROM THE SUN are given with a view to assist those who may not have an opportunity of using the Nautical Almanack, and are given for every three hours of Greenwich astronomical mean time. As the rest of the Almanack is adapted to CIVIL time, this distinction must be kept in mind; the *Civil*

PHASES OF THE MOON.

New Moon,	8th day, at	2h. 12m. morning.
First Quarter,	15th day, at	2h. 47m. morning.
Full Moon,	22nd day, at	0h. 5m. morning.
Last Quarter,	29th day, at	7h. 51m. evening.

M D.	Day brek.	Twil end.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus sets.	♀ Venus sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 46	9 a 38	1 a 45	9 a 29	1 a 4	9 a41	1 a22	10a38	3 a 13	10a59	3 a53	1
8			15 46	9 2	1 25	9 26	1 12	9 25	1 14	10 13	2 50	10 33	3 28	8
15			15 46	8 20	0 50	9 20	1 20	9 8	1 4	9 47	2 28	10 7	3 3	15
22			15 47	rises.	0 4	9 8	1 27	8 50	0 55	9 22	2 6	9 40	2 38	22
29			15 48	3m38	11m21	8 55	1 33	8 31	0 45	8 56	1 44	9 13	2 13	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time, to be subtract from Mean Time, or added to Apparent Time. ′	″
1	M	Bat. of Boyne, 1690	5 14	12 7	5 45	11 8	3	29
2	Tu	Sir R. Peel d., 1850	6 17	11 10	6 49	11 5	3	41
3	W	Dog Days begin	7 21	11 7	7 52	11 8	3	52
4	Th	Trans. St. Martin	8 25	11 10	8 56	12 5	4	3
5	F	Chusan taken, 1840	9 25	12 6	9 48	13 6	4	13
6	S	Oxford Term ends	10 10	13 5	10 32	14 7	4	24
7	F	6 Sun. after Trinity	10 55	14 5	11 15	15 9	4	34
8	M	Proper Lessons. [2 Samuel xii; Luke xix. — xix; Coloss. iii.	11 35	15 4	11 55	16 8	4	43
9	Tu	Sheridan died, 1816	— —	— —	0 13	16 1	4	52
10	W	Columbus born, 1447	0 33	17 5	0 54	16 7	5	1
11	Th	Lalande born, 1732	1 14	17 11	1 35	16 9	5	9
12	F	Erasmus died, 1536	1 55	17 10	2 16	16 6	5	17
13	S	Dr. Bradley died, 1752	2 39	17 5	3 1	15 11	5	25
14	F	7 Sun. after Trinity	3 24	16 8	3 48	15 2	5	31
15	M	Pro. Les. [2 Saml. xxi; John ii. — xxiv; 2 Thess. i.	4 12	15 6	4 38	14 2	5	38
16	Tu	Sir J. Reynolds born	5 8	14 4	5 43	13 9	5	44
17	W	Dr. Watts born, 1674	6 19	13 5	6 57	13 2	5	49
18	Th	Dr. Hooke born, 1635	7 35	13 2	8 17	13 8	5	54
19	F	B. Hallidon Hill, 1333	8 52	13 10	9 27	14 10	5	58
20	S	Margaret, V. & M.	9 58	14 7	10 28	16 1	6	2
21	F	8 Sun. after Trinity	10 52	15 6	11 14	17 2	6	5
22	M	Proper Lessons. [1 Kings xiii; John ix. — xvii; 1 Tim. vi.	11 38	16 3	11 58	17 10	6	7
23	Tu	R. Burns died, 1796	— —	— —	0 18	16 9	6	9
24	W	Gibraltar taken 1804	0 37	18 2	0 55	16 10	6	11
25	Th	St. James, Apostle	1 13	18 0	1 31	16 6	6	12
26	F	St. Anne	1 49	17 5	2 6	15 11	6	12
27	S	Paris Revolution, 1830	2 24	16 6	2 43	15 1	6	11
28	F	9 Sun. after Trinity	3 1	15 4	3 17	14 1	6	10
29	M	Proper Lessons. [1 Kings xviii; John xvi. — xix; Philemon	3 35	14 0	3 55	13 0	6	9
30	Tu	Cook's first voy. 1768	4 16	12 7	4 40	11 11	6	7
31	W	Igna. Loyola d. 1556	5 10	11 4	5 44	11 0	6	4



	Bristol Tides.				SUN.							MOON.					M	ASPECTS AND WEATHER.
	morn.		even.		height		rises.		sets.		rt. asc.		declin.		N.	rises.	souths	declin.		age	D.	
	H.	M.	H.	M.	F.	I.	H	M	H	M	H. M.	S.	°	′	″	H. M.	H. M.	°	′			
1	0	24	0	51	21	4	3	33	8	33	6	41	34	23	6	57	11a33	6m37	13N	27	23	1	*Now expect showery*
2	1	19	1	50	20	8	3	34	8	33	6	45	42	23	2	32	11 53	7 20	17	37	24	2	
3	2	29	3	6	21	6	3	35	8	32	6	49	50	22	57	49	morn	8 0	21	4	25	3	☉ in Apogee *and*
4	3	46	4	19	23	0	3	36	8	32	6	53	57	22	52	42	0 19	8 55	23	35	26	4	☿ ☌ ☾, 2 a 45
5	4	49	5	13	24	8	3	37	8	31	6	58	4	22	47	12	0 55	9 47	24	59	27	5	*wet*
6	5	36	6	1	26	3	3	38	8	31	7	2	11	22	41	17	1 42	10 40	25	3	28	6	
7	6	27	6	49	27	2	3	39	8	30	7	6	18	22	34	59	2 43	11 34	23	44	29	7	☉ eclip., inv.
8	7	11	7	34	28	8	3	40	8	29	7	10	24	22	28	17	sets.	0a27	21	2	N	8	*weather*
9	7	54	8	14	30	1	3	41	8	29	7	14	30	22	21	12	9 a 2	1 19	17	6	1	9	♀ ☌ ♂, 1 m 25
10	8	33	8	53	31	1	3	42	8	28	7	18	35	22	13	44	9 17	2 9	12	10	2	10	☿ ☌ ♀, 9 a 25
11	9	13	9	31	31	7	3	43	8	27	7	22	40	22	5	53	9 32	2 58	6	31	3	11	*to continue*
12	9	50	10	12	31	3	3	44	8	26	7	26	44	21	57	39	9 48	3 46	0	28	4	12	☿ ☌ ♂, 3 m 30
13	10	31	10	50	30	6	3	45	8	25	7	30	48	21	49	2	10 4	4 35	5s	40	5	13	*the former*
14	11	11	11	32	28	10	3	46	8	24	7	34	52	21	40	4	10 21	5 25	11	32	6	14	*part of*
15	11	56	—	—	26	7	3	48	8	23	7	38	55	21	30	43	10 39	6 17	16	47	7	15	*the month,*
16	0	20	0	50	24	4	3	49	8	21	7	42	57	21	21	0	11 3	7 13	21	2	8	16	*succeeded*
17	1	21	1	59	23	7	3	50	8	20	7	46	59	21	10	56	11 41	8 12	23	55	9	17	*by*
18	2	47	3	37	25	2	3	52	8	19	7	51	0	21	0	30	morn	9 12	25	9	10	18	*fair and*
19	4	15	4	51	27	1	3	53	8	17	7	55	1	20	49	43	0 34	10 13	24	38	11	19	*warm*
20	5	24	5	57	28	9	3	55	8	16	7	59	1	20	38	34	1 40	11 11	22	28	12	20	*days*
21	6	24	6	48	29	6	3	56	8	15	8	3	1	20	27	5	3 0	morn	—	—	13	21	♀ gr. H.L.N.
22	7	14	7	37	30	8	3	58	8	13	8	7	0	20	15	16	rises.	0 5	18	58	F	22	♂ gr. H.L.N.
23	7	59	8	18	31	6	3	59	8	12	8	10	58	20	3	6	7a36	0 56	14	29	15	23	*for*
24	8	35	8	52	31	9	4	1	8	10	8	14	56	19	50	36	8 19	1 43	9	24	16	24	*the*
25	9	9	9	25	31	2	4	2	8	9	8	18	54	19	37	46	8 50	2 27	4	2	17	25	*hay*
26	9	41	9	58	30	1	4	4	8	7	8	22	57	19	24	36	9 12	3 9	1N	22	18	26	*harvest.*
27	10	14	10	30	28	8	4	6	8	6	8	26	47	19	11	7	9 27	3 50	6	38	19	27	☿ gr. H.L.N.
28	10	42	10	58	26	8	4	7	8	4	8	30	42	18	57	19	9 40	4 32	11	32	20	28	*Again*
29	11	16	11	33	24	2	4	9	8	2	8	34	37	18	43	12	9 55	5 15	15	57	21	29	*variable*
30	11	54	—	—	21	10	4	11	8	1	8	38	32	18	28	47	10 17	6 0	19	43	22	30	*and*
31	0	20	0	51	19	5	4	12	7	59	8	42	26	18	14	3	10 49	6 47	22	37	23	31	*showery.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M.		Noon.			3 Hours.			6 Hours.			9 Hours.			Midn.			15 Hour.			18 Hour.			21 Hour.		
D.		°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
1	E	74	51	24	73	29	47	72	8	10	70	46	31	69	24	50	68	3	7	66	41	21	65	19	31
2		63	57	37	62	35	39	61	13	35	59	51	26	58	29	11	57	6	49	55	44	20	54	21	44
3		52	58	59	51	36	6	50	13	5	48	49	54	47	26	33	46	3	2	44	39	21	43	15	28
4		41	51	25	40	27	10	39	2	43	37	38	3	36	13	12	34	48	7	33	22	49	31	57	18
..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	W	29	56	25	31	31	39	33	7	4	34	42	40	36	18	25	37	54	20	39	30	25	41	6	39
11		42	43	2	44	19	34	45	56	15	47	33	3	49	10	0	50	47	5	52	24	17	54	1	37
12		55	39	4	57	16	38	58	54	18	60	32	5	62	9	59	63	47	58	65	26	3	67	4	14
13		68	42	31	70	20	53	71	59	19	73	37	51	75	16	28	76	55	9	78	33	54	80	12	44
14		81	51	38	83	30	35	85	9	36	86	48	41	88	27	49	90	6	59	91	46	13	93	25	30
15		95	4	49	96	44	10	98	23	33	100	2	58	101	42	25	103	21	53	105	1	22	106	40	53
16		108	20	23	109	59	55	111	39	26	113	18	57	114	58	28	116	37	58	118	17	27	119	56	54
17		121	36	20	123	15	44	124	55	5	126	34	23	128	13	39	129	52	51	131	31	59	133	11	3
..		..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	.	..	..	..	..	..	..
25	E	137	53	2	136	27	8	135	1	29	133	36	5	132	10	55	130	45	59	129	21	17	127	56	47
26		126	32	31	125	8	27	123	44	35	122	20	55	120	57	26	119	34	7	118	10	59	116	48	1
27		115	25	11	114	2	31	112	39	58	111	17	34	109	55	16	108	33	5	107	11	1	105	49	1
28		104	27	7	103	5	17	101	43	31	100	21	49	99	0	9	97	38	31	96	16	55	94	55	19
29		93	33	44	92	12	9	90	50	33	89	28	56	88	7	16	86	45	34	85	23	49	84	2	0
30		82	40	6	81	18	8	79	56	4	78	33	54	77	11	38	75	49	14	74	26	42	73	4	2
31		71	41	13	70	18	15	68	55	7	67	31	48	66	8	18	64	44	37	63	20	44	61	56	38

day commences at *Midnight*, and the *Astronomical day* at the following *Noon*, being twelve hours later; thus the hours named 15, 18, and 21, on the 1st January, are according to Civil reckoning, 3, 6, and 9 in the morning of the 2nd of January, and

PHASES OF THE MOON.
- New Moon, 6th day, at 0h. 54m. afternoon.
- First Quarter, 13th day, at 7h. 15m. morning.
- Full Moon 20th day, at 11h. 51m. morning.
- Last Quarter, 28th day, at 1h. 23m. afternoon.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	no	night	15 48	3m 20	11m 6	8 a 49	1 a 35	8 a 23	0 a 41	8 a 45	1 a 34	9 a 2	2 a 3	1
8	1m 17	10a 49	15 49	2 51	10 48	8 34	1 40	8 4	0 31	8 20	1 12	8 36	1 38	8
15	1 52	10 15	15 50	2 55	10 53	8 19	1 44	7 44	0 21	7 55	0 50	8 10	1 14	15
22	2 18	9 45	15 51	3 33	11 13	8 3	1 47	7 24	0 10	7 30	0 29	7 44	0 50	22
29	2 41	9 17	15 53	4 22	11 39	7 45	1 50	7 2	11m 59	7 5	0 7	7 17	0 25	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
							′ ″
1	Th	Lammas Day	6 23	10 7	7 1	11 0	6 1
2	F	Battle of Nile, 1798	7 40	10 9	8 19	11 9	5 57
3	S	E. Baines died, 1848	8 56	11 7	9 24	13 1	5 53
4	✠	10 Sun. after Trinity	9 51	12 11	10 15	14 7	5 48
5	M	[1 Kings xxi; Acts ii. — xxii; Heb. vii.	10 36	14 5	10 58	16 4	5 42
6	Tu	Transfiguration	11 17	16 0	11 37	17 9	5 36
7	W	Name of Jesus	11 55	17 4	— —	— —	5 29
8	Th	G. Canning died, 1827	0 13	18 9	0 33	18 0	5 22
9	F	Dryden born, 1631	0 51	19 4	1 11	18 2	5 14
10	S	St. Laurence	1 33	19 3	1 53	17 11	5 5
11	✠	11 Sun. after Trinity	2 14	18 7	2 36	17 1	4 56
12	M	Proper Lessons. [2 Kings v; Acts ix. — ix; James i.	2 58	17 2	3 22	15 9	4 46
13	Tu	Old Lammas Day	3 46	15 6	4 13	14 3	4 36
14	W	Printing invend., 1437	4 41	13 7	5 20	13 0	4 25
15	Th	Bonaparte I. b. 1769	6 2	12 2	6 44	12 6	4 14
16	F	Bomarsund tkn., 1854	7 28	11 11	8 14	13 3	4 2
17	S	Duchess of Kent born	8 53	12 8	9 26	14 6	3 49
18	✠	12 Sun. after Trinity	9 54	13 11	10 21	15 10	3 36
19	M	Proper Lessons. [2 Kings x; Acts xvi. — xviii; 1 Peter iii.	10 42	15 2	11 1	17 1	3 23
20	Tu	R. Bloomfield d., 1823	11 20	16 4	11 38	17 11	3 9
21	W	C. Rumford d., 1814	11 56	17 0	— —	— —	2 54
22	Th	B. Bosworth field, 1485	0 12	18 4	0 29	17 3	2 39
23	F	Herschell died, 1822	0 46	18 3	1 1	17 1	2 24
24	S	St. Batholomew	1 17	17 9	1 33	16 7	2 8
25	✠	13 Sun. after Trinity	1 47	16 10	2 3	15 9	1 52
26	M	Pro. Less. [2 Kings xix; Acts xxiii. — xxiii; 1 John ii.	2 20	15 7	2 36	14 9	1 35
27	Tu	Thomson died, 1748	2 53	14 2	3 10	13 6	1 18
28	W	St. Augustine, Bp.	3 30	12 7	3 52	12 2	1 1
29	Th	St. John Baptist bhd.	4 19	11 2	4 52	11 1	0 43
30	F	Paley born, 1743	5 33	10 2	6 16	10 8	0 25
31	S	John Bunyan d. 1688	7 0	10 3	7 45	11 6	0 7

Equation of Time. Clock before Sun.—Subtract from Mean Time, or add to Apparent Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin ° ′	age.	M. D.	ASPECTS AND WEATHER
1	1 24	2 4	19 4	4 14	7 57	8 46 19	17 59 1	11a32	7m37	24N30	24	1	☿ stationary
2	2 51	3 38	21 3	4 16	7 55	8 50 12	17 43 42	morn	8 29	25 9	25	2	♅ ☌ ☾, 1 m 37
3	4 18	4 48	23 9	4 17	7 53	8 54 4	17 28 5	0 28	9 22	24 27	26	3	*Showery*
4	5 16	5 41	26 2	4 19	7 51	8 57 55	17 12 11	1 35	10 16	22 21	27	4	*and*
5	6 5	6 30	27 7	4 21	7 49	9 1 46	16 56 0	2 53	11 9	18 54	28	5	☿ ☌ ☾, 4 m 7
6	6 52	7 13	30 1	4 23	7 47	9 5 37	16 39 33	sets.	0a1	14 17	N	6	*rather*
7	7 34	7 54	32 7	4 24	7 45	9 9 27	16 22 49	7a42	0 52	8 47	1	7	*wet*
8	8 14	8 31	33 7	4 26	7 43	9 13 16	16 5 50	7 56	1 41	2 43	2	8	♃ ☌ ☾, 0 m 17
9	8 50	9 11	34 2	4 28	7 41	9 17 4	15 48 35	8 10	2 31	3s33	3	9	*weather,*
10	9 29	9 48	33 7	4 30	7 39	9 20 52	15 31 5	8 26	3 21	9 39	4	10	☾ in Perigee
11	10 9	10 27	32 1	4 31	7 37	9 24 40	15 13 20	8 45	4 14	15 12	5	11	☿ gr. elon. W.
12	10 48	11 9	29 7	4 33	7 35	9 28 26	14 55 21	9 9	5 9	19 48	6	12	*which*
13	11 32	11 56	26 5	4 35	7 33	9 32 13	14 37 7	9 43	6 6	23 6	7	13	*may*
14	— —	0 29	23 3	4 37	7 31	9 35 58	14 18 40	10 30	7 6	24 51	8	14	*continue*
15	1 6	1 44	21 10	4 38	7 29	9 39 43	13 59 59	11 32	8 5	24 56	9	15	☿ in ♌ 7 a 16
16	2 39	3 34	23 6	4 40	7 27	9 43 28	13 41 5	morn	9 3	23 22	10	16	*during*
17	4 16	4 50	25 10	4 42	7 24	9 47 12	13 21 57	0 44	9 57	20 25	11	17	*the*
18	5 20	5 49	28 0	4 44	7 22	9 50 56	13 2 37	2 3	10 49	16 22	12	18	*greater*
19	6 12	6 34	29 3	4 46	7 20	9 54 39	12 43 5	3 24	11 36	11 33	13	19	
20	6 55	7 15	30 9	4 47	7 17	9 58 21	12 23 21	rises.	morn	— —	F	20	☿ in Perihel.
21	7 35	7 52	31 10	4 49	7 15	10 2 3	12 3 25	7 a 8	0 21	6 19	15	21	*part*
22	8 10	8 26	32 0	4 51	7 13	10 5 45	11 43 17	7 19	1 4	0 55	16	22	*of*
23	8 40	8 55	31 10	4 53	7 11	10 9 26	11 22 58	7 32	1 46	4N25	17	23	*the*
24	9 10	9 23	30 10	4 55	7 8	10 13 7	11 2 28	7 46	2 28	9 29	18	24	*month.*
25	9 37	9 53	29 2	4 56	7 6	10 16 47	10 41 48	8 3	3 10	14 7	19	25	☾ in Apogee
26	10 7	10 21	27 5	4 58	7 4	10 20 27	10 20 57	8 24	3 54	18 9	20	26	☌ in Aphelion
27	10 35	10 52	25 0	5 0	7 1	10 24 7	9 59 56	8 50	4 40	21 24	21	27	☌ ☌ ☉, 7 m 9
28	11 11	11 35	22 1	5 2	6 59	10 27 46	9 38 46	9 26	5 28	23 42	22	28	*Now more*
29	— —	0 3	19 6	5 4	6 57	10 31 25	9 17 26	10 14	6 19	24 53	23	29	*warm.*
30	0 39	1 17	18 6	5 5	6 54	10 35 3	8 55 57	11 16	7 11	24 48	24	30	☿ gr. H.L.N.
31	2 4	2 57	20 1	5 7	6 52	10 38 42	8 34 19	morn	8 4	23 22	25	31	♃ ☌ ☉, 3 m 45

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1E	60 32 19	59 7 47	57 43 1	56 18 0	54 52 45	53 27 15	52 1 29	50 35 28
2	49 9 10	47 42 36	46 15 45	44 48 37	43 21 13	41 53 30	40 25 30	38 57 12
3	37 28 36	35 59 43	34 30 31	33 1 2	31 31 15	30 1 10	28 30 48	27 0 8
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
8W	26 4 43	27 43 58	29 23 23	31 2 57	32 42 39	34 22 29	36 2 25	37 42 27
9	39 22 34	41 2 44	42 42 58	44 23 15	46 3 34	47 43 55	49 24 16	51 4 38
10	52 45 0	54 25 22	56 5 42	57 46 1	59 26 17	61 6 32	62 46 43	64 26 51
11	66 6 56	67 46 56	69 26 52	71 6 44	72 46 30	74 26 12	76 5 47	77 45 17
12	79 24 41	81 3 59	82 43 10	84 22 14	86 1 11	87 40 1	89 18 44	90 57 19
13	92 35 46	94 14 6	95 52 18	97 30 21	99 8 16	100 46 3	102 23 41	104 1 10
14	105 38 31	107 15 43	108 52 45	110 29 38	112 6 22	113 42 57	115 19 22	116 55 37
15	118 31 43	120 7 38	121 43 23	123 18 59	124 54 23	126 29 37	128 4 41	129 39 33
..	.. .. ..	.. .. ..	.. . ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
24E	134 8 33	132 46 32	131 24 37	130 2 48	128 41 5	127 19 25	125 57 52	124 36 22
25	123 14 56	121 53 33	120 32 13	119 10 56	117 49 40	116 28 27	115 7 14	113 46 1
26	112 24 49	111 3 36	109 42 22	108 21 6	106 59 48	105 38 28	104 17 5	102 55 37
27	101 34 6	100 12 29	98 50 47	97 28 59	96 7 4	94 45 2	93 22 52	92 0 34
28	90 38 7	89 15 30	87 52 43	86 29 46	85 6 37	83 43 17	82 19 44	80 55 58
29	79 31 59	78 7 45	76 43 17	75 18 34	73 53 36	72 28 21	71 2 50	69 37 1
30	68 10 55	66 44 31	65 17 49	63 50 47	62 23 26	60 55 46	59 27 45	57 59 25
31	56 30 43	55 1 41	53 32 18	52 2 33	50 32 27	49 1 59	47 31 9	45 59 57

in any other part of the Almanack would be set down as such. The letters E. and W. inserted in the first column refer to the position of the Sun; E. East, W. West

The Planets

Mercury [☿] will be visible in the mornings about the 12th April, 11th August, nd 29th November; and in the evenings about the 27th February, 25th June, and

PHASES OF THE MOON.

New Moon,	4th day, at	10h. 12m. night.
First Quarter,	11th day, at	1h. 16m. afternoon.
Full Moon,	19th day, at	2h. 1m. morning.
Last Quarter,	27th day, at	6h. 24m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	2m52	9 a 6	15 54	4m41	11m50	7 a 38	1 a 52	4m55	11m55	5 m1	11m57	7 a 6	0 a 15	1
8	3 10	8 44	15 55	sets.	0 a 12	7 21	1 55	4 54	11 44	4 43	11 36	rises.	11 m51	8
15	3 27	8 21	15 57	6 a 34	0 29	7 5	1 58	4 53	11 33	4 24	11 14	4m29	11 27	15
22	3 45	8 0	15 59	6 17	0 43	6 50	2 3	4 52	11 22	4 5	10 52	4 17	11 2	22
29	3 58	7 40	16 1	6 1	0 54	6 35	2 7	4 51	11 11	3 46	10 30	3 54	10 38	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	F	14 Sun. after Trinity	8 22	11 4	8 55	13 1	0 12
2	M	*Proper Lessons.* [Jeremiah v; Mat. ii. — xxii; Rom. ii.	9 21	13 1	9 48	15 0	0 31
3	Tu	Cromwell died, 1658	10 11	14 11	10 33	16 11	0 50
4	W	John Horne d., 1808	10 53	16 9	11 11	18 5	1 9
5	Th	5622.Jewish Era com.	11 30	18 3	11 47	19 11	1 29
6	F	Hannah More d. 1823	— —	— —	0 6	19 2	1 49
7	S	Enurchus, Bishop	0 27	20 4	0 49	19 4	2 9
8	F	15 Sun. aft. Trinity	1 8	20 0	1 29	18 9	2 29
9	M	*Proper Lessons.* [Jer. xxxv; Matt. ix. — xxxvi; Rom. ix.	1 50	18 10	2 13	17 8	2 49
10	Tu	Tea first import. 1391	2 37	17 1	3 1	16 0	3 10
11	W	Mahomed born, 569	3 26	14 10	3 53	14 2	3 31
12	Th	Day 12h. 55m. long	4 25	12 9	5 5	12 7	3 52
13	F	Battle Quebec, 1759	5 51	11 4	6 37	12 3	4 13
14	S	D.Wellington d. 1852	7 24	11 4	8 8	12 10	4 34
15	F	16 Sun. after Trinity	8 43	12 3	9 12	14 4	4 55
16	M	*Proper Lessons.* [Ezek. ii; Mat. xvi. — xiii; Rom. xvi.	9 37	13 9	10 1	15 9	5 16
17	Tu	Lambert, Bishop	10 21	15 1	10 39	16 8	5 37
18	W	Ember Week	10 55	16 2	11 13	17 7	5 58
19	Th	Battle Poictiers, 1356	11 28	16 11	11 42	18 0	6 20
20	F	Mnx.H.Flet.lost,1787	11 56	17 3	— —	— —	6 41
21	S	St. Matthew, Ap.	0 12	17 11	0 28	17 2	7 2
22	F	17 Sun. after Trinity	0 43	17 5	1 0	16 9	7 23
23	M	*Proper Lessons.* [Ezekiel xiv; Matt. xxiii. — xviii; 1 Cor. vii.	1 15	16 7	1 30	16 1	7 44
24	Tu	Charles I. dethroned	1 47	15 6	2 4	15 1	8 4
25	W	Porson died, 1808	2 21	14 2	2 40	13 10	8 25
26	Th	St. Cyprian, Abp.	2 58	12 9	3 21	12 7	8 45
27	F	Jesuits founded, 1540	3 46	11 3	4 17	11 6	9 5
28	S	G. Buchanan d. 1592	4 58	10 4	5 41	11 0	9 25
29	F	18 Sun. after Trinity	6 25	10 3	7 8	11 9	9 45
30	M	*Proper Lessons.* [Ezekiel xx; Mat. ii. — xxiv; 1 Cor. xiv.	7 48	11 5	8 22	13 4	10 4

Equation of Time. Clock after Sun. Add to Mean Time, or Subtract from Apparent Time.

	Bristol Tides.				SUN.						MOON.				M	ASPECTS AND WEATHER.
	morn.	even.	height		rises.	sets.	rt. ascen.		declin. N.		rises.	souths	declin.			
	H. M.	H. M.	F.	I.	H M	H M	H. M. S.		° ′ ″		H. M.	H. M.	° ′	age.	D.	
1	3 42	4 18	23	7	5 9	6 49	10 42	20	8 12	33	0m28	8m56	20N35	26	1	*Fair*
2	4 45	5 13	27	1	5 11	6 47	10 45	57	7 50	39	1 48	9 49	16 33	27	2	☿ ☌ ☌, 0 a 9
3	5 38	6 3	30	1	5 13	6 44	10 49	35	7 28	38	3 13	10 40	11 27	28	3	☌ ☌ ♃, 1 m 19
4	6 25	6 46	31	8	5 15	6 42	10 53	12	7 6	29	sets.	11 31	5 34	N	4	*and*
5	7 6	7 26	34	2	5 16	6 40	10 56	49	6 44	13	6a18	0a21	0 s 46	1	5	☿ ☌ ♄, 5 m 43
6	7 47	8 8	35	8	5 18	6 37	11 0	25	6 21	51	6 33	1 13	7 7	2	6	*warm*
7	8 29	8 48	35	11	5 20	6 35	11 4	2	5 59	32	6 51	2 7	13 4	3	7	♀ ☌ ☾, 8 m 46
8	9 7	9 26	34	10	5 22	6 32	11 7	38	5 36	47	7 15	3 2	18 10	4	8	*for*
9	9 47	10 9	32	7	5 23	6 30	11 11	14	5 14	27	7 47	4 0	22 1	5	9	*the*
10	10 28	10 49	29	6	5 25	6 27	11 14	50	4 51	21	8 30	5 0	24 18	6	10	*harvest.*
11	11 12	11 41	25	8	5 27	6 25	11 18	26	4 28	31	9 25	6 0	24 53	7	11	*Expect*
12	— —	0 14	21	10	5 29	6 22	11 22	2	4 5	36	10 34	6 58	23 49	8	12	☌ ☌ ♄, 0 m 56
13	0 54	1 37	20	11	5 31	6 20	11 25	37	3 42	37	11 52	7 53	21 19	9	13	*some*
14	2 34	3 26	22	9	5 33	6 17	11 29	13	3 19	34	morn	8 45	17 40	10	14	*showers*
15	4 5	4 36	25	6	5 34	6 15	11 32	48	2 56	28	1 12	9 33	13 11	11	15	♀ in ♍, 11 m 25
16	5 2	5 27	28	0	5 36	6 12	11 36	24	2 33	18	2 30	10 18	8 10	12	16	*about this*
17	5 49	6 10	29	9	5 38	6 10	11 39	59	2 10	5	3 46	11 1	2 54	13	17	*time,*
18	6 28	6 48	30	6	5 40	6 7	11 43	34	1 46	50	5 0	11 43	2N24	14	18	*which*
19	7 4	7 20	31	6	5 42	6 5	11 47	10	1 23	32	rises.	— —	— —	F	19	*may*
20	7 36	7 53	31	11	5 43	6 2	11 50	45	1 0	12	5a54	0 24	7 32	16	20	♅ stationary
21	8 9	8 23	31	7	5 45	6 0	11 54	20	0 36	50	6 10	1 7	12 19	17	21	*continue*
22	8 39	8 53	30	8	5 47	5 57	11 57	56	0 13	27	6 29	1 50	16 34	18	22	*with*
23	9 7	9 22	29	2	5 49	5 55	12 1	32	s 9	57	6 53	2 35	20 6	19	23	*unsettled*
24	9 38	9 52	27	5	5 51	5 52	12 5	8	0 33	22	7 25	3 22	22 44	20	24	☉ ent ♎, 1 m 48
25	10 8	10 23	25	3	5 52	5 50	12 8	44	0 56	47	8 8	4 11	24 20	21	25	[Aut. com.
26	10 42	11 3	22	8	5 54	5 47	12 12	20	1 20	12	9 3	5 2	24 44	22	26	*weather*
27	11 31	— —	20	4	5 56	5 45	12 15	56	1 43	37	10 9	5 53	23 53	23	27	*during*
28	0 7	0 45	18	9	5 58	5 42	12 19	33	2 7	2	11 24	6 45	21 45	24	28	*the*
29	1 25	2 16	20	4	6 0	5 40	12 23	10	2 30	25	morn	7 36	18 23	25	29	*month.*
30	3 4	3 43	23	10	6 1	5 37	12 26	47	2 53	47	0 44	8 27	13 55	26	30	☿ ☌, Spica V.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1	44 28 24	42 56 29	41 24 13	39 51 35	38 18 36	36 45 16	35 11 36	33 37 36
2	32 3 18	30 28 41	28 53 48	27 18 39	25 43 16	24 7 42	22 31 59	20 56 11
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
6	22 14 41	23 56 19	25 38 14	27 20 22	29 2 40	30 45 6	32 27 37	34 10 11
7	35 52 47	37 35 23	39 17 58	41 0 31	42 43 0	44 25 24	46 7 42	47 49 53
8	49 31 57	51 13 53	52 55 39	54 37 15	56 18 41	57 59 56	59 40 59	61 21 50
9	63 2 28	64 42 53	66 23 5	68 3 2	69 42 46	71 22 14	73 1 28	74 40 27
10	76 19 10	77 57 38	79 35 50	81 13 46	82 51 26	84 28 50	86 5 58	87 42 50
11	89 19 26	90 55 45	92 31 48	94 7 35	95 43 6	97 18 20	98 53 18	100 28 0
12	102 2 27	103 36 37	105 10 31	106 44 10	108 17 33	109 50 41	111 23 33	112 56 10
13	114 28 32	116 0 39	117 32 30	119 4 7	120 35 29	122 6 37	123 37 29	125 8 7
14	126 38 31	128 8 41	129 38 36	131 8 16	132 37 43	134 6 55	135 35 53	137 4 36
..	.. .. ..	.. .. ..	.. .. .	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..
23	131 18 48	129 58 7	128 37 23	127 16 37	125 55 47	124 34 54	123 13 58	121 52 57
24	120 31 51	119 10 40	117 49 24	116 28 1	115 6 32	113 44 56	112 23 13	111 1 21
25	109 39 21	108 17 12	106 54 53	105 32 24	104 9 45	102 46 54	101 23 52	100 0 37
26	98 37 9	97 13 28	95 49 33	94 25 24	93 1 0	91 36 20	90 11 24	88 46 11
27	87 20 41	85 54 53	84 28 47	83 2 22	81 35 38	80 8 34	78 41 10	77 13 25
28	75 45 19	74 16 51	72 48 1	71 18 49	69 49 14	68 19 15	66 48 53	65 18 8
29	63 46 58	62 15 23	60 43 24	59 11 1	57 38 12	56 4 58	54 31 19	52 57 15
30	51 22 47	49 47 53	48 12 34	46 36 51	45 0 44	43 24 12	41 47 18	40 10 0

21st October. The most favourable time for seeing this beautiful planet will be at its eastern elongation, at the end of February, being then in the best position for observation in the evening sky.

Venus [♀] will be a morning star until the 11th May, then an evening star to the end of the year.

PHASES OF THE MOON.
- New Moon, 4th day, at 6h. 56m. morning.
- First Quarter, 10th day, at 10h. 9m. night.
- Full Moon, 18th day, at 6h. 38m. evening.
- Last Quarter, 26th day, at 9h. 54m. night.

M D.	Day brek.	Twil. end.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	M D.
1	4 m 3	7 a 36	16 1	5 a 52	0 a 57	6 a 28	2 a 9	4m51	11m8	3m41	10m23	3m48	10m31	1
8	4 18	7 19	16 3	5 40	1 7	6 18	2 15	4 50	10 57	3 22	10 1	3 25	10 6	8
15	4 30	7 0	16 5	5 23	1 14	6 9	2 22	4 49	10 46	3 2	9 39	3 2	9 42	15
22	4 44	6 46	16 7	5 9	1 16	6 3	2 29	4 48	10 35	2 42	9 16	2 39	9 17	22
29	4 56	6 31	16 9	4 53	1 9	5 59	2 37	4 47	10 24	2 22	8 53	2 16	8 52	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.	
1	Tu	Cambridge T. begins	8 50	14 4	9 16	15 5	10 24	Clock after Sun.
2	W	F. Arago died, 1853	9 39	15 4	9 59	17 5	10 42	
3	Th	R. Barclay died, 1690	10 20	17 3	10 41	19 0	11 1	
4	F	Sir J. Rennie d. 1821	10 59	18 2	11 19	20 1	11 19	
5	S	Battle of Cadiz, 1804	11 41	19 7	— —	— —	11 37	
6	F	19 Sun. after Trinity	0 2	20 5	0 22	19 6	11 54	
7	M	*Proper Lessons.* [Daniel iii; Mark ix. — vi; 2 Cor. v.	0 44	19 6	1 7	18 8	12 11	
8	Tu	Dr. Kippis died, 1795	1 32	18 1	1 57	17 7	12 28	
9	W	St. Denys, Archbishop	2 23	16 6	2 47	16 1	12 44	
10	Th	Oxford Term begins	3 14	14 3	3 43	14 3	13 0	
11	F	Old Michaelmas Day	4 17	12 4	4 54	12 11	13 15	
12	S	Wat Tyler died, 1381	5 37	11 2	6 22	12 5	13 30	
13	F	20 Sun. after Trinity	7 4	11 3	7 42	13 0	13 44	Add to Mean Time, or Subtract from Apparent Time.
14	M	*Pro.* [Joel ii; Mark xvi. *Les.* [Micah vi; 2 Cor. xii.	8 17	12 2	8 46	14 0	13 58	
15	Tu	Virgil born, B.C. 70	9 10	13 4	9 32	15 1	14 11	
16	W	Battle of Leipsic, 1813	9 52	14 8	10 10	16 1	14 24	
17	Th	Ethelreda, V. Q.	10 26	15 7	10 41	16 9	14 36	
18	F	St. Luke Evangelist	10 55	16 4	11 13	16 7	14 48	
19	S	Dean Swift died, 1745	11 28	16 9	11 43	16 11	14 59	
20	F	21 Sun. after Trinity	11 59	16 6	— —	— —	15 9	
21	M	*Proper Lessons.* [Habakkuk ii: Luke vi. Proverbs i; Gala. vi.	0 15	16 5	0 31	16 7	15 19	
22	Tu	Dr. Arnold died, 1802	0 47	16 1	1 3	16 1	15 28	
23	W	R. Exch. found. 1667	1 21	15 2	1 39	15 2	15 36	
24	Th	Chaucer died, 1400	1 57	14 2	2 16	14 4	15 44	
25	F	St. Crispin Martyr	2 38	13 0	3 0	13 3	15 51	
26	S	Hogarth died, 1764	3 24	11 10	3 52	12 5	15 57	
27	F	22 Sun. after Trinity	4 26	11 1	5 4	12 0	16 2	
28	M	*Pro.* [Proverbs ii; Luke xiii. *Les.* [— iii; Philip i.	5 45	11 0	6 25	12 5	16 7	
29	Tu	Bristol Riots, 1831	7 5	12 2	7 39	13 8	16 11	
30	W	St. Marcellus	8 9	14 6	8 37	15 4	16 14	
31	Th	All-hallow Eve	9 3	15 3	9 26	17 0	16 16	

BRISTOL TIDES.			SUN.					MOON.				ASPECTS AND WEATHER.
morn.	even.	height	rises.	sets.	rt. ascen.	declin.	S.	H. M.	souths	declin.	☌ ☍	M D.	
M.	H. M.	F. I.	H M	H M	H. M. S.	° ′ ″		rises.	H. M.	° ′			
14	4 41	27 8	6 3	5 35	12 30 24	3 17 8		2m8	9m17	8N31	27	1	*This month*
5	5 27	31 2	6 5	5 33	12 34 2	3 40 26		3 34	10 7	2 27	28	2	♃ ☌ ☾, 4 a 23
50	6 13	32 7	6 7	5 30	12 37 40	4 3 42		5 3	10 59	3s55	29	3	☿ in Apheli.
34	6 56	34 10	6 9	5 28	12 41 18	4 26 55		sets.	11 52	10 10	N	4	*will*
20	7 43	36 2	6 11	5 25	12 44 57	4 50 4		5 17	0a48	15 49	1	5	☿ ☌ ☾, 7 a 25
3	8 24	35 10	6 13	5 23	12 48 36	5 13 10		5 45	1 48	20 22	2	6	*probably*
46	9 8	34 2	6 14	5 20	12 52 16	5 36 12		6 24	2 49	23 23	3	7	*commence*
31	9 55	31 11	6 16	5 18	12 55 56	4 59 10		7 17	3 51	24 37	4	8	*with windy*
14	10 38	29 1	6 18	5 15	12 59 36	6 22 2		8 27	4 52	24 5	5	9	*and wet*
2	11 32	25 2	6 20	5 13	13 3 17	6 44 50		9 42	5 49	21 59	6	10	*weather,*
—	0 3	22 2	6 22	5 11	13 6 58	7 7 32		11 3	6 42	18 38	7	11	*which will*
41	1 22	21 1	6 24	5 8	13 10 40	7 30 8		morn	7 31	14 24	8	12	*change*
12	2 58	22 7	6 26	5 6	13 14 22	7 52 38		0 22	8 16	9 36	9	13	♃ *to fair and*
38	4 9	25 0	6 28	5 3	13 18 5	8 15 1		1 36	9 0	4 28	10	14	*pleasant*
34	4 57	27 1	6 30	5 1	13 21 48	8 37 17		2 49	9 42	0N45	11	15	♀ ☌ Del.Scor.
18	5 38	28 9	6 31	4 59	13 25 32	8 59 26		4 1	10 23	5 53	12	16	*for a*
57	6 13	29 5	6 33	4 56	13 29 16	9 21·27		5 13	11 5	10 44	13	17	*few*
29	6 49	30 2	6 35	4 54	13 33 1	9 43 20		rises.	11 48	15 7	F	18	*days,*
6	7 22	30 8	6 37	4 52	13 36 47	10 5 5		4a34	morn	— —	15	19	♀ in Aphelion
40	7 56	30 4	6 39	4 50	13 40 33	10 26 40		4 56	0 32	18 52	16	20	*then*
11	8 27	29 10	6 41	4 47	13 44 20	10 48 7		5 28	1 19	21 47	17	21	☿ gr. elon. E.
42	8 59	28 10	6 43	4 45	13 48 8	11 9 24		6 9	2 7	23 43	18	22	*very*
14	9 30	27 2	6 45	4 43	13 51 56	11 30 30		6 59	2 57	24 30	19	23	♅ ☌ ☾, 1 m 28
46	10 4	25 10	6 47	4 41	13 55 45	11 51 27		7 58	3 47	24 5	20	24	*changeable*
23	10 44	23 10	6 49	4 39	13 59 34	12 12 13		9 6	4 38	22 26	21	25	♃ ☌ ♄, 4 a 32
9	11 39	21 10	6 51	4 37	14 3 25	12 32 47		10 21	5 28	19 37	22	26	*towards*
—	0 11	20 5	6 53	4 34	14 7 16	12 53 10		11 43	6 17	15 42	23	27	☽ *the*
47	1 26	21 4	6 55	4 32	14 11 8	13 13 21		morn	7 5	10 52	24	28	*end of*
14	2 55	24 3	6 57	4 30	14 15 0	13 33 20		1 7	7 54	5 18	25	29	*the*
30	4 1	27 8	6 59	4 28	14 18 54	13 53 6		2 32	8 43	0s44	26	30	♃ ☌ ☾, 0 a 8
28	4 52	30 9	7 1	4 26	14 22 48	14 12 38		3 57	9 35	6 57	27	31	*month*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

NOON.			3 HOURS.			6 HOURS.			9 HOURS.			MIDN.			15 HOUR.			18 HOUR.			21 HOUR.		
°	′	″	°	′	″	°	′	″	°	″	′	°	′	″	°	′	″	°	′	″	°	′	″
38	32	21	36	54	20	35	15	58	33	37	18	31	58	20	30	19	5	28	39	36	26	59	56
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..
31	34	55	33	18	37	35	2	14	36	45	44	38	29	5	40	12	16	41	55	14	43	38	0
45	20	32	47	2	48	48	44	49	50	26	32	52	7	58	53	49	5	55	29	53	57	10	21
58	50	30	60	30	18	62	9	45	63	48	51	65	27	35	67	5	57	68	43	58	70	21	36
71	58	52	73	35	46	75	12	17	76	48	26	78	24	13	79	59	38	81	34	40	83	9	21
84	43	40	86	17	36	87	51	12	89	24	26	90	57	18	92	29	50	94	2	2	95	33	53
97	5	24	98	36	35	100	7	26	101	37	58	103	8	12	104	38	7	106	7	44	107	37	2
109	6	4	110	34	48	112	3	15	113	31	25	114	59	20	116	26	58	117	54	21	119	21	29
120	48	22	122	15	0	123	41	23	125	7	33	126	33	29	127	59	11	129	24	40	130	49	56
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
128	38	48	127	16	40	125	54	23	124	31	55	123	9	18	121	46	31	120	23	33	119	0	24
117	37	4	116	13	31	114	49	46	113	25	48	112	1	37	110	37	12	109	12	33	107	47	38
106	22	29	104	57	4	103	31	23	102	5	24	100	39	9	99	12	36	97	45	45	96	18	35
94	51	6	93	23	17	91	55	9	90	26	39	88	57	49	87	28	37	85	59	3	84	29	7
82	58	48	81	28	6	79	57	0	78	25	31	76	53	37	75	21	19	73	48	36	72	15	28
70	41	55	69	7	56	67	33	31	65	58	41	64	23	24	62	47	42	61	11	33	59	34	58
57	57	58	56	20	31	54	42	39	53	4	21	51	25	38	49	46	30	48	6	57	46	27	1
44	46	41	43	5	58	41	24	52	39	43	26	38	1	39	36	19	32	34	37	7	32	54	25
31	11	28	29	28	16	27	44	54	26	1	22	24	17	45	22	34	4	20	50	26	19	6	55

MARS [♂] will be an evening star until the 27th August, then a morning star to e end of the year.

JUPITER [♃] will be a morning star until its opposition on the 10th February, en an evening star to the 31st August, and from thence to the end of the year morning star.

PHASES OF THE MOON.
- New Moon, 2nd day, at 4h. 3m. afternoon.
- First Quarter, 9th day, at 10h. 44m. morning.
- Full Moon, 17th day, at 1h. 7m. afternoon.
- Last Quarter, 25th day, at 11h. 7m. morning.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	M D.
1	5 m 2	6 a 24	16 10	4 a 45	0 a 59	6 a 1	2 m41	4m47	10 m19	2 m14	8 m44	2 m 6	8 m42	1
8	5 13	6 13	16 11	rises.	0 18	6 5	2 49	4 46	10 9	1 53	8 21	1 42	8 17	8
15	5 24	6 5	16 13	6 m45	11 m17	6 13	2 58	4 45	9 58	1 32	7 57	1 18	7 51	15
22	5 34	5 58	16 14	5 51	10 38	6 27	3 5	4 45	9 48	1 10	7 33	0 53	7 26	22
29	5 44	5 53	16 15	5 48	10 28	6 44	3 11	4 45	9 38	0 48	7 9	0 28	7 0	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	F	All Saints' Day	9 50	16 11	10 11	18 5	16	17
2	S	Michael. Term begins	10 34	18 4	10 57	19 4	16	18
3	✠	23 Sun. after Trinity	11 20	19 4	11 43	19 7	16	18
4	M	*Proper Lessons.* [Prov. xi; Luke xix. — xii; Coloss. iii.	— —	— —	0 6	19 6	16	17
5	Tu	Gunpowder Plot	0 30	19 1	0 55	19 0	16	15
6	W	Leonard, Confessor	1 9	17 11	1 44	18 1	16	13
7	Th	1st English Paper, 1665	2 11	16 2	2 38	16 5	16	9
8	F	Cambr. Term divides	3 2	14 4	3 28	14 10	16	5
9	S	P. of Wales born, 1841	3 57	12 10	4 30	13 8	16	0
10	✠	24 Sun. after Trinity	5 6	11 10	5 45	12 11	15	54
11	M	*Proper Lessons.* [Prov. xiii; John i, — xiv; 2 Thess. ii.	6 22	11 7	6 57	12 10	15	47
12	Tu	Arcturus sets 6 a 46	7 32	11 10	8 3	13 4	15	40
13	W	Britius, Bishop	8 32	12 8	8 55	14 0	15	31
14	Th	Leibnitz died, 1716	9 17	13 7	9 38	14 8	15	22
15	F	Machutus, Bishop	9 57	14 7	10 16	15 3	15	12
16	S	Ferguson died, 1776	10 34	15 3	10 50	15 7	15	1
17	✠	25 Sun. after Trinity	11 6	15 9	11 23	15 10	14	49
18	M	*Pro. Les.* [Prov. xv; John ix. — xvi; 1 Tim. vi.	11 38	16 4	11 55	15 11	14	36
19	Tu	Regulus rises 10 a 44	— —	— —	0 13	16 3	14	23
20	W	Edward, King	0 29	15 7	0 47	16 1	14	9
21	Th	Princess of Prussia b.	1 4	14 11	1 22	15 8	13	54
22	F	Cecilia, V. & M.	1 41	14 7	2 2	15 2	13	38
23	S	St. Clement	2 23	13 10	2 46	14 6	13	21
24	✠	26 Sun. after Trinity	3 9	13 2	3 33	13 10	13	4
25	M	*Proper Lessons* [Prov. xvii; John xvi. — xix; Philemon.	4 1	12 7	4 31	13 5	12	46
26	Tu	Michael. T. ends, 25th	5 3	12 3	5 40	13 4	12	27
27	W	Aldebaran sou. 11 a 55	6 16	12 6	6 49	13 10	12	7
28	Th	Wolsey died, 1530	7 24	13 5	7 54	14 9	11	46
29	F	Sirius rises 7 a 35	8 24	14 8	8 52	15 11	11	25
30	S	St. Andrew, Apostle	9 20	16 1	9 49	17 1	11	3

Clock after Sun. Add to Mean Time, or subtract from Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height. F. I.	SUN. rises. H M	sets. H M	rt ascen. H. M. S.	declin. S. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	5 17	5 41	33 2	7 3	4 24	14 26 44	14 31 57	5m28	10m29	10s53	28	1	♂ ☌ ☾, 6 m 20
2	6 7	6 32	34 0	7 5	4 22	14 30 39	14 51 2	sets.	11 28	18 4	N	2	☾ In Perigee
3	6 57	7 23	35 2	7 7	4 20	14 34 36	15 9 52	4a16	0a29	21 56	1	3	☿ ☌ ☾, 8 a 32
4	7 47	8 10	35 3	7 9	4 18	14 38 34	15 28 27	5 4	1 33	24 5	2	4	*Commencing*
5	8 34	8 56	34 2	7 11	4 16	14 42 32	15 46 47	6 8	2 37	24 20	3	5	♀ ☌ ☾, 6 a 25
6	9 19	9 44	32 2	7 13	4 14	14 46 31	16 4 51	7 25	3 38	22 46	4	6	*with*
7	10 7	10 27	29 3	7 15	4 12	14 50 31	16 22 39	8 46	4 35	19 46	5	7	*fine weather,*
8	10 49	11 14	26 2	7 17	4 10	14 54 32	16 40 10	10 8	5 26	15 43	6	8	*which*
9	11 43	— —	23 7	7 19	4 8	14 58 34	16 57 25	11 25	6 14	11 0	7	9	*changes to*
10	0 13	0 48	22 0	7 21	4 6	15 2 36	17 14 21	morn	6 58	5 56	8	10	*showery*
11	1 22	2 4	22 2	7 23	4 4	15 6 39	17 31 0	0 39	7 41	0 44	9	11	♀ gr. H.L.S.
12	2 46	3 23	23 8	7 25	4 2	15 10 44	17 47 21	1 52	8 22	4N24	10	12	*and*
13	3 54	4 19	25 5	7 27	4 1	15 14 49	18 3 23	3 3	9 3	9 18	11	13	*wet;*
14	4 42	5 4	26 9	7 29	3 59	15 18 54	18 19 7	4 14	9 46	13 48	12	14	*more*
15	5 24	5 45	27 10	7 31	3 58	15 23 1	18 34 31	5 25	10 30	17 44	13	15	*inclined*
16	6 5	6 23	28 2	7 33	3 56	15 27 8	18 49 35	6 35	11 16	20 54	14	16	☿ in Perihel.
17	6 42	7 0	28 7	7 35	3 55	15 31 17	19 4 19	rises.	morn	— —	F	17	*to*
18	7 17	7 36	29 4	7 37	3 53	15 35 26	19 18 43	4 a 6	0 4	23 8	16	18	*rain*
19	7 54	8 9	28 10	7 39	3 52	15 39 36	19 32 45	4 54	0 53	24 17	17	19	♅ ☌ ☾, 5 m 35
20	8 26	8 42	28 6	7 41	3 50	15 43 47	19 46 27	5 52	1 44	24 13	18	20	*if not*
21	8 59	9 16	27 9	7 42	3 49	15 47 58	19 59 47	7 0	2 34	22 56	19	21	☿ stationary
22	9 35	9 53	26 11	7 44	3 48	15 52 11	20 12 45	8 12	3 24	20 28	20	22	*sleet,*
23	10 12	10 32	25 10	7 46	3 47	15 56 24	20 25 21	9 28	4 13	16 56	21	23	♄'s ring dis.
24	10 53	11 18	24 7	7 48	3 46	16 0 38	20 37 34	10 47	5 0	12 30	22	24	*or*
25	11 44	— —	23 6	7 49	3 45	16 4 53	20 49 24	morn	5 47	7 21	23	25	*probably*
26	0 12	0 44	22 11	7 51	3 44	16 9 8	21 0 52	0 7	6 34	1 41	24	26	☿ gr. H.L.N.
27	1 17	1 54	24 1	7 53	3 43	16 13 25	21 11 55	1 29	7 23	4s14	25	27	♃ ☌ ☾, 4 m 38
28	2 37	3 14	26 8	7 54	3 42	16 17 42	21 22 34	2 55	8 14	10 7	26	28	*snow.*
29	3 47	4 16	29 1	7 56	3 41	16 21 59	21 32 49	4 25	9 8	15 33	27	29	☿ gr. elon. W.
30	4 45	5 16	31 4	7 58	3 40	16 26 18	21 42 40	5 56	10 7	20 2	28	30	☿ ☌ ☾, 6 a 59

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
4 W	26 6 32	27 50 9	29 33 37	31 16 54	32 59 58	34 42 46	36 25 17	38 7 31
5	39 49 25	41 30 58	43 12 11	44 53 1	46 33 29	48 13 34	49 53 14	51 32 30
6	53 11 22	54 49 48	56 27 48	58 5 24	59 42 33	61 19 16	62 55 34	64 31 25
7	66 6 51	67 41 51	69 16 25	70 50 33	72 24 16	73 57 34	75 30 26	77 2 54
8	78 34 58	80 6 37	81 37 53	83 8 45	84 39 14	86 9 21	87 39 5	89 8 27
9	90 37 28	92 6 8	93 34 28	95 2 27	96 30 7	97 57 28	99 24 31	100 51 15
10	102 17 42	103 43 51	105 9 45	106 35 21	108 0 43	109 25 49	110 50 41	112 15 18
11	113 39 42	115 3 53	116 27 51	117 51 37	119 15 12	120 38 35	122 1 47	123 24 49
12	124 47 40	126 10 23	127 32 56	128 55 21	130 17 37	131 39 45	133 1 46	134 23 39
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
21 E	136 31 35	135 7 9	133 42 33	132 17 45	130 52 45	129 27 34	128 2 10	126 36 35
22	125 10 46	123 44 44	122 18 30	120 52 1	119 25 18	117 58 21	116 31 9	115 3 42
23	113 35 59	112 8 0	110 39 46	109 11 14	107 42 26	106 13 20	104 43 57	103 14 15
24	101 44 15	100 13 56	98 43 18	97 12 20	95 41 3	94 9 25	92 37 27	91 5 8
25	89 32 27	87 59 26	86 26 2	84 52 17	83 18 10	81 43 40	80 8 47	78 33 32
26	76 57 54	75 21 53	73 45 28	72 8 41	70 31 30	68 53 56	67 15 59	65 37 39
27	63 58 56	62 19 50	60 40 21	59 0 30	57 20 16	55 39 41	53 58 44	52 17 26
28	50 35 47	48 53 48	47 11 29	45 28 51	43 45 55	42 2 41	40 19 10	38 35 23
29	36 51 21	35 7 4	33 22 34	31 37 52	29 52 59	28 7 57	26 22 46	24 37 28

Saturn [♄] will be also a morning star until its opposition on the 24th February, then an evening star to the 5th September, then a morning star to the end of the year.

Uranus [♅] will be best observed in the evenings of January, February, March, and April, and in the mornings from June to November, and in the evenings from thence to the end of the year.

PHASES OF THE MOON.

New Moon,	2nd day, at	2h. 17m. morning.
First Quarter,	9th day, at	3h. 9m. morning.
Full Moon,	17th day, at	8h. 8m. morning.
Last Quarter,	24th day, at	9h. 51m. night.
New Moon	31st day, at	1h. 54m. afternoon.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5m48	5 a 50	16 16	5 m56	10m29	6 a 49	3 a 13	4m45	9m35	0m42	7m 2	0m21	6m52	1
8	5 53	5 50	16 17	6 24	10 37	7 8	3 17	4 45	9 26	0 19	6 38	11a51	6 26	8
15	6 1	5 51	16 17	6 55	10 51	7 27	3 19	4 45	9 16	11a52	6 13	11 25	6 0	15
22	6 4	5 53	16 18	7 31	11 8	7 44	3 19	4 44	9 7	11 27	5 47	10 59	5 33	22
29	6 6	5 58	16 18	7 58	11 28	7 59	3 16	4 44	8 59	11 2	5 21	10 32	5 6	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	F	Advent Sunday	10 16	17 5	10 41	18 0	10 41
2	M	*Proper Lessons.* [Isaiah i; Acts ii. — ii; Heb. vii.	11 5	18 5	11 31	18 4	10 18
3	Tu	James II. abdi. 1688	11 54	19 0	— —	— —	9 54
4	W	Pleiades souths 10a44	0 18	18 2	0 42	18 10	9 29
5	Th	Bible translated, 1611	1 8	18 5	1 33	18 2	9 4
6	F	Nicholas, Bishop	1 57	16 4	2 22	17 1	8 39
7	S	Mars. Ney shot, 1815	2 47	15 0	3 10	15 10	8 13
8	F	2 Sunday in Advent	3 33	13 7	3 56	14 7	7 46
9	M	*Proper Lessons.* [Isaiah v; Acts viii. — xxiv; James i.	4 21	12 8	4 48	13 5	7 19
10	Tu	☿ souths 11 a 32	5 20	11 10	5 54	12 7	6 52
11	W	Chas. XII. died, 1718	6 24	11 6	6 56	12 3	6 24
12	Th	Cromwell Protec. 1653	7 30	11 9	8 2	12 5	5 56
13	F	Lucy, V. & M.	8 31	12 4	8 59	12 10	5 28
14	S	Washington d., 1799	9 25	13 2	9 46	13 5	4 59
15	F	3 Sunday in Advent	10 5	13 11	10 27	14 1	4 30
16	M	*Proper Lessons.* [Isaiah xxv; Acts. xv. — xxvi; 1 Peter iii.	10 46	14 10	11 3	14 8	4 1
17	Tu	Oxford Term ends	11 23	15 7	11 41	15 3	3 32
18	W	Ember Week	11 57	16 4	— —	— —	3 2
19	Th	Dr. S. Johnson d. 1784	0 17	15 8	0 35	16 7	2 33
20	F	Day decrea. 9h. 50m.	0 53	15 8	1 12	16 7	2 3
21	S	St. Thomas. Sh. day	1 30	15 7	1 49	16 6	1 33
22	F	4 Sunday in Advent	2 10	15 4	2 22	16 2	1 3
23	M	[Isaiah xxx; Acts xxii. — xxxii; 1 John ii.	2 53	14 10	3 15	15 7	0 33
24	Tu	Neptune souths 5 m 45	3 39	14 3	4 2	14 10	0 3
25	W	Christmas Day	4 27	13 7	4 56	14 2	0 26
26	Th	St. Stephen	5 27	13 2	6 2	13 8	0 56
27	F	St. John	6 36	13 1	7 15	13 8	1 26
28	S	Innocents' Day	7 55	13 9	8 29	14 4	1 26
29	F	1 Sun. after Christ.	9 3	14 11	9 35	15 4	2 25
30	M	[Isaiah xxxvii; Acts xxvi. — xxxviii; 2 John.	10 5	16 5	10 33	16 5	2 54
31	Tu	Silvester, Bishop	10 59	17 8	11 24	17 3	3 23

Equation of Time. Clock after Sun.—Add to Mean Time, or Subtract from Apparent Time. Clock before Sun.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″	S.	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	5 46	6 14	32 9	7 59	3 39	16 30 37	21 52 5		7m27	11M10	23 s 7	29	1	*Expect rain*
2	6 40	7 9	33 3	8 1	3 38	16 34 57	22 1 5		sets.	0a15	24 22	N	2	*if not*
3	7 34	7 59	33 9	8 2	3 37	16 39 17	22 9 40		4a57	1 19	23 41	1	3	*snow.*
4	8 22	8 47	33 4	8 4	3 37	16 43 38	22 17 49		6 19	2 19	21 16	2	4	
5	9 10	9 32	32 0	8 5	3 36	16 48 0	22 25 32		7 44	3 15	17 31	3	5	♀ ☌ ☾, 3 a 33
6	9 55	10 16	30 2	8 7	3 36	16 52 22	22 32 48		9 9	4 6	12 54	4	6	♅ ☍ ☉, 10m49
7	10 35	10 56	27 11	8 8	3 35	16 56 44	22 39 38		10 27	4 53	7 48	5	7	*Changeable,*
8	11 15	11 37	25 5	8 9	3 35	17 1 7	22 46 2		11 40	5 37	2 30	6	8	*but*
9	11 59	— —	23 3	8 11	3 35	17 5 31	22 51 59		morn	6 20	2N44	7	9	*still*
10	0 27	0 57	21 8	8 12	3 35	17 9 55	22 57 28		0 52	7 1	7 46	8	10	*inclined*
11	1 24	2 1	21 6	8 13	3 34	17 14 19	23 2 30		2 3	7 43	12 25	9	11	*to rain*
12	2 42	3 20	22 7	8 14	3 34	17 18 43	23 7 5		3 14	8 27	16 32	10	12	*or sleet.*
13	3 53	4 23	23 11	8 15	3 34	17 23 8	23 11 12		4 24	9 12	19 58	11	13	☾ in Apogee
14	4 49	5 11	25 2	8 16	3 34	17 27 34	23 14 52		5 33	9 59	22 31	12	14	♄ □ ☉, 7 m 36
15	5 32	5 56	26 3	8 17	3 34	17 31 59	23 18 4		6 38	10 49	24 1	13	15	*Still*
16	6 18	6 37	26 9	8 18	3 34	17 36 24	23 20 48		7 38	11 39	24 22	14	16	♅ ☌ ☾, 9 m 45
17	6 59	7 18	27 8	8 19	3 35	17 40 51	23 23 4		rises.	morn	— —	F	17	*changeable,*
18	7 37	7 58	28 7	8 20	3 35	17 45 17	23 24 52		4a50	0 31	23 27	16	18	♃ □ ☉, 9 m 9
19	8 15	8 32	29 2	8 20	3 35	17 49 43	23 26 11		6 3	1 21	21 19	17	19	*and*
20	8 50	9 7	29 6	8 21	3 36	17 54 9	23 27 3		7 19	2 11	18 4	18	20	☿ in ♐, 3 m 48
21	9 25	9 44	29 3	8 21	3 36	17 58 36	23 27 26		8 36	2 58	13 52	19	21	☉ ent. ♈, 7a35
22	9 56	10 22	28 10	8 22	3 36	18 3 2	23 27 21		9 54	3 45	8 56	20	22	[Win. com.
23	10 40	11 1	28 0	8 22	3 37	18 7 29	23 26 47		11 14	4 31	3 29	21	23	*more*
24	11 21	11 44	26 6	8 22	3 37	18 11 55	23 25 46		morn	5 18	2s 15	22	24	♃ ☌ ☾, 3 a 58
25	— —	0 9	25 1	8 22	3 38	18 16 22	23 24 16		0 36	6 6	8 0	23	25	*fair and*
26	0 34	1 5	24 0	8 23	3 39	18 20 48	23 22 17		2 1	6 57	13 27	24	26	*frosty*
27	1 36	2 23	24 6	8 23	3 40	18 25 14	23 19 51		3 28	7 52	18 13	25	27	*towards*
28	3 12	3 51	26 7	8 23	3 41	18 29 41	23 16 56		4 54	8 51	21 52	26	28	♂ ☌ ☾. 0 a 43
29	4 27	5 0	28 9	8 23	3 42	18 34 7	23 13 33		6 19	9 53	23 59	27	29	*the end.*
30	5 32	6 3	30 8	8 23	3 43	18 38 32	23 9 42		7 27	10 57	24 17	28	30	☿ in Aphelion
31	6 31	7 0	31 6	8 23	3 44	18 42 58	23 5 24		8 19	11 59	22 45	N	31	☉ eclip., vis.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	12 Hour. ° ′ ″
1w	33 3 45	34 43 33	36 22 56	38 1 55	39 40 28	41 18 36	42 56 18	44 33 34
5	46 10 24	47 46 47	49 22 43	50 58 13	52 33 16	54 7 52	55 42 1	57 15 44
6	58 49 1	60 21 51	61 54 15	63 26 14	64 57 47	66 28 54	67 59 37	69 29 55
7	70 59 50	72 29 20	73 58 28	75 27 12	76 55 34	78 23 35	79 51 13	81 18 31
8	82 45 29	84 12 6	85 38 24	87 4 24	88 30 5	89 55 29	91 20 36	92 45 26
9	94 10 0	95 34 19	96 58 23	98 22 14	99 45 50	101 9 14	102 32 25	103 55 24
10	105 18 12	106 40 50	108 3 17	109 25 35	110 47 44	112 9 45	113 31 38	114 53 23
11	116 15 2	117 36 34	118 58 1	120 19 23	121 40 40	123 1 54	124 23 3	125 44 9
12	127 5 13	128 26 14	129 47 14	131 8 12	132 29 10	133 50 7	135 11 4	136 32 2
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
21E	132 5 27	130 35 54	129 6 10	127 36 13	126 6 3	124 35 40	123 5 4	121 34 16
22	120 3 13	118 31 58	117 0 28	115 28 45	113 56 47	112 24 35	110 52 9	109 19 28
23	107 46 32	106 13 22	104 39 56	103 6 15	101 32 18	99 58 6	98 23 38	96 48 54
24	95 13 54	93 38 38	92 3 6	90 27 17	88 51 12	87 14 51	85 38 13	84 1 19
25	82 24 8	80 46 40	79 8 57	77 30 56	75 52 40	74 14 7	72 35 18	70 56 13
26	69 16 52	67 37 16	65 57 25	64 17 18	62 36 57	60 56 20	59 15 30	57 34 27
27	55 53 10	54 11 40	52 29 57	50 48 3	49 5 58	47 23 42	45 41 15	43 58 40
28	42 15 55	40 33 3	38 50 3	37 6 56	35 23 44	33 40 27	31 57 5	30 13 41

Neptune—This newly discovered Planet will be best observed when near its opposition on the 23rd September, its Right Ascension at Noon on that day will be 0h. 3m. 3sec., and Declination 1° 12′ 32″ South.

M D.	JANUARY. Noon	JANUARY. Midn.	FEBRUARY Noon.	FEBRUARY Midn.	MARCH. Noon.	MARCH. Midn.	APRIL. Noon.	APRIL. Midn.	MAY. Noon.	MAY. Midn.	JUNE. Noon.	JUNE. Midn.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
1	16 10	16 11	16 12	16 8	16 21	16 15	15 47	15 40	15 22	15 15	14 54	14 51
2	16 11	16 11	16 4	16 0	16 9	16 3	15 33	15 26	15 10	15 4	14 49	14 47
3	16 11	16 10	15 56	15 52	15 57	15 50	15 20	15 15	15 0	14 56	14 46	14 46
4	16 9	16 8	15 48	15 43	15 44	15 39	15 9	15 5	14 52	14 50	14 47	14 48
5	16 7	16 5	15 39	15 35	15 33	15 28	15 0	14 57	14 48	14 46	14 49	14 51
6	16 3	16 1	15 31	15 27	15 22	15 18	14 54	14 51	14 45	14 44	14 53	14 56
7	15 58	15 55	15 13	15 19	15 13	15 9	14 49	14 47	14 44	14 45	14 59	15 2
8	15 52	15 48	15 15	15 11	15 5	15 2	14 45	14 44	14 45	14 46	15 5	15 9
9	15 45	15 41	15 8	15 4	14 59	14 56	14 44	14 43	14 48	14 50	15 13	15 17
10	15 36	15 32	15 1	14 58	14 53	14 51	14 44	14 44	14 52	14 54	15 21	15 25
11	15 27	15 22	14 55	14 52	14 49	14 47	14 45	14 46	14 57	15 0	15 29	15 33
12	15 18	15 13	14 50	14 48	14 46	14 45	14 48	14 50	15 4	15 7	15 38	15 42
13	15 9	15 4	14 47	14 46	14 44	14 44	14 52	14 55	15 11	15 16	15 46	15 51
14	15 1	14 57	14 46	14 46	14 44	14 45	14 58	15 2	15 20	15 25	15 55	15 59
15	14 54	14 52	14 47	14 49	14 46	14 48	15 6	15 11	15 30	15 36	16 3	16 7
16	14 50	14 49	14 51	14 54	14 50	14 53	15 16	15 22	15 41	15 47	16 11	16 14
17	14 48	14 48	14 58	15 2	14 56	15 1	15 28	15 34	15 53	15 59	16 17	16 20
18	14 49	14 50	15 7	15 13	15 5	15 11	15 41	15 49	16 5	16 11	16 22	16 25
19	14 53	14 55	15 19	15 26	15 16	15 23	15 56	16 3	16 17	16 22	16 24	16 24
20	14 59	15 3	15 33	15 40	15 30	15 37	16 11	16 18	16 26	16 30	16 23	16 21
21	15 8	15 14	15 48	15 56	15 45	15 53	16 25	16 31	16 34	16 36	16 19	16 15
22	15 20	15 26	16 3	16 10	16 1	16 9	16 36	16 40	16 37	16 37	16 11	16 6
23	15 32	15 39	16 17	16 23	16 17	16 24	16 43	16 45	16 36	16 34	16 1	15 55
24	15 46	15 52	16 28	16 33	16 30	16 36	16 46	16 45	16 30	16 26	15 49	15 42
25	15 58	16 4	16 36	16 38	16 40	16 44	16 43	16 39	16 20	16 14	15 36	15 29
26	16 9	16 14	16 39	16 38	16 46	16 46	16 35	16 29	16 8	16 0	15 23	15 17
27	16 18	16 21	16 36	16 34	16 46	16 44	16 22	16 15	15 53	15 45	15 11	15 6
28	16 23	16 24	16 30	16 26	16 40	16 36	16 8	16 0	15 38	15 31	15 2	14 58
29	16 24	16 24	.. ..	.. ..	16 30	16 24	15 52	15 44	15 24	15 17	14 54	14 52
30	16 23	16 21	.. ..	.. ..	16 17	16 10	15 36	15 29	15 11	15 6	14 50	14 49
31	16 18	16 15	.. ..	.. ..	16 2	15 55	.. ..	.. ..	15 1	14 57	.. ..	.. ..

M D.	JULY. Noon.	JULY. Midn.	AUGUST. Noon.	AUGUST. Midn.	SEPT. Noon.	SEPT. Midn.	OCTOBER. Noon.	OCTOBER. Midn	NOVEMBER Noon.	NOVEMBER Midn.	DECEMBER Noon.	DECEMBER Midn.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″
1	14 48	14 48	15 2	15 6	15 39	15 46	16 10	16 17	16 43	16 46	16 43	16 41
2	14 49	14 51	15 11	15 17	15 53	16 0	16 24	16 29	16 47	16 47	16 39	16 35
3	14 53	14 55	15 22	15 28	16 6	16 12	16 34	16 38	16 45	16 42	16 30	16 24
4	14 59	15 2	15 34	15 40	16 17	16 22	16 41	16 42	16 38	16 33	16 17	16 9
5	15 6	15 10	15 45	15 51	16 26	16 28	16 42	16 41	16 27	16 20	16 2	15 54
6	15 15	15 19	15 56	16 1	16 30	16 30	16 38	16 35	16 13	16 5	15 46	15 38
7	15 24	15 29	16 5	16 8	16 30	16 29	16 30	16 25	15 57	15 49	15 31	15 23
8	15 33	15 38	16 11	16 14	16 26	16 24	16 19	16 12	15 42	15 34	15 17	15 11
9	15 42	15 46	16 15	16 16	16 20	16 16	16 6	15 59	15 27	15 21	15 5	15 1
10	15 50	15 54	16 17	16 17	16 11	16 7	15 52	15 45	15 15	15 9	14 56	14 53
11	15 57	16 0	16 16	16 15	16 2	15 57	15 39	15 33	15 4	15 0	14 50	14 48
12	16 3	16 5	16 13	16 11	15 52	15 47	15 27	15 21	14 56	14 53	14 47	14 46
13	16 7	16 9	16 9	16 6	15 42	15 37	15 16	15 12	14 50	14 48	14 45	14 46
14	16 10	16 11	16 4	16 1	15 32	15 28	15 7	15 3	14 47	14 45	14 46	14 47
15	16 12	16 13	15 57	15 54	15 23	15 19	15 0	14 57	14 44	14 44	14 49	14 51
16	16 13	16 12	15 51	15 47	15 15	15 11	14 54	14 52	14 44	14 44	14 53	14 55
17	16 12	16 10	15 43	15 39	15 8	15 4	14 49	14 48	14 45	14 46	14 58	15 1
18	16 9	16 7	15 35	15 31	15 1	14 58	14 46	14 45	14 48	14 49	15 4	15 7
19	16 4	16 1	15 27	15 22	14 55	14 53	14 44	14 44	14 51	14 54	15 11	15 15
20	15 57	15 53	15 18	15 14	14 50	14 49	14 44	14 45	14 57	15 0	15 19	15 23
21	15 49	15 44	15 10	15 6	14 47	14 46	14 45	14 47	15 3	15 7	15 27	15 31
22	15 39	15 34	15 2	14 59	14 46	14 45	14 48	14 51	15 11	15 16	15 36	15 41
23	15 28	15 23	14 56	14 53	14 46	14 47	14 53	14 57	15 21	15 27	15 45	15 51
24	15 18	15 13	14 51	14 49	14 49	14 51	15 0	15 5	15 33	15 39	15 56	16 1
25	15 8	15 4	14 48	14 48	14 53	14 57	15 10	15 15	15 46	15 52	16 6	16 11
26	15 0	14 57	14 48	14 48	15 1	15 6	15 22	15 28	15 59	16 6	16 15	16 19
27	14 54	14 51	14 50	14 52	15 12	15 18	15 35	15 43	16 13	16 20	16 23	16 26
28	14 50	14 49	14 55	14 59	15 24	15 31	15 50	15 58	16 26	16 31	16 29	16 30
29	14 49	14 49	15 3	15 8	15 39	15 47	16 6	16 14	16 36	16 39	16 31	16 30
30	14 51	14 52	15 13	15 19	15 54	16 2	16 21	16 28	16 42	16 43	16 29	16 26
31	14 55	14 58	15 25	15 32	.. ..	.. ..	16 34	16 39	.. ..	.. ..	16 23	16 18

JANUARY.				FEBRUARY				MARCH				APRIL.				MAY.				JUNE.				M
Noon.		Midn.		Noon.		Midn.		Noon.		Midn.		Noon.		Midn.		Noon.		Midn.		Noon.		Midn.		D.
′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	′	″	—
59	11	59	14	59	18	59	5	59	50	59	30	57	48	57	22	56	15	55	52	54	32	54	22	1
59	16	59	16	58	50	58	36	59	8	58	46	56	56	56	32	55	31	55	12	54	14	54	9	2
59	15	59	13	58	20	58	5	58	23	58	0	56	9	55	49	54	55	54	40	54	5	54	5	3
59	9	59	5	57	49	57	34	57	38	57	16	55	30	55	12	54	28	54	18	54	6	54	10	4
59	0	58	54	57	19	57	4	56	56	56	36	54	57	54	44	54	10	54	4	54	15	54	22	5
58	46	58	38	56	49	56	34	56	18	56	0	54	32	54	22	54	0	53	58	54	30	54	40	6
58	28	58	18	56	19	56	5	55	44	55	29	54	14	54	7	53	58	53	59	54	51	55	3	7
58	6	57	53	55	51	55	37	55	15	55	2	54	2	53	58	54	2	54	6	55	16	55	29	8
57	39	57	24	55	23	55	10	54	51	54	40	53	56	53	55	54	11	54	18	55	43	55	57	9
57	8	56	51	54	58	54	47	54	31	54	22	53	55	53	57	54	26	54	35	56	12	56	27	10
56	34	56	17	54	36	54	27	54	15	54	9	54	0	54	4	54	45	54	57	56	43	56	58	11
56	0	55	43	54	19	54	13	54	4	54	0	54	10	54	17	55	9	55	23	57	14	57	29	12
55	27	55	12	54	8	54	5	53	58	53	57	54	26	54	36	55	37	55	53	57	45	58	1	13
54	58	54	45	54	4	54	5	53	58	54	1	54	48	55	2	56	9	56	27	58	16	58	32	14
54	34	54	25	54	9	54	14	54	5	54	11	55	18	55	35	56	46	57	5	58	47	59	1	15
54	18	54	13	54	23	54	34	54	19	54	30	55	54	56	15	57	26	57	47	59	15	59	27	16
54	11	54	11	54	47	55	3	54	42	54	57	56	38	57	2	58	9	58	31	59	38	59	48	17
54	14	54	20	55	21	55	41	55	15	55	34	57	27	57	53	58	53	59	15	59	55	60	1	18
54	28	54	39	56	5	56	29	55	56	56	19	58	20	58	48	59	36	59	55	60	3	60	3	19
54	52	55	8	56	55	57	23	56	45	57	12	59	15	59	41	60	12	60	27	59	59	59	53	20
55	26	55	46	57	51	58	19	57	40	58	9	60	5	60	27	60	38	60	46	59	43	59	31	21
56	7	56	30	58	47	59	13	58	39	59	8	60	47	61	2	60	51	60	51	59	16	58	58	22
56	54	57	18	59	38	60	0	59	36	60	2	61	14	61	21	60	47	60	38	58	38	58	16	23
57	43	58	6	60	19	60	35	60	26	60	46	61	23	61	19	60	26	60	10	57	53	57	30	24
58	29	58	50	60	46	60	53	61	3	61	15	61	11	60	59	59	50	59	27	57	6	56	42	25
59	9	59	26	60	56	60	54	61	23	61	25	60	42	60	21	59	3	58	37	56	19	55	57	26
59	40	59	51	60	49	60	39	61	22	61	15	59	57	59	31	58	9	57	42	55	37	55	18	27
59	59	60	3	60	25	60	9	61	2	60	46	59	3	58	34	57	15	56	48	55	2	54	47	28
60	4	60	2	..	..	..	..	60	26	60	3	58	4	57	36	56	23	55	59	54	35	54	26	29
59	58	59	51	..	..	..	..	59	38	59	11	57	8	56	41	55	37	55	17	54	19	54	14	30
59	42	59	31	..	..	..	..	58	43	58	16	..	..	..	..	55	0	54	44	..	..	..	..	31

JULY.				AUGUST.				SEPT.				OCTOBER.				NOVEMBER				DECEMBER				M
Noon.		Midn.		Noon.		Midn.		Noon.		Midn.		Noon.				Noon.		Midn.		Noon.		Midn.		D.
′	″	′	″	″	′	′	″	′	″	′	″	′	″	59	37	′	″	′	″	′	″	′	″	—
54	12	54	13	55	3	55	19	57	18	57	44	59	11	Midn.		61	12	61	22	61	11	61	6	1
54	16	54	21	55	37	55	56	58	10	58	35	60	2	60	23	61	27	61	26	60	56	60	42	2
54	29	54	39	56	16	56	37	58	58	59	20	60	41	60	55	61	21	61	10	60	23	60	1	3
54	50	55	3	56	59	57	20	59	39	59	55	61	4	61	9	60	55	60	36	59	36	59	10	4
55	17	55	33	57	41	58	1	60	9	60	18	61	9	61	4	60	14	59	48	58	41	58	12	5
55	49	56	6	58	20	58	37	60	24	60	26	60	55	60	42	59	21	58	53	57	43	57	15	6
56	23	56	40	58	52	59	6	60	25	60	20	60	25	60	6	58	24	57	56	56	47	56	21	7
56	57	57	14	59	17	59	25	60	12	60	1	59	44	59	21	57	27	57	1	55	57	55	35	8
57	30	57	45	59	31	59	35	59	48	59	33	58	56	58	31	56	35	56	11	55	15	54	58	9
57	59	58	12	59	37	59	36	59	17	59	0	58	6	57	42	55	49	55	29	54	43	54	30	10
58	24	58	35	59	34	59	29	58	41	58	23	57	18	56	55	55	11	54	55	54	20	54	12	11
58	45	58	54	59	23	59	16	58	5	57	46	56	34	56	14	54	42	54	30	54	6	54	3	12
59	1	59	8	59	8	58	59	57	28	57	10	55	55	55	38	54	20	54	12	54	2	54	2	13
59	13	59	17	58	49	58	38	56	53	56	37	55	22	55	8	54	6	54	2	54	5	54	9	14
59	20	59	22	58	26	58	14	56	21	56	5	54	55	54	43	53	59	53	57	54	14	54	21	15
59	22	59	21	58	1	57	47	55	51	55	37	54	33	54	24	53	57	53	59	54	29	54	38	16
59	18	59	14	57	33	57	19	55	23	55	11	54	17	54	10	54	1	54	5	54	48	54	59	17
59	7	58	59	57	4	56	48	54	59	54	48	54	5	54	1	54	10	54	16	55	10	55	22	18
58	50	58	38	56	33	56	17	54	38	54	29	53	59	53	57	54	24	54	33	55	35	55	49	19
58	25	58	10	56	2	55	46	54	21	54	14	53	57	53	59	54	43	54	54	56	3	56	18	20
57	54	57	36	55	31	55	17	54	9	54	5	54	2	54	6	55	7	55	21	56	34	56	50	21
57	18	56	59	55	3	54	51	54	3	54	2	54	13	54	21	55	37	55	54	57	7	57	24	22
56	39	56	20	54	40	54	30	54	4	54	7	54	31	54	43	56	13	56	34	57	42	58	0	23
56	1	55	43	54	22	54	16	54	13	54	22	54	57	55	13	56	55	57	18	58	19	58	38	24
55	25	55	9	54	12	54	10	54	32	54	45	55	32	55	52	57	43	58	7	58	56	59	14	25
54	55	54	43	54	10	54	13	55	0	55	18	56	14	56	39	58	33	58	58	59	31	59	46	26
54	32	54	24	54	19	54	27	55	38	56	0	57	4	57	32	59	23	59	47	60	0	60	11	27
54	18	54	15	54	37	54	50	56	25	56	51	58	0	58	29	60	9	60	28	60	20	60	26	28
54	14	54	16	55	6	55	23	57	18	57	46	58	57	59	26	60	45	60	58	60	28	60	26	29
54	21	54	28	55	43	56	5	58	15	58	43	59	53	60	17	61	7	61	12	60	21	60	11	30
54	37	54	49	56	28	56	53	..	..	..	..	60	39	60	58	..	..	..	..	59	59	59	42	31

Mean Refraction.

App Alt.	Refr.	App Alt.	Refr	App. Alt	Refr	App. Alt.	Refr	App. Alt.	Refr
° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
0 0	33 0	5 0	9 54	10 0	5 15	20 0	2 35	34 0	1 24
0 5	32 10	5 5	9 46	10 10	5 10	20 10	2 34	34 30	1 23
0 10	31 22	5 10	9 38	10 20	5 5	20 20	2 32	35 0	1 21
0 15	30 35	5 15	9 30	10 30	5 0	20 30	2 31	35 30	1 20
0 20	29 50	5 20	9 23	10 40	4 56	20 40	2 29	36 0	1 18
0 25	29 6	5 25	9 15	10 50	4 51	20 50	2 28	36 30	1 17
0 30	28 23	5 30	9 8	11 0	4 47	21 0	2 27	37 0	1 16
0 35	27 41	5 35	9 1	11 10	4 43	21 10	2 26	37 30	1 14
0 40	27 0	5 40	8 54	11 20	4 39	21 20	2 25	38 0	1 13
0 45	26 20	5 45	8 47	11 30	4 34	21 30	2 24	38 30	1 11
0 50	25 42	5 50	8 41	11 40	4 31	21 40	2 23	39 0	1 10
0 55	25 5	5 55	8 34	11 50	4 27	21 50	2 21	39 30	1 9
1 0	24 29	6 0	8 28	12 0	4 23	22 0	2 20	40 0	1 8
1 5	23 54	6 5	8 21	12 10	4 20	22 10	2 19	41 0	1 5
1 10	23 20	6 10	8 15	12 20	4 16	22 20	2 18	42 0	1 3
1 15	22 47	6 15	8 9	12 30	4 13	22 30	2 17	43 0	1 1
1 20	22 15	6 20	8 3	12 40	4 9	22 40	2 16	44 0	0 59
1 25	21 44	6 25	7 57	12 50	4 6	22 50	2 15	45 0	0 57
1 30	21 15	6 30	7 51	13 0	4 3	23 0	2 14	46 0	0 55
1 35	20 46	6 35	7 45	13 10	4 0	23 10	2 13	47 0	0 53
1 40	20 18	6 40	7 40	13 20	3 57	23 20	2 12	48 0	0 51
1 45	19 51	6 45	7 35	13 30	3 54	23 30	2 11	49 0	0 49
1 50	19 25	6 50	7 30	13 40	3 51	23 40	2 10	50 0	0 48
1 55	19 0	6 55	7 25	13 50	3 48	23 50	2 9	51 0	0 46
2 0	18 35	7 0	7 20	14 0	3 45	24 0	2 8	52 0	0 44
2 5	18 11	7 5	7 15	14 10	3 43	24 10	2 7	53 0	0 43
2 10	17 48	7 10	7 11	14 20	3 40	24 20	2 6	54 0	0 41
2 15	17 26	7 15	7 6	14 30	3 38	24 30	2 5	55 0	0 40
2 20	17 4	7 20	7 2	14 40	3 35	24 40	2 4	56 0	0 38
2 25	16 44	7 25	6 57	14 50	3 33	24 50	2 3	57 0	0 37
2 30	16 24	7 30	6 53	15 0	3 30	25 0	2 2	58 0	0 35
2 35	16 4	7 35	6 49	15 10	3 28	25 10	2 1	59 0	0 34
2 40	15 45	7 40	6 45	15 20	3 26	25 20	2 0	60 0	0 33
2 45	15 27	7 45	6 41	15 30	3 24	25 30	1 59	61 0	0 32
2 50	15 9	7 50	6 37	15 40	3 21	25 40	1 58	62 0	0 30
2 55	14 52	7 55	6 33	15 50	3 19	25 50	1 57	63 0	0 29
3 0	14 36	8 0	6 29	16 0	3 17	26 0	1 56	64 0	0 28
3 5	14 20	8 5	6 25	16 10	3 15	26 10	1 55	65 0	0 26
3 10	14 4	8 10	6 22	16 20	3 12	26 20	1 55	66 0	0 25
3 15	13 49	8 15	6 18	16 30	3 10	26 30	1 54	67 0	0 24
3 20	13 34	8 20	6 15	16 40	3 8	26 40	1 53	68 0	0 23
3 25	13 20	8 25	6 11	16 50	3 6	26 50	1 52	69 0	0 22
3 30	13 6	8 30	6 8	17 0	3 4	27 0	1 51	70 0	0 21
3 35	12 53	8 35	6 5	17 10	3 3	27 15	1 50	71 0	0 19
3 40	12 40	8 40	6 1	17 20	3 1	27 30	1 49	72 0	0 18
3 45	12 27	8 45	5 58	17 30	2 59	27 45	1 48	73 0	0 17
3 50	12 15	8 50	5 55	17 40	2 57	28 0	1 47	74 0	0 16
3 55	12 3	8 55	5 52	17 50	2 55	28 15	1 46	75 0	0 15
4 0	11 51	9 0	5 48	18 0	2 54	28 30	1 45	76 0	0 14
4 5	11 40	9 5	5 45	18 10	2 52	28 45	1 44	77 0	0 13
4 10	11 29	9 10	5 42	18 20	2 51	29 0	1 42	78 0	0 12
4 15	11 18	9 15	5 39	18 30	2 49	29 30	1 40	79 0	0 11
4 20	11 8	9 20	5 36	18 40	2 47	30 0	1 38	80 0	0 10
4 25	10 58	9 25	5 34	18 50	2 46	30 30	1 37	81 0	0 9
4 30	10 48	9 30	5 31	19 0	2 44	31 0	1 35	82 0	0 8
4 35	10 39	9 35	5 28	19 10	2 43	31 30	1 33	83 0	0 7
4 40	10 29	9 40	5 25	19 20	2 41	32 0	1 31	84 0	0 6
4 45	10 20	0 45	5 23	19 30	2 40	32 30	1 30	86 0	0 4
4 50	10 11	9 50	5 20	19 40	2 38	33 0	1 28	88 0	0 2
4 55	10 2	9 55	5 18	19 50	2 37	33 30	1 26	90 0	0 0

Dip of The Horizon.

Height of the Eye.	Dip of the Horizon.	Height of the Eye.	Dip of the Horizon.
ft.	′ ″	ft.	′
1	0 59	19	4
2	1 24	20	4
3	1 42	21	4
4	1 58	22	4
5	2 12	23	4
6	2 25	24	4
7	2 36	25	4
8	2 47	26	5
9	2 57	27	5
10	3 7	28	5
11	3 16	29	5
12	3 25	30	5
13	3 33	31	5
14	3 41	32	5
15	3 49	33	5
16	3 56	34	5
17	4 4	35	5
18	4 11	38	6

Dip at Different Distances.

Miles.	Height of the Eye in Feet.					
	5	10	15	20	25	30
	′	′	′	′	′	′
¼	11	23	34	45	57	69
½	6	12	17	23	28	34
¾	4	8	12	15	19	23
1	3	6	9	12	15	17
1¼	3	5	7	10	12	14
1½	3	4	6	8	10	12
2	2	4	5	7	8	9
2½	2	3	4	6	7	8
3	2	3	4	5	6	7
3½	2	3	4	5	6	6
4	2	3	4	5	5	6
5	2	3	4	4	5	6
6	2	3	4	4	5	5

Table Of Corrections

To be applied to the Rising and Setting of the Sun, Moon, and Planets, when viewed from elevations above the sea level—Subtract from Rising, add to Setting.

ft	s.	ft.	m.s.	ft.	m.s.
5	16	50	0 51	120	1 18
10	23	60	0 56	140	1 26
15	28	70	1 1	160	1 33
20	30	80	1 5	180	1 38
30	38	90	1 8	200	1 43
40	46	100	1 10	300	2 5

Right Ascensions, and Declinations, and Semi-diurnal Arcs,

FOR LATITUDE 54° 10′,

Of the Principal Fixed Stars

NAMES.	Magnitude.	Right Ascension. H. M. S.	Annual Variations ″	Declination. ° ′ ″	Annual Variations ″	Semi-diurnal Arcs. H. M.
Andromedæ	2	0 1 12	+ 3·08	N 28 19 23	+19·90	9 19
Pegasi (Algenib)	3·2	0 6 5	+ 3·08	14 24 38	+20·03	7 27
Cassiopeæ	Var.	0 32 38	+ 3·36	55 46 28	+19·81	sets not
Ceti	2	0 36 37	+ 3·01	S 18 45 1	+19·82	4 12
Ursæ Minor.(Polaris)	2	1 8 21	+18·84	N 88 34 7	+19·18	sets not
Eridani (Achernar)..	1	1 32 32	+ 2·24	S 57 56 37	+18·43	rises not
Arietes.	2	1 59 21	+ 3·36	N 22 48 12	+17·25	8 27
Ceti	2·3	2 55 1	+ 3·13	3 32 31	+14·38	6 23
Persei	2	3 14 25	+ 4·24	49 21 46	+13·22	sets not
Tauri	3	3 39 14	+ 3·55	23 40 20	+11·50	8 34
Tauri (Aldebaran) ..	1	4 27 57	+ 3·43	16 13 35	+ 7·67	7 39
Aurigæ (Capella)....	1	5 6 26	+ 4·42	45 51 7	+ 4·22	sets not
Orionis (Rigel).. . .	1	5 7 51	+ 2·88	S 8 21 55	+ 4·50	5 17
Tauri	2	5 17 30	+ 3·79	N 28 29 9	+ 3·50	9 21
Orionis	2	5 24 54	+ 3·06	S 0 24 20	+ 3·02	6 1
Leporis	3	5 26 36	+ 2·64	17 55 28	+ 2·92	4 10
Orionis	2	5 29 10	+ 3·04	1 17 39	+ 2·68	5 57
Columbæ	2	5 34 37	+ 2·18	34 9 0	+ 2·22	sets not
Orionis	Var.	5 47 38	+ 3·25	N 7 22 39	+ 1·08	6 45
Argus (Canopus) .. .	1	6 20 52	+ 1·33	S 52 37 16	− 1·82	rises not
Canis Majoris (Sirius)	1	6 39 1	+ 2·64	16 31 43	− 4·62	4 27
Geminorum (Castor)	2·1	7 25 44	+ 3·84	N 32 11 22	− 7·40	10 13
Canis Minoris (Proc.)	1	7 32 1	+ 3·14	5 34 42	− 8·87	6 35
Geminorum (Pollux)	1·2	7 36 48	+ 3·68	28 21 30	− 8·28	9 20
Hydræ.....	2	9 20 45	+ 2·95	S 8 3 29	−15·37	6 49
Leonis (Regulus)....	1·2	10 0 58	+ 3·20	N 12 38 42	−17·40	7 17
Ursæ Majoris.....	2	10 55 7	+ 3·77	62 30 1	−19·34	sets not
Leonis	2·3	11 6 43	+ 3·20	21 17 4	−19·66	8 16
Leonis....	2	11 41 58	+ 3·06	15 20 56	−20·09	7 34
Ursæ Majoris.....	2·3	11 46 30	+ 3·19	54 28 3	−20·02	sets not
Crucis	1	12 18 53	+ 3·26	S 62 19 39	−19·94	rises not
Corvi	2·3	12 27 5	+ 3·13	22 37 40	−19·98	3 44
Virginis(Spica).. ...	2	13 17 52	+ 3·15	10 26 5	−18·95	5 5
Centauri	1	13 54 3	+ 4·15	59 42 0	−17·69	rises not
Bootis (Arcturus)....	1	14 9 19	+ 2·73	N 19 54 28	−18·93	8 5
Centauri.....	1	14 30 12	+ 4·03	S 60 15 24	−15·06	rises not
Bootis	2·3	14 38 55	+ 2·62	N 27 39 43	−15·42	9 13
Libræ	2·3	14 43 12	+ 3·30	S 15 27 43	−15·24	4 34
Ursæ Minoris.....	2	14 51 9	− 0·26	N 74 43 24	−14·75	sets not
Libræ	2	15 9 32	+ 3·22	S 8 52 3	−13·60	5 14
Coronæ Borealis	2	15 28 48	+ 2·54	N 27 11 5	−12·36	9 8
Serpentis	2·3	15 37 25	+ 2·95	6 51 56	−11·63	6 42
Scorpii (Antares)....	1·2	16 20 53	+ 3·67	S 26 7 12	− 8·44	3 15
Trianguli Australis ..	2	16 33 59	+ 6·27	68 45 58	− 7·44	rises not
Herculis	Var.	17 8 19	+ 2·73	N 14 33 6	− 4·44	7 29
Draconis.....	3·2	17 27 18	+ 1·35	52 24 20	− 2·85	sets not
Lyræ (Vega)	1	18 32 14	+ 2·03	38 39 23	+ 3·10	sets not
Lyræ	Var.	18 44 57	+ 2·21	33 12 12	+ 3·88	10 31
Aquilæ..... ...	3	19 39 39	+ 2·85	10 16 38	+ 8·45	7 2
Aquilæ (Altair).....	1·2	19 44 0	+ 2·93	8 30 14	+ 9·17	6 51
Aquilæ	4	19 48 29	+ 2·94	6 3 44	+ 8·66	6 37
Pavonis	2	20 14 38	+ 4·80	S 57 10 34	+11·08	rises not
Cygni	2·1	20 36 42	+ 2·04	N 44 47 7	+12·66	sets not
Cephei....	3·	21 15 16	+ 1·44	61 59 50	+15·10	sets not
Aquarii	3	21 24 14	+ 3·16	S 6 10 50	+15·60	5 29
Cephei....	3	21 26 51	+ 0·80	N 69 57 3	+15·70	sets not
Aquarii	3	21 58 39	+ 3·08	S 0 59 38	+17·29	5 58
Gruis	2	21 59 27	+ 3·82	47 37 55	+17·16	rises not
Piscium Australis....	1·2	22 49 58	+ 3·33	30 21 29	+19·95	2 29
Pegasi (Markab)	2	22 57 50	+ 2·98	N 14 27 29	+19·30	7 27

General Tide Table,

By which the times of High Water may be CORRECTLY FOUND *on* ANY *Day.*

N.B.—ADD to the time of High Water in the Table in this Almanack, the Hours and Minutes in the Column opposite the Place required.

ENGLAND	H.	M.
Alderney Pier	7	35
Alne River	3	35
Barnstaple Bar	6	20
Berwick	3	8
Blakeney	7	40
Blythe	3	35
Boston	8	5
Bridgewater	7	35
Bridlington	5	20
Bridport	6	50
Carlisle	0	50
Chatham	1	44
Christchurch	9	40
Dartmouth	6	55
Exmouth Bar	7	15
Falmouth	6	20
Flamboro' Head	5	20
Flatholm	7	18
Fowey	6	20
Gravesend	2	20
Guernsey (Eng.Chan)	7	20
Hartlepool	4	35
Hull	6	50
Humber River	6	20
Ilfracombe	6	20
Ipswich	0	50
Jersey (En. Ch.)	7	0
Land's End	5	20
London Bridge	2	57
Longships	5	20
Lyme Regis	7	20
Needles Point	10	35
Newcastle	4	50
Penzance	5	20
Plymouth Dock	6	20
Poole	9	50
Portsmouth Dock	0	30
Ramsgate	0	36
Robin Hood's Bay	4	35
Scarborough	5	15
Scilly Islands	5	0
Sheerness	1	29
Shields	3	50
Southampton	0	30
Spithead	10	20
St. Ives	5	20
Sunderland	3	50
Tees River	4	20
Torbay	6	50
Tynemouth Bar	3	40
Weymouth	7	20
Whitby	4	35
Wisbeach	8	20
Yarmouth Roads	9	30
Yarmouth, Isle Wight	10	20

WALES.	H.	M.
Aberdovey	8	20
Aberystwith	8	20
Barmouth	8	45
Bardsey Island	9	5
Burrey Harbour	6	50
Cardiff	6	50
Cardigan Bar	7	50
Caermarthen Bar	7	0
Carnarvon Bar	9	50
Denbigh	3	5
Fisgard Bay	7	20
Milford Haven	6	35
Newport	7	35
Pembroke	6	54
Skerries	10	35
Smalls and Swansea	6	40
Strumble Head	7	5

IRELAND.		
Arklow	10	5
Baltimore	4	35
Bantry Bay	4	36
Broadhaven	6	50
Cork Harbour	5	20
Crookhaven	4	20
Donaghadee	10	5
Donegal Bar	5	55
Downing Bay	6	10
Dungarvon	5	20
Foyn's Island	4	50
Galway Bay	5	20
Kinsale	5	20
Limerick	6	50
Lough Swilly	8	20
Londonderry	6	50
Malbay	4	50
Newry	0	50
Port Rush	6	35
Saltees	6	30
Shannon	4	35
Skerries	5	35
Sligo Bay	5	35
Tory Island	6	50
Tralee Bay	4	35
Valentia Harbour	4	20
Waterford	6	40
Wexford	8	20
Wicklow	9	50
Youghal	5	50

SCOTLAND.		
Aberdeen	2	2
Banff	0	20
Buchanness	0	50
Burnt Island	3	20
Cromarty	0	35
Dee (River)	1	35
Dunbar	2	50
Dundee	3	5
Eyemouth	3	5
Leith Pier	3	10
Montrose	2	35
Tay Bar	2	35
Wick	10	5

SHETLANDS.		
Balta	3	50
Brassa Sound	10	50
Lerwick Harbour	10	35
Westra	0	50

ORKNEYS.		
Cairston	9	50
Fair Isle	10	50
Pomona	3	50
Ronaldsha	10	35

FOREIGN PORTS.		
Amsterdam	3	50
Antwerp	6	50
Bahia, Brazil	5	5
Bilboa, Spain	4	5
Biscay, Spain	5	20
Bonny River, Africa	5	50
Bordeaux	3	50
Bremen, Germany	6	50
Brest, France	4	38
Cadiz, Spain	3	20
Calabar, Africa	5	50
Calcutta	3	55
Carthagena, S. Amer	2	50
Charleston Bar, U.S.	7	50
Charante, France	4	50
Cape Coast, Africa	4	20
Cape Good Hope town	3	10
Fort St. John, N.A	9	50
Funchal, Madeira	1	5
Hamburg	6	50
Rio Janeiro, Brazil	3	30
St. John's, N.Foundl.	8	40
Lisbon	4	50
L'Orient, France	4	20
New York E. River	9	44
Oporto, Portugal	4	5
Panama, S. A.	3	50
Pernambuca, S. A	8	5
Philadelphia, U. S	3	50
Quebec, Canada	7	35
Rotterdam	3	50
Santa Cruz, S.A.	9	30
Whampoa, China	3	20

The Tides at the following places are nearly the same as the Tide-Table:—

Ardglass,	Chester	Dublin	Hastings	Mull of Galloway	St. Helen
Arran Island	Conway	Dumfries	Kingstown	Newhaven	Strangford
Bangor	Cowes	Dundalk	Killough	Pargate	Stromness
Balbriggan	Copeland Island	Dundrum	Kirkcudbright	Preston	Troon
Belfast	Deal	Folkstone	Lancaster	Pentland Frith	Warren's Point
Beaumaris	Dover	Glasgow	Liverpool	Ramsgate	Ulverston, and
Carlingford	Downs	Greenock	Maryport	Rothsay	Whitehaven.
Carrickfergus	Drogheda	Harwich	Margate	Roseness	

ISLE OF MAN INFORMATION.

Manx Legislature

he Hon. Charles Hope, Lieut.-Governor
c. to his Excellency.... James Burman

COUNCIL.

on.&Rt.Rev.H.Powys,D.D.,Lord Bishop
harles R. Ogden .... Attorney-General
on. W. L. Drinkwater, South. Deemster
on. J. C. Stephen, Northern Deemster
m. W. Christian ..... Water-Bailiff
on. Mark H. Quayle, Clerk of the Rolls
en. Joseph C. Moore ..... Archdeacon
homas Arthur Corlett.... Vicar General
mes Burman ..... Clerk of Council

HOUSE OF KEYS.

dw. Moore Gawne, Speaker, Kentraugh
obert John Moore, Secretary ..... Peel
hn F. Crellin ..... Orrisdale
van Gell ....Whitehouse
rederick J. D. Lamothe..... Ramsey
lexander Spittall.... ..... Laureston
ichard Quirk ..... . Rheaby, Patrick
rank Matthews .. .. Glenmoore
enry Murray..... Thornton
illiam Callister ..... Thornhill
. G. Bennett ..... Willaston
dward Curphey Farrant.. Ballakillingan
atrick T. Cuninghame .... . Ballanorris
eorge Goldie .. .. Marown
ohn Gell .... Kennaa
hilip Killey ..... . Douglas
ohn M. Jeffcott ..... Castletown
idgway Harrison..... Douglas
illiam Harrison ..... German
. F. Moore .. .. Cronkbourne
illiam Haslam ..... Ballaglass
illiam Farrant ..... Ballamoore
. S. Goldie Taubman..... Nunnery
dward Faulder..... Ellerslie

Committee of the Legislature

OR REGULATING ALL MATTERS RELATIVE TO HIGHWAYS, BRIDGES, &c.

V. Callister, E. Farrant, F. Matthews, Ridgway Harrison, and J. M. Jeffcott.

urveyor-General, R. Anderson, Douglas

Constituted Authorities

HIGH BAILIFFS.

ames Gell..... Castletown
enhouse Wilson ..... Douglas
Robert J. Moore ..... Peel
rederick Tellett..... ..... Ramsey

Coroner-General for holding Inquests of Death.... W. W. Christian, Andreas
Registrar of Deeds .. S. Wilson, Douglas
Registrar General of Births and Marriages ...James Burman, Castletown
Deputy Registrars do.—R. Harrison, Douglas; James Gell, Castletown; Robert J. Moore, Peel; F. Tellett, Ramsey
Episcopal Registrar, Rev. J.B. Kelly, M.A.
Deputy Episc. Registrar / Archdeacon's Registrar } R. H. L. Brown
Archdeacon's Official ..... T. A. Corlett
Seneschal ..... L. Adamson, Douglas
Crown Solicitor .. A. W. Adams, Douglas
Visiting Magistrate for Gaol of Castle Rushen ..... James Gell, Castletown
Regulator of Weights and Measures .. F. L. Gelling, Castletown
Agent for Woods and Forests ...F. C. Skrimshire, Douglas
Tithe Agent.....S. Harris, Douglas
Southern Deemster's Clerk, R. Harrison
Northern Deem. do., ...F. B. Clucas

Magistrates

The Members of the Council....
The High Bailiff of Castletown..
The High Bailiff of Douglas ....
The High Bailiff of Ramsey ....
The High Bailiff of Peel ..... } For the time being.

Thomas Moore ..... Ballown
Mark H. Quayle, C.R. ..... Castletown
Wm. Watson Christian ..... Ballacurry
James Campbell ..... New Zealand
Samuel Pollock .....Strathallan Lodge
Evan Gell ..... Whitehouse
Richard Quirk .... Rheaby
Cesar Bacon .... Seafield
William Callister..... Thornhill
Ewan Cameron..... ..... Ballatessen
Clarence Horatio Cary ....Beach House
John Frissell Crellin .... Orrisdale
Edward Moore Gawne.... ...Kentraugh
Alexander Taubman Goldie . ..Douglas
John Berkely Harrison ....Douglas
Richard Simpson ..... The Cliff
J. G. Bennett.. ..... Williston
P. T. Cunninghame .....Ballanorris
William Farrant ....Ballamoar
John Gell..... .....Kennaa
William Haslam .. . .Ballaglass
F. Matthews ....Glenmoore
W. F. Moore .....Cronkbourne
G. H. Newton ....Westham

CLERKS—James Spittall..... Douglas
Henry C. Gill.... Castletown
F. J. D. Lamothe .. Ramsey
John Kelly ..... Pee

Members of Manx Bar

* Members of the House of Keys.

William Corlett ....Ballamona
Thomas Arthur Corlett ..... Ramsey
Frederick Tellett, H.B. ..... Ramsey
Frederick L. Gelling .. ..Castletown
James Quirk ....Douglas

William W. Christian ..... Andreas
William Clague ..... Peel
Edmund G. Head ..... Douglas
Mark H. Quayle, C.R..... Castletown
George Wm. Dumbell ..... Douglas
* Frederick J. D. Lamothe ..... Ramsey
Henry B. Watts ..... Douglas
J. C. Stephen, Deemster ..... Ramsey
Frederick B. Clucas ..... Ramsey
John D. Gelling ..... Castletown
Edward Frizelle ..... Peel
Senhouse Wilson, H.B. ..... Douglas
Robert J. Kelly ..... Ramsey
* Robert J. Moore, H.B ..... Peel
Thomas C. Howard..... New Zealand
*John M. Jeffcott ..... Castletown
Laurence Craigie ..... Douglas
Edward C. Fleetwood ..... Douglas
*Ridgway Harrison ..... Douglas
Samuel Harris ..... Douglas
Edward Callow ..... Manchester
Charles J. Stewart .....
Chas. R. Ogden ..... Clifton
John Kelly ..... Peel
Thomas C. Callow ..... Douglas
James Gell, H.B..... Castletown
Daniel F. Wilson ..... Ramsey
J. G. M'Hutchin ..... Australia
James Spittall ..... Douglas
Alfred Walter Adams ..... Douglas
Frederick Call ..... Australia
James Burman ..... Castletown
A. N. Laughton ..... Douglas
Thomas A. Corlett, jun. ..... Ramsey
Laurence W. Adamson ..... Douglas
Henry C. Gill ..... Castletown
J. C. Tobin Harrison ..... Douglas
Richard Tuton ..... Peel
John Thomas Clucas ..... Castletown
Arthur Bluett ..... Douglas
Richard Sherwood ..... Douglas
Alured Dumbell ..... Douglas
Henry Evans Gelling..... Castletown

Notaries Public

DOUGLAS. — John Moore, Henry B. Watts, J.C.T. Harrison, Senhouse Wilson, James Spittall, Ridgway Harrison, T. C. Callow, A. N. Laughton

CASTLETOWN.—Frederick L. Gelling, H. C. Gill.

RAMSEY.—Fred. B. Clucas, Robt. J. Kelly

PEEL.—J. Kelly

Commissioner

To take Affidavits for Courts of Queen's Bench, Exchequer, and Common Pleas, Ireland—R. J. Kelly, Ramsey

Coroners

Glenfaba..... P. Clucas
Michael ..... Thomas Clarke
Garff ..... John Chrystal
Ayre ..... John Stephen
Middle ..... John Moore
Rushen ..... James Thomson

Sumners

Sumner-General ..... S. Harr
Kirk Maughold ..... John Brids
—— Lonan ..... Jas. Canno
—— Onchan ..... John Moo
—— Braddan ..... John Moo
—— Marown ..... T. Christi
—— Santon..... Wm. Corle
—— Malew ..... Wm. Corle
—— Arbory ..... Robert Shimm
—— Christ Rushen..... John Hods
—— Patrick ..... P. Cluc
—— German ..... Robert Kew
—— Michael ..... Edward Cann
—— Andreas ..... Matthias Curph
—— Bride ..... John Knea
Ballaugh ..... John Steph
Jurby ..... J. Mought
Lezayre..... John Ca

Chief Constables

Robert Rhodes ..... Castleto
John Sayle ..... Dougl
James Coole ..... Pe
Claude Bennett ..... Ramse

Officers of Customs

PORT DOUGLAS.

Collector..... R. D'Ouse
Collector's First Clerk .... N. W. Walk
Collector's 2nd Clerk and Assistant Landing-waiter ..... G. A. M'Cammo
Searcher, Landing-waiter & Coast-wtr. ..... John Smith.
Tide Surveyor ..... R. J. Weave
Locker and Weigher .. Terence Carro
Tide Waiters and Boatmen.. Wm. Kirk bride, J. Quine, R. Quine, John Kelly R. Gelling, and G. Wainman.

PORT RAMSEY.

Collector..... Robert Hic
Landing-waiter, Searcher, Coast-waiter, and Tide Surveyor .. .. G. A. Adam
Tide Waiters and Boatmen.. Thos. Corlet S. Farrington, and J. Quayle

DERBYHAVEN.

Principal Coast Officer .... R. Q. Crelli
Tide Waiters and Boatmen, W. Archer, J Watterson, W. Bell, and Jas. Lawson

PEEL.

Principal Coast Officer .. Leslie Lockha
Tide Waiters and Boatmen .. J. Cowle and J. J. Corlett

Customs Brokers

H. Johnson .... Market Place, Dougla
W. Berey ..... North Quay, Dougla

Harbour Masters

Castletown ..... J. Mylchreest
Douglas ..... {.... ..... John Clague / Deputy, Robert Gelling
Peel .... R. Kerruish
Port St. Mary ..... Thomas Qualtrough
Ramsey .... Charles Teare

Commissioners of Harbours

R. Quirk, Receiver General

R. D'Ousely
William Callister
James Corlett
John Smith
William F. Moore
Henry Graves
James Gell
Robert J. Moore
R. J. T. Quayle

Douglas Town Commissioners.

S. Harris, R. Sherwood, G. Torrance, W. Cannell, J. Mylrea, R. Gell, R. Craine, J. Kelly, N. S. Moore.

Receiver of Droits of Admiralty

R. D'Ousely. .... Douglas

Agents for Lloyd's

Southern District, R. Boardman, Douglas, *Also for the Underwriters of Glasgow and Liverpool*
Northern District .. Hugh Brown, Ramsey

Bankers

Bank of Mona, Douglas—(Draw on Prescott, Grote, & Co., London) — J. S. Jackson, Manager
Douglas and Isle of Man Bank—(Draw on Glynn, Mills, & Co., London)—Dumbell, Son, & Howard.
Bank for Savings, Atholl-street, Douglas —J. Spittall, Secretary

Law Courts

COMMON LAW.—*Castletown*, Feb. 12.—May 7—July 2—October 8—*Ramsey*, Feb. 19—May 14—July 9—October 15.

CHANCERY AND EXCHEQUER.—At Castle Rushen, on the first THURSDAY in each month; the months of Jan., August, and Sept. excepted; besides which, SPECIAL COURTS are held as occasion may require.

ADMIRALTY, OR WATER-BAILIFF'S.—At Castletown, weekly.

DEEMSTERS' SUMMARY.—At Castle-Rushen, Douglas, Ramsey, and Peel, every fortnight.

VICAR'S GENERAL.—At Douglas, Castletown, Peel, and Ramsey once monthly.

CHAPTER.—Half-yearly, in Spring and Autumn.

HIGH BAILIFFS'.—At Castletown, Douglas, Peel, and Ramsey, weekly.

BARON.—Held in April and October.

MAGISTRATES'.—Fortnightly.

Isle of Man Post-Office

Atholl Street, Douglas.... Miss Macadam

SUB-POST-OFFICES & RECEIVING HOUSES.

Duke Street, Douglas ..... Mrs. Carran
Pillar Letter Box, Osborne Terrace, Douglas
Shore Road, Douglas ..... W. Christian
Crescent, Douglas ..... Geo. M. Jones
Ballaughton, near Douglas.... J. Aspell
Ballasalla ..... H. Caugherty
CASTLETOWN .... George Duck
Wall Box, the Green, Castletown..
Port St. Mary ..... Miss Harley
Union Mills .... W. Dalrymple
Crosby ..... R. Kelly
St. John's ..... Mary Quayle
PEEL ..... John Morrison
Onchan ..... J. Lewin
Laxey ..... J. Kinley
RAMSEY .... John Hampton
Wall Box, Sandy Road, Ramsey .,
Kirk Andreas..... .. Fred. Radcliffe
Sulby ..... W. H. Ward
Ballaugh ..... J. C. Bishop
Michael..... .....J. Cannan
Jurby ....A. Joughin
St. Mark's..... ..... . P. Mylrea
Foxdale ..... E. Buzzo
Glenmay .... W. Quayle
Maughold ..... D. Kinrade
Bride .... R. Pass
Colby .... H. Moore
Port Erin ..... H. McComb

LIVERPOOL INFORMATION.

Pilot Boat Stations.

NOTICE.—From the Liverpool Pilot Boats is shown a single Light at the Mast Head.

The boat having the turn to board displays a red and white Flag at the masthead by day; by night, a white light, and exhibits a flare-up light every 15 minutes; the other boats a white light only.

The TWO western boats cruise off Point Lynas, and as far to the westward as the Middle Mouse, and to the eastward until Priestholm Island bears S.S.W.

The THIRD western boat cruises from Point Lynas to S.S.W, of West end of Great Ormshead, to board any vessels that may pass the first and second boats.

The FOURTH western boat cruises from eastern limit of third boat's station, and eastward to N.N.E. from west end of Bar Land.

The FIFTH, or first Hoylake boat, cruises to the westward so as to keep sight of the Northwest Light-Ship from the deck.

The SIXTH, or second Hoylake boat, to board vessels after they pass the line of the Northwest Lightship and Point of Air, when the first boat is not within a reasonable distance, and after high water to take pilots from vessels outward bound

Rates of Pilotage

For British Vessels trading Foreign.

INWARD. PER FOOT.	s.	d.
From the length of the west end of the Great Ormshead, bearing S. by W., or before Penman Bachan be shut in with the Great Ormshead, at the rate of	9	0
From the eastward of the Great Ormshead, as above..... ...	8	0
From the only house now on Great Hilbre Island, bearing S.S.W. by the compass, or shall be piloted from the road of Hoylake only, or from the Buoy of the Fairway in Formby Channel	4	0

OUTWARD.

	s.	d.
Whether through the Rock or Formby Channel	4	0

No British vessel, trading to Foreign Parts, inward or outward bound, is to refuse a Pilot; but if such vessel has passed the Brazil Buoy in the Rock Channel, or the Middle Patch Buoy in Formby Channel, or if a Pilot-boat falls in with a vessel in the narrows of the Channels in stormy weather, that she cannot board her without eminent danger, the pilot shall then lead the way, and in either case be entitled to such Pilotage as shall be awarded by the Committee at their next meeting.

For Alien Ships and Vessels.

INWARD.

	s.	d.
From the length of the Great Ormshead, as above, at the rate of....	12	0
From the eastward of the Great Ormshead as above	11	0
From the only House now on Great Hilbre Island, &c., as above	5	6

OUTWARD.

	s.	d.
Whether through the Rock or Formby Channel	7	0

An Alien vessel, inward or outward bound, is not to refuse a Pilot, as circumstances are described for English-Foreign vessels as above.

For coasting Vessels, and those trading to and from Ireland, the Islands of Faro or Ferro, Jersey, Guernsey, Alderney, Sark, and Man.

INWARDS.

	s.	d.
From the length of the Great Ormshead, as above, at the rate of	4	6
From the eastward of the Great Ormshead, as above	4	0
From the only House now on Great Hilbre Island, &c. as above	2	0

OUTWARD. PER FOOT

	s.	d.
Whether through the Rock or Formby Channel	2	

No coasting vessel to pay for less than eight feet of water, nor any vessel to pay for odd inches under half a foot. No coasting vessel, inward or outward bound of the burthen of one hundred tons or upwards, (unless she be in ballast,) is to refuse a Pilot, as the master or owner &c. must pay the full Pilotage, if one is offered. No vessel to be deemed a coaster unless she has been six months in the trade.

EXTRA PAY PER DAY

	s.	d.
For every day of attendance whilst in the River, except the day of going to sea with such ships or vessels as shall be outward bound, and the day of returning from sea and the day of docking for such as shall be inward bound	5	
And if the attendance of a Pilotboat be requested	42	

Though the Pilot or boat be not employed a whole day, to be paid for a day

CHARGES ON THE MERSEY.—For taking a vessel from one dock to another, £1 from Liverpool to Birkenhead, £1 10s. from Liverpool to Garston, £2, and vice versa.

Pilots' Rules and Regulations

Any person acting as Pilot without license, to forfeit £20.

Pilots refusing to conduct or assist ships in distress, to forfeit £10, and license.

Masters of Vessels forcibly taking Pilots beyond the limits of port, to forfeit no more than £20, nor less than £5.

Pilots misbehaving to have their licenses recalled, and if they act afterwards the same penalties as if they were not Pilots.

Vessels liable to pay pilotage coming into port, to display signal for a Pilot under a penalty of £5.

Reward for Pilots assisting ships in distress to be settled by the Committee.

Compensation to be made to Pilots for taking vessels out of port which have been forced back, to be fixed by the Committee.

When in stormy weather, a vessel cannot be boarded with Pilots' small boat, the vessel should be steered with the wind on the quarter, the yards braced by, when the large boat sheers under the lee quarter and the Pilot jumps on board.

Pilot Boats, Masters, &c.

NAMES.	FIRST AND SECOND MASTERS.
Queen (schooner)..	Wm. Hughes, Fairfield-crescent, Fairfield R. Taggert, 26, Queen's Road, Breck Road.
Leader (schooner)..	Joseph Powell, Stafford-st.; John Currin, 173, Duke-st.
The Duke (schooner)	J. Williams, Liscard, Cheshire; Thomas Parry, Field-st.,
Auspicious (cutter) .	J. Shepherd, 40, Wesley-st.; C. Christie, Upper Warwick-st.
Victoria and Albert .	Isaac Williams, 29, Roscommon-street; Hugh Jones, 66, Everton-brow
Pioneer (schooner)..	T. Parry, 18, Stafford-st.; T. Davies, 133, Field-st.
George Canning ..	W. Rowlands, Gt. Mersey-st. North; T. Thompson, 9, St. Vincent Street East.
Albert Edward, Prince of Wales	John Bark, Stanley-crescent, North-shore; John Blackley, Sidney-road, Tranmere
Liver (cutter)....	T. Crane, 3, Gt. Oxford-st.; W. Lancaster, Rock View, Bootle
Criterion (sch.) ..	J. Wilson, 146, Falkner-st.; H. Williams, 16, Percy Street.
Mersey (cutter)..	Richard Parry, Cazneau-st.; R. Williams, 102, Field-st.
Perseverance (cut)..	H. Woodward, Woodside, Cheshire; G. Bark, 37, Bevington Hill

Superintendent of Pilots, Robert J. Simpson, Holt Hill, Cheshire.

The Pilot Committee meet for the transaction of business, every Monday, at 12 lock, at the Committee Room, South End of Prince's Dock.

Life-Boats

All masters and others, entering or irting the port, and requiring the assis-nce of the Life Boats are requested to ist the Distress Signal, in order that y may be dispatched to their assistance soon as possible. Vessels aground on e Banks, and not hoisting the Distress gnal, will be supposed not to require e assistance of the Life Boats.

Life Boat Stations

At Liverpool, on the North Landing age, and on the North Pier of the nce's Basin, two boats; the key kept the Marine Surveyor's Office, Custom-use, at the Dock Master's Office, Water-o Dock, and at the Life Boat Master's use, Pownall Street. Magazines, two ats; the key kept at the Life Boat aster's house. Hoylake, one boat; the y kept at the Lower Hoylake Light-use. Point of Air, two boats; the key ept at the Master's house. Formby, one boat; the key kept at the Life Boat House by the keeper. Hilbre Island, one boat.

Bidston Hill Signals

SIGNALS OF DISTRESS.—For vessels in distress or on shore in the Rock Channel, or about Hoyle—Coming in: On the oblique pole to the southward of the lighthouse—for every ship, a ball with a flag half mast; for every snow, a cone, broad end up and a flag half-mast; for every brig or small vessel a cone small end up and a flag half-mast. Going out: the same as above, but a broad pendant instead of flag.

N,B. For vessels in distress to the southward, when on shore to the main, the ball or cone to be put on the outside of the flag or pendant; but if on shore on Holye Bank, then the ball or cone to be put on the inside of the flag or pendant.

In Formby Channel.—The same signals to the northward of the Lighthouse.

Mersey Docks and Harbour Board.

OFFICERS.

Mr. John North, Solicitor,—Office, Dock Office.
Mr Jesse Hartley and Mr. John Bernard Hartley, Engineers of the Docks, &c.—Office, south side of Cobourg Dock.
Mr. Daniel Mason, Secretary.
Mr. G. J. Jefferson, Treasurer.
Lieut. M. T. Parks. R.N., Marine Surveyor.—Office, Dock Office.
Mr. G. Hamlin, Water Bailiff.—Office, George's Pier.
Mr. Wm. Marrow, Receiver of Duties on Tonnage.
Mr. John Evans, Receiver of Duties on Goods Inwards.
Mr. William Laidlau, Receiver of Duties on Goods Outwards.
Mr. T. L. Burgess, Receiver of Duties on Goods Coastwise.
Mr. Richard Jones, Receiver of Duties at Runcorn.
Mr. R. Cowan, Superintendent of Albert and Wapping Dock Warehouses.
Mr. W. D. Turner, Superintendent of Stanley Dock Warehouses.

OFFICERS CONTINUED.

Thomas Hodgson, Harbour Master.—Office, George's Dock Passage.

Henry T. Cox, North Assistant Harbour Master.
John Garniss, South ditto ditto
James Hookey, ditto ditto, Birkenhead.

Dock Masters

Canada..... ..... Edward Carey
Huskisson..... .... Hugh Ross
Sandon..... .....H. T. Barnes
Wellington & Half-tide.. Shad. Williams
Nelson and Bramley-Moore.. Wm. Foyl
Salisbury, Collingwood, and Stanley..... ... .John Ashton
Clarence Half-tide, Clarence, and Trafalgar ..... Thomas Stirzaker
Waterloo and Victoria..... Henry Rea
Prince's..... ..... William Asbridge
George's.....Charles Purnell
Canning and Half-tide....Thos. Prenton
Albert and Salthouse Docks, and Wapping Basin..... Thomas Herbert
King's and Wapping..... Joseph Curry
Queen's and Half-tide.....Joseph Wood
Coburg..... John Curry
Brunswick..... J. H. Henrichson
Toxteth and Harrington.. Thomas King

The Dock Masters' Offices are at the entrance of the respective Docks.

Dock and Basin Signals

All vessels are allowed to enter the docks, when signals are not hoisted at the respective pierheads. All owners, masters, and consignees are, however, recommended to register their vessels as expeditiously as possible, in order the better to secure their right of turn to accomodation at the dock quays.

DOCK SIGNALS.

HUSKISSON—Flag on N. pier of Sandon Basin entrance.

SANDON—Flag on N. side of gateway.

WELLINGTON AND HALF-TIDE—Flag on S. pier of Sandon Basin entrance

NELSON AND BRAMLEY-MOORE—Flag on N. pier of Salisbury Dock entrance

SALISBURY, COLLINGWOOD, AND STANLEY—Flag on S. pier of Salisbury Dock entrance

CLARENCE AND HALF-TIDE—Flag on N. pier of Clarence Half-tide entrance

TRAFALGAR—Flag on S, pier of Clarence Half-tide Dock entrance

WATERLOO AND VICTORIA—Flag on N. pier of Prince's Basin entrance

PRINCE'S, NORTH ENTRANCE—Flag on S. pier of Prince's Basin entrance

PRINCE'S, SOUTH ENTRANCE—Flag on N. pier of George's Basin entrance

GEORGE'S—Flag on S. pier of George's Basin entrance

CANNING AND HALF-TIDE—Flag on N. pier of Canning Half-tide entrance

ALBERT AND SALTHOUSE—Flag on S. pier of Canning Half-tide entrance

KING'S—Flag on N. pier of King's and Queen's Basin entrance

WAPPING—Flag on N. end of the King's Parade

QUEEN'S—Flag on S. pier of King's and Queen's Basin entrance

COBOURG—Flag on S. pier of Cobourg entrance

BRUNSWICK—Flag on S.side of entrance

TOXTETH—Flag on N. side of entrance

HARRINGTON—Flag on S. side of entrance

BASIN SIGNALS.

SANDON—Ball on the north side

PRINCE'S— Ball on S. pier of entrance

GEORGE'S—Ball on S. pier of entrance

Abstract of Dock Laws

Goods causing obstruction on the Dock quays, may be removed by the Trustees at expense of owners.

Such a quantity of cargo or ballast to be kept on board each vessel as to enable it to be safely removed; penalty £50.

Harbour and Dock Masters may remove vessels in dock, or from one dock to another, at owners' expense; penalty for obstructing them, disobeying their orders, or using abusive or offensive language to them, £10.

Vessels on which dues, &c., are owing, may be detained until such are paid.

Shipowners have a lien for freight and all other lawful claims on goods discharged into dock warehouses.

Manifest of all goods imported or exported to be delivered at the dock Office within 14 days after the discharge inwards or clearance outwards: penalty £20.

Collector, &c., not to receive entry of any vessel until the dock and light duties are paid; penalty £20.

No ballast to be thrown into the docks; penalty £2.

After ballast is discharged to be carted away as the trustees of the docks shall appoint; penalty £2.

Vessels not to come into dock under sail; penalty £5.

Persons wilfully & maliciously damaging docks, &c. adjudged guilty of felony.

Water-bailiff empowered to remove vessels lying in the river; penalty for obstructing him £10.

Persons firing cannon, &c. within the port, (except signal guns of distress) to forfeit £10 for every offence.

Width of the various Dock Entrances at Liverpool and Birkenhead, with the Depth of Water at their respective Sills below the Old Dock Sill.

Names of Docks, &c.		Width of Entrance.			Sill below Old Dk. Sill		
		ft.	in.	pts.	ft.	in.	pts.
Canada Dock Gates (500 feet Lock)		100	0	0	7	9	0
Ditto, South Entrance	East Gates	50	0	0	6	6	0
Ditto ditto	West Gates	80	0	0	6	6	0
Huskisson Dock	East Lock Gates	80	0	0	6	6	0
Ditto	West Lock Gates	45	0	0	6	0	0
Sandon Dock Gates		70	0	0	6	6	0
Wellington half-tide Dock	East Gates	70	0	0	6	9	0
Ditto	West Gates	50	0	0	6	6	0
Wellington Dock Gates		70	0	0	6	0	0
Bramley Moore Dock	North and South Gates	60	0	0	6	0	0
Nelson Dock	South Gates	60	0	0	6	6	0
Stanley Dock Gates		51	0	0	5	8	0
Collingwood Dock Gates		60	0	0	6	9	0
Salisbury Dock	North Gates	60	0	0	6	1	0
Ditto	South Gates	50	0	0	6	11	0
Clarence Graving Dk. Basin	North Gates	45	0	0	4	19	0
Ditto	South Gates	45	0	0	4	6	0
Ditto half-tide Dock	West Gates	50	0	0	5	6	0
Ditto Dock Gates		47	0	0	3	2	0
Trafalgar Lock	North and South Gates	45	0	0	6	7	0
Ditto Dock	South Gates	45	0	0	4	1	0
Victoria Dock	South Gates	40	0	0	4	11	0
Waterloo Lock	North Gates	45	0	0	6	15	0
Ditto	South Gates	45	0	0	6	8	0
Prince's Dock	North Gates	45	0	0	5	1	0
Ditto	South Gates	44	1	0	5	11	0
George's Dock	North Gates	41	11	0	4	16	0
Ditto	South Gates	40	11	0	4	6	0
Canning Dock	West Gates	45	0	0	6	3	0
Ditto half-tide Dock	North and South Gates	45	0	0	6	4	0
Albert Dock	North Gates	45	0	0	6	4	0
Ditto	East Gates	45	0	0	6	0	0
Salthouse Dock	North Gates	45	0	0	6	0	0
Ditto	South Gates	50	0	0	6	0	0
Wapping Basin	West Gates	40	0	0	6	0	0
Ditto Dock	North and South Gates	50	0	0	6	0	0
King's Dock	East Gates	50	0	0	6	0	0
Ditto	South Gates	42	0	0	5	0	0
Queen's half-tide Dock	North Gates	70	0	0	6	9	0
Ditto	South Gates	50	0	0	6	9	0
Queen's Dock	West Gates	50	0	0	6	0	0
Ditto	South Gates	60	0	0	6	6	0
Cobourg Dock	West Gates	70	1	0	6	0	0
Brunswick Dock	North Gates	60	0	0	6	6	0
Ditto	West Gates	42	0	0	5	6	0
Ditto half-tide	West Gates	45	0	0	6	0	0
Toxteth Dock Gates		40	0	0	5	0	0
Harrington Dock Gates		29	9	0	1	2	0
BIRKENHEAD DOCKS.							
Morpeth Dock	East Gates	50	0	0	5	0	0
Ditto	West Gates	70	0	0	5	0	0
Egerton Dock	West Gates	70	0	0	5	6	0

GRAVING DOCKS.	Width of Entrance. ft.	in.	Sill below Old Dock ft.	in.	GRAVING DOCKS.	Width of Entrance. ft.	in.	Sill below Old Dock ft.	in.	pts
Canada (500 feet Lock)	100	0	7	9	Queen's, No. 1,	42	0	1	8	0
Huskisson Lock	80	0	6	6	Ditto No. 2, Bottom	42	0	1	8	0
Sandon, No. 1, East	60	0	3	6	Ditto No. 2, Top	70	1	1	8	0
Ditto No. 2,	70	0	3	6	Canning, No. 1,	35	9			
Ditto No. 3,	60	0	3	6	Ditto No. 2,	35	9	0	0	7
Ditto No. 4,	70	0	3	6	Clarence, No. 1, Old Part	45	0	3	0	0
Ditto No. 5,	45	0	3	6	Ditto No. 1, New Part	45	0	0	6	0
Ditto No. 6,	45	0	3	6	Ditto No. 2, Old Part	45	0	3	0	0
Brunswick, Nos. 1 and 2	42	0	2	6	Ditto No. 2, New Part	32	10	0	6	0

The Sill of Canning Graving Dock, No' 1, is 1ft. 8in. 8pts. *above* the Old Dock Sill.

Extent of the Liverpool Docks

Total Water Area of the Liverpool Docks and Basins ..... 225 Acres, 4274 yards
Total Quay Space .... 16 miles, 1732 yards

Graving Dock Rates

FOR	£ s.	£ s.	£ s.
2 Tides, the tide in & next tide out	Vessels under 50 tons. 1 16	50 and under 100. 2 2	For every progressive 50 tons. 0 6
3 ——, includ. going in & coming out	2 2	2 9	0 7
4 ——	2 8	2 16	0 8
5 ——	2 14	3 3	0 9
6 ——	3 0	3 10	0 10
7 ——	3 6	3 17	0 11
8 ——	3 12	4 4	0 12
9 ——	3 18		
10 ——	4 4		
11 ——	4 10		
12 ——	4 16		
2 Neaps	12 0	16 0	2 0
3 ——	18 0	24 0	3 0
4 ——	24 0	32 0	4 0
5 ——	30 0	40 0	5 0
6 ——	36 0	48 0	6 0
7 ——	42 0	56 0	7 0
8 ——	48 0	64 0	8 0

Latitude and Longitude of Liverpool

N. Lat. of Observatory .... 53°24′ 47″·8
W. Lon. ditto .... 0h 12m 0s·11

A Tide-Guage Table for the Entrance of the Mersey,

Adapted to shew the *Height of Wate* above low-water level of ordinary Spring Tides, at any required period.

When it is High Water at or near either of the following times.	H. W.	Last ¼ h. flood, or first ¼ h. ebb.	5 hours' flood, or 1 hour's ebb.	¾ flood, or ¼ ebb.	4 hours' flood, or 2 hours' ebb.	3½ hours' flood, or 2½ hs.' ebb	Half-Tide.	2½ hours' flood, or 3½ hs.' ebb.	2 hours' flood, or 4 hours' ebb.	¼ flood, or 3¼ ebb.	1 hours' flood, or 5 hours' ebb	1st ¼ h. flood, or last ¼ h. ebb
hour.	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*
12 o'clo	30	29	27	25	22	19	16	13	10	8	5	3
11 or 1	29	28	27	25	22	19	16	13	10	8	6	4
10 or 2	27	26	25	24	21	19	16	13	11	9	7	6
9 or 3	26	25	24	23	21	18	16	13	11	9	8	7
8 or 6	25	24	23	22	20	18	16	14	12	10	9	8
7 or 5	24	23	22	21	20	18	16	14	12	11	10	9
6	23	22	21	20	19	18	16	14	13	12	11	10

Computed Distances from George's Dock Pier-head to several parts of the River, &

	Miles.	Yds.		Miles.	Yds.		Mile
Magazines	2	1050	Woodside.....	0	1500	Egremont	
Rock Perch..	3	150	Hoylake	9	0	Eastham	
Northwest Buoy ..	14	0	Tranmere	1	900	Weston Point	1
Floating Light	15½	0	New Ferry	3	0	Runcorn	1

CUMBERLAND INFORMATION.

Members of Parliament, &c.

WHITEHAVEN.—George Lyall, Esq., 17, Park Crescent, Regent's Park, London, N.W.

COCKERMOUTH.—John Steel Esq., 13, Bury Street, London. Lord Naas, 79, Eccleston Square, Palmerston House, London.

EASTERN DIVISION.—Hon. Chas. W.G. Howard, Naworth Castle; 56, Park-street, Grosvenor Square, London. W. Marshall, Esq., Paterdale Hall; 85, Eaton Square, London.

WESTERN DIVISION.—General Wyndham, United Service, 4, Grosvenor Place. H. Lowther, Esq., 21, Wilton Crescent, London.

CARLISLE.—Sir James R. G. Graham, Netherby, 46, Grosvenor Place, London, S.W.. Wilfred Lawson, Esq., Braytow, Boodles, London, S.W.

Lord Lieutenant ..... Earl of Lonsdale.
Clerk of the Peace.. T. H. Hodgson, Esq.
County Treasurer, Mr. Dobson, Carlisl
Gov. of Gaol.. Mr. T. H. Redin, Carlisl
County Coroners.. { Wm. Carrick, Esq. / W. Lumb, jun., Es

Quarterly Sessions

Easter, in the first week after 31st Marc
Midsummer, first week after 24th June
Michaelmas, first week after 11th Oct.
Christmas, first week after 28th Dec.

The Easter, Midsummer, Michaelma and Christmas Sessions for Cumberlan are held at Carlisle.

Post Office, Whiteheaven

JOHN GIBSON, POSTMASTER.

ARRIVALS.—*Week days.*— London an all parts, 9h. 25m. a.m., 8h. 30m. p.m *Sundays.*—London and all parts, 10h 40m. a.m.

DESPATCHES.—*Week days.*—Local parts 10h. 15m. a.m.; North mail, 2h. 35m

and South and North at 6h. 15m. p.m. *Sundays.*—Local parts at 11h. 30m. a.m. London and all parts 7h. 50m. a.m., and 5h. p.m.

The deliveries by letter-carriers commence, during the week, at 10h. 15m., a.m., and 8h. 45m., p.m.; and on Sundays at 12h. 45m. p.m.

For ten minutes after the box is closed for the despatch of the Mails, letters bearing one additional stamp will be forwarded. No Postage or fee in money can then be taken.

POST OFFICES IN CONNECTION WITH THE WHITEHAVEN POST OFFICE.

* Empowered to grant and pay Money Orders.

Beckermont	J. Gilliot, Receiver
Bootle.....	William Smith, ditto
Calderbridge.. ...	Mary Moore, ditto
Cleator.....	Jos. Harkness, ditto
*Cleator Lane End, Cleator Moor	ditto
Distington	John Bell, ditto
* Egermont ..	Grayson Selkirk, ditto
Eskdale	William Russell, ditto
Gosforth	Peter Leech, ditto
* St. Bees ..	William Finlinson, ditto
Hensingham	Jos. Sumpton, ditto
Holm Rook.....	J. Birkett, ditto
Parton.....	E. Lightfoot, ditto
* Ravenglass ..	Henry Jackson, ditto
Sandwith	J. Fisher, ditto
Waberthwaite.....	J. Woodall, ditto
Wasdale	O. Pharoah, ditto

Bankers

WHITEHAVEN.—The Whitehaven Joint Stock Banking Company, Peter Cameron, Manager,—London Joint Stock Bank, 5, Prince's Street.

Bank of Whitehaven, G. W. Brown, Manager.—Price, Marryat, & Co., 54, King William Street, City.

J. M. Head & Co.'s (of Carlisle) Branch Bank, W. Miller, Manager.—Masterman & Co., 35, Nicholas Lane, London.

Savings Bank.—Open Saturdays from 6 to 8, p.m.—F. J. Lowes, Sec.

WORKINGTON. — Cumberland Union Banking Company, W. B. Gordon, Manager.—Barclay, Bevan, & Co., 54, Lombard Street.

MARYPORT.—Branch of the Cumberland Union Banking Company, William Ostle, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

COCKERMOUTH.—Branch of the Cumberland Union Banking Company, Jonathan Cooper, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

WHITEHAVEN AND WEST CUMBERLAND BENEFIT LAND AND BUILDING SOCIETY.—Public-office, Lowther-street; open on Saturdays from six to eight, p.m,—S. Armstrong, Secretary.

The Whitehaven and Furness Junction Railway

Trains leave Bransty Station four times daily (Sundays excepted) for Ravinglass, Broughton, Fleetwood, Preston, Manchester, Liverpool, &c. This is the nearest route to Preston, Manchester, Liverpool, &c.—(*See West Cumberlend Railway Guide.)*

The Whitehaven and Maryport Junction Railway

Trains leave Barnsty Station four times daily (Sundays excepted) for Workington, Maryport, Wigton, Carlisle, and Cockermouth; three times daily for Edinburgh, London, Birmingham, Liverpool, Manchester, Preston, Newcastle, York, and Darlington.—(*See West Cumberland Railway Guide.*)

The Whitehaven, Cleator, and Egremont Railway

Trains leave Whitehaven three times daily (Sundays excepted,) for Cleator Moor, Frizington, Woodend, and Egremont.—(*See West Cumberland Railway Guide.)*

Steamers and Traders

LIVERPOOL.—The Whitehaven Steam Navigation Company's powerful and commodious first-class steamer sails regularly with goods and passengers.—Fares: Cabin, 8s., Deck, 4s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Liverpool at a through fare. Those from Carlisle, &c., arrive at Whitehaven by the last train before the steamer's sailing, and those from Liverpool being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and Second class, 10s.: Deck and Third class, 4s. Agents—Carlisle, Edward Jobling; Liverpool, Fisher, Wilson, & Co.; Whitehaven, J. and J. Hodgson.

BELFAST. — The Whitehaven Steam Navigation Company's steamer sails regularly with goods and passengers,—Fares: Cabin, 10s., Deck, 3s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Belfast, at a through fare. Those from Carlisle, &c., arriving

in Whitehaven by the last train before the steamer's sailing, and those from Belfast being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and Second class, 12s., Deck and Third class, 5s. Agents—Belfast, R. Henderson and Son Donegal Quay; Carlisle Edward Jobling; Whitehaven, J. & J. Hodgson.

DUBLIN.—The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers. Fares: Cabin 15s., Deck, 6s. Passengers and goods are conveyed between Carlisle, Dalston, and Wigton, to Dublin, at a through fare, arriving in Whitehaven by the last train before the steamer's sailing, and those from Dublin being forwarded by first train after the steamer's arrival in Whitehaven. Agents—Allen Nicholl, Dublin; Whitehaven, J. and J. Hodgson.

DOUGLAS.—The Whitehaven Steam Navigation Company's steamer sails regularly during the summer months to Dublin, calling at Douglas, Isle of Man, to land and receive passengers (weather permitting). Eares: cabin, 6s., deck 3s. Agents:—William Berey, Douglas; J. and J. Hodgson, Whitehaven.

RAMSEY, ISLE OF MAN.—The steamer "Manx Fairy," sails regularly once a week during the summer months, and once a fortnight during the winter months between Whitehaven and Ramsey—Fares Saloon, 4s.; Fore Cabin, 2s. 6d.—Agents, John Kitchen, Whitehaven; W. Crennell, Ramsey.

LONDON. — The Whitehaven Steam Navigation Company, in connection with the Belfast Screw Steam Company, sail a vessel once a week. Agents—Belfast, Robert Henderson; London, Ogilbey and Moore, Ingram Court, Fenchurch Street; Whitehaven, J. and J. Hodgson

DUNDRUM. — The "Annsbro'," and "Robert Burns," screw steamers, sail regularly between Dundrum and Whitehaven. Agents—Chas. Fisher & Co., 36, King Street, Whitehaven.

DOUGLAS, ISLE OF MAN.—The smack "Black Diamond," Capt. Joseph Skelly, sails regularly once a week with goods between Whitehaven and Douglas.

Carriers

Leave Whitehaven for Harrington, Workington, Cockermouth, Keswick, and Egremont, every Tuesday, Thursday and Saturday; for Wigton, every Wednesday; and for Gosforth, every Tuesday, Thursday, and Saturday.

Rates for the Steam Tug "Prince Albert"

Vessels employed in the Coal or Coasting Trade, shall pay every voyage, on clearing for sea, one half-penny per Ton Register. Vessels arriving from a Foreign Port or from a Discharging Port, one penny per ton register.

Vessels engaged in the Coal or Coasting Trade, pay an additional half-penny per ton when they require the use of the Steam Tug, Outward, and the same, Inwards.

Foreign Vessels as above, one penny per ton.

That the limits for towing vessels into, and out of the harbour for one half-penny and one penny per ton respectively, be as follows, viz.:—say a line drawn from St. Bee's Head to Mickleham Pit, on the Hill north of Parton. and two lines intersecting the above, from Redness Point and Tom Hurd Rock, bearing N.W. by N. and S.E. by S. by compass.

If the vessel first in turn be not afloat, or not ready for the Tug Boat, then she is to take the first that is.

Vessels wanting the use of the Steam Tug, are to hoist the Union Jack on the Main Top Gallant Mast Head.

Harbour Boat Rates

A boat is stationed at the Old Quay Watch-House to attend on vessels entering the Port, and also to give assistance to those outward bound, charges are as follows, viz.:—

	s.	d.
Vessels of 100 waggons and upwards	5	0
Vessels from 90 to 100	4	0
Vessels from 50 to 90	3	6
Vessels from 30 to 50	3	0
Vessels from 20 to 30	2	6
Vessels from 15 to 20	2	0
All vessels less than 15	1	6
FOREIGN LADEN VESSELS,		
Under 120 tons	5	0
Above 120 tons	7	6

The Harbour Boat to be paid as above by all vessels entering the port; but if not employed by those leaving it, no charge to be demanded.

Rates for the Gridiron

Every vessel, previous to going on, must be entered at the Harbour Office, and payment made according to the established rates, for which she may remain on four tides, counting the tide going on and the tide coming off.

	On Entry s	On Entry d	Every Tide above four s	Every Tide above four d
Vessels not exc. 100 tons	5	0	1	0
Above 100 & not exc. 150	7	6	2	0
.. 150 200	10	0	2	6
.. 200 250	15	0	3	9
.. 250 300	20	0	5	0
.. 300	26	0	7	0

MISCELLANEOUS INFORMATION.

Eclipses, 1861.

During the year there will be three Eclipses of the Sun, one of the Moon, and a ransit of Mercury over the Sun's disc.

Greenwich mean time.

First—An annular Eclipse of the Sun on the 11th of January; the line of annular perance will commence in the Indian Ocean at 39m. past 1 in the morning, and ssing over Australia, end in the Pacific at 19 minutes past 5; but no part of the clipse will be visible in Europe.

Second— An annular Eclipse of the Sun on the 8th July, also invisible in Europe; e annular appearance will commence in the Indian Ocean at 21 m. past midnight of e 7th, and end at 59m. past 3 in the morning of the 8th, in the South Pacific.

Third— A partial Eclipse of the Moon on the 17th December, the first contact with e Earth's dark shadow will take place at 27m. past 7 in the morning, middle of the clipse 18m. past 8, when nearly one fifth of the Moon's diameter will be in the adow; last contact 9m. past 9; at Douglas the Moon will set at 46m. past 8. This clipse will be visible here until the Moon sets.

Fourth—A total Eclipse of the Sun on the 31st December, visible either as a total or rtial, in Europe, Asia, Africa, and America. The line of total Eclipse will com-ence near the north end of Cuba at 18 m. past 12, noon, thence along the coast of uth America to Tobago, and crossing the Atlantic into Africa, near Cape Verd, and er Africa, will end in the Mediterranean, near Corfu, at 19m. past 3 in the afternoon. Europe generally it will appear as a partial Eclipse. The following is the result of lculations made for the undermentioned places.—

	BEGINNING.	MIDDLE.	ENDING.	MAGNITUDE.
reenwich	1h. 51m., after.	2h. 53m., after.	3h. 51m., after.	0.466
verpool	1h. 49m., ,,	2h. 48m. ,,	3h. 45m. ,,	0.410
hitehaven.. .	1h. 48m., ,,	2h. 46m. ,,	3h. 42m. ,,	0.390
istol	1h. 49m., ,,	2h. 51m. ,,	3h. 49m. ,,	0.450
blin	1h. 46m., ,,	2h. 45m. ,,	3h. 41m. ,,	0.380
linburgh	1h. 49m., ,,	2h. 46m. ,,	3h. 39m. ,,	0.374
uglas.....	1h. 48m., ,,	2h. 46m. ,,	3h. 42m. ,,	0.378

Transit of Mercury—This Planet will apparently pass over the Sun's disc on the th November; the first contact or ingress will take place at 16 m. past 5 in the orning; middle or nearest distance of centres 11′, at 17 m. past 7; Sunrise at Dou-as 43m. past 7; egress or end of Transit 19m. past 9. The next Transit of Mercury ill take place on the 6th May, 1878.

Quarters of the Year.

ring Quarter commences	on the 20th March,	at 2h. 48m. aftern.	—⊙ enters ♈
mmer Quarter	,, 21st June,	at 11h. 35m. morning	—⊙ enters ♋
tumnal Quarter	,, 23rd September,	at 1h. 48m. morning	—⊙ enters ♎
nter Quarter	,, 21st December,	at 7h. 35m. evening	—⊙ enters ♑

Chronological Notes

nar Cycle or Golden Number	19	Septuagesima Sunday	January 27
pact.....	18	Lent begins	February 13
lar Cycle	22	Easter Day..... ...	March 31
minical Letter	F	Ascension Day	May 9
man Indiction	4	Trinity Sunday.....	May 26
lian Period.....	6574	Advent Sunday	December 1

The Revolutions, Distances, &c., of the Planets

Names.	Periodical Revolution.					Mean distance from Sun.	Diameter.	Time of Rotation upon their Axis.				Inclination of Axis to Ecliptic.			Hourly motion in their Orbits.
	Yrs	d	h	m	s	English miles.	Eng.miles	d	h	m	s	°	′	″	Miles.
Sun.....	.....					.....	887,076	25	7	48	0	.....			.....
Mercury..	0	87	23	15	44	36,890,000	2,950	1	0	5	28	.....			111,256
Venus ..	0	224	16	49	8	68,770,000	7,900	0	23	21	8	.....			81,398
Earth....	1	0	5	48	48	95,298,260	7,912	0	23	56	4	23	28	0	75,222
Moon....	0	27	7	43	5	95,268,260	2,160	27	7	43	5	1	43	0	2,335
Mars	1	321	22	18	27	145,205,000	4,500	1	0	37	20	28	42	0	56,121
Jupiter ..	11	315	14	39	2	495,917,000	88,780	0	9	55	21	3	22	0	30,358
Saturn ..	29	164	7	21	50	909,026,000	77,230	0	10	16	1	30	0	0	22,351
Uranus ..	83	294	8	39	0	1,828,071,000	35,000	.....				.....			15,846

Isle of Man Fairs

JANUARY.—5. St. Mark's, Malew.
FEBRUARY.—2. Greeba—12. Kirk Bride.—27. Baldwin.
MARCH.—17. St. John's.—25. Ramsey. 28. Peel.
APRIL.—5. Jurby.
MAY.—1. St. John's.—3 Sulby Claddagh.—10. Laxey.—12. St. Mark's.—15 Ballaugh.—26. Kirk Santon.
JUNE.—4. Sulby.—16, Kirk Michael.
JULY.—5. St. John's.—23. Sulby.
AUGUST.—5. Laxey.—12. Ballasalla.—26. Ballaugh.
SEPTEMBER.—29. Ballasalla.
OCTOBER.—10. Michael.—28. Arbory.
NOVEMBER.—1. St. John's.—8. Ramsey.—12. Douglas.—18. St. John's.
DECEMBER.—6. Colby, Kirk Arbory.—11. Kirk Andreas.
Those falling on Sunday, to be held on the following day.

Cumberland—Abbey-Holme, Tuesday before Whitsunday, Oct. 29.—Alston Moor, last Thursday in May, Friday before 27th Sept., 1st Thur. in Nov.—Arclecdon Ap. 24, 1st Fri. in June, 17 Sep.—Bootle, April 5, 26, Aug. 3, Sep. 24.—Brampton, April 22, 2nd Wed. after Whit. 2nd Wed. after 15th Sept.—Carlisle, Sat. next Whit., Aug. 26, Sept. 16, Sat. nearest 11th Nov.—Cockermouth, Feb. 18, Mon. before Easter, 1st & 3rd Wed. in May, Oct, 10.—Egremont, Feb 18, 3rd Frid. in May, Sept. 13.—Ennerdale, 2nd Tues. in Sep.—Eskdale, 2nd Mon. in Sep. Garrigill, 3rd Fri. in May, 1st Fri. in Sep.—Gosforth. April 25, Oct. 18,—Hesket Newmarket, every alternate Fri. from May till Whit., last Thur. in Aug., 2nd Thur. in Oct.—Ireby, Feb. 21. Oct, 18.—Keswick, 3rd Thur. after 1st May, Oct. 11, Sat. after 29th Oct.—Kirkoswald Thur. before Whit. Sun., Aug. 5.—Longtown, Thur. before Whit, Sun., Thur. before Sep. 30.—Nether Wasdale 1st Mon. in Sep.—Newlands, 1st Fri. in Sep.—Penrith, March 1, April 24, 25, 3rd Tues. in Oct., Tues. after Nov. 11.—Ravenglass, May 6, June 8, Aug. 5.—Rosely Hill, Whit Mon., and every alter. Mon. till Michael.—Skinburnness, June 24.—Threldkeld, 1st Thur. in Sep.—Uldale, Aug. 22.—Ulpha, Mon. before Easter, July 5.—Whitehaven, Aug. 12.—Wigton, Feb. 20, April 5.—Workington Wed. before Holy Thursday, Oct. 18.

Cheshire—Altringham, Ap. 22, Aug. 5, Nov. 22.—Budworth, Feb. 13, Ap. 5, Oc. 2.—Congletown, May 12, July 5, Nov. 22. Chester, Feb. 23, April 27, July 5. Oct. 2, Nov. 24.—Knutsford, Whit. Tues. July 10, Novem. 8.—Macclesfield, May 6, June 22, July 11, Oct. 4, Nov. 11.—Malpas, Ap. 5, July 25, Dec. 8.—Middlewich, Holy Th., Aug. 6.—Nantwich Feb. 4, Mar. 15, Sept. 4, Dec. 11.—Northwich, August 2, Dec. 6.—Over, May 16. Sept. 25.—Sandbach, East. Tues., Tues. after Sept. 10.—Stockport, March 4, 25, May 1. Oct. 23.—Tarporley, May 1, last Monday in Aug., Dec. 11.—Winsford, May 8, Nov. 25.

Lancashire — Blackburn, Easter-Mon., May 12, Oct. 17, every fortnight on Wed. from Feb. till Oc.—Bolton-le-moor 1st Mon. after Jan. 5, and every Mon. fortnight till May 12; July 30,31, Oct. 13, 14—Burnley, March 6, East. Eve. May 6, 13 July 10, Oct. 11.—Broughton-in-F., Aug 1.—Bury, March 5, May 3, 2nd Thursday aft. Whit S., Sept. 18.—Cartmell, Mar. Whit Mon. Oct. 24, Nov. 5.—Chorley Mar 26, May 5, Aug. 20.—Clithero, March 2 25, Aug. 1, 2, the 5th Thurs. and Fri. aft St. Michael's Day.—Conistone, 3d Sat. i Sept.—Darwen Holy Thurs., 1st Thurs in Oc.—Dalton, Ap 28, June 6, Oc 23.—G Harwood, Mar. 3, Aug. 21 —Haslingden May 8, July 1, Oct. 10.—Hawkshead Mon before Holy Thurs., Whit Mon., Oct. 2.—Inglewhile, Oct. 5.—Kirkham, June 24.—Lancaster, May 1, July 5, Aug. 11, Oc. 1 Liverpool, July 25, Nov. 11; Horse fai every alternate Wednesday.—Longridge, May 13, Nov. 6.—Manchester, Whit Mon. Oct. 1, Nov. 6.—Middleton, Thursday aft. March 11, Thurs. after April 15. 2d Thurs. after Sep. 29.—Newburg, June 21.—Newbury, June21.—Newchurch, April 29, Sep 30.—Newton, May 17, July 15, and every Mon. fortnight, Aug. 12.—Oldham, May —Ormskirk, Whit Mon., Sep. 8.—Poulton Feb. 6, Ap. 13, Nov. 3.—Prescot, June 12 Aug. 24, 25, Nov. 1.—Preston, 1st Satur after Jan. 6, March 27, Aug. 25, lasts 1 days, Nov. 7.—Rufford, May 19.—Radcli Bridge, April 29, 30, Sep. 21, 2.—Rochdale, May 14, Whit Tues, Nov. 7.—Ulverstone, March 22, Oct 27.—Warrington July 18, Nov. 30, each lasts 10 days; every Wed. fortnight.—Wigan, Holy Thursday June 27, Oct. 28.

Irish Fairs—Antrim

Ahoghill, June 4, Aug. 26, Dec. 5, Antrim, Jan. 1, May 12, Aug. 1, Nov. 1 Armoy, Jan. 25, Feb. 25, Mar. 29, May 2 Aug. 16, Nov. 12, Dec. 25. Ballinagabol July 26. Ballinderry, second Monda in Feb., May, Aug., and Nov. Ballinto June 3, Sep. 4, Oct. 14. Ballacarry, 2n Mon. in Jan., 3rd Mon. in April, August and Nov. Ballycastle, Easter Tues., las Tues. in May, Aug., Oct., and Nov., Jul 26. Ballyclare, last Tues. in Jan., 2n Tues. in May, July and Nov. *o. s.* Ballymena, Jnly 26, Oct. 21. Ballamoney Ma 5, July 10. Oct. 6. Ballanbernice, 1 Tues. after 12th Jan. and Feb. Ballynure May 15, Sep. 4, 2nd Tues. in Oct. *o.* Belfast, 1st Wed. in each month, Aug. 12 Nov. 8. Broughshane, June 17, Sept. Bushmills, March 28, June 28, Aug. 2 Oct. 21, Dec. 12, Cairnlough. Feb. 10. Ea

Mon., June 12, Aug. 10, Oct. 12, Dec. 12. Carnmoney, 1st Tues. May and Nov. *o. s.* Carrickfergus, May 12, Nov. 1. Clough, May 5, July 5, Sep, 5, Nov. 22 Frid. before Christmas. Connor, Feb. 1, May 1, Aug. 2. Craigbilly June 26, Aug. 21. Crumlin, 1st Mon. in month. Cushendall; Feb. 14, Mar 17, May 14, June 29, Aug. 14, Sep. 29, Nov 14, Dec. 22. Cushendon, first Wednesday of Feb., April, June, Aug., Oct., and Dec. Dervock. Jan. 12, Feb, 23, May 16, June 22, Aug. 12, Oct. 27. Drimbar, May 21, Drumadoon, June 9, Nov. 26. Dunlice, Nov. 12. Giant's Causeway, Aug. 13.—Glenarm, Jan. 26, May 26, Aug. 30, Oct. 29. Glenavy, 3rd Mon. Feb. May, Aug. & Nov. Kells, Jan. 8, March 1, June, 10, Sep. 12, Larne, July 31, Dec. 1. Lisburn, July 21, Oct. 5. Loughgill, 19th of Feb., June, Aug., and Nov. Mosside, Feb. 13, May 21, Nov. 21. Mounthill, July 1, Oct. 1. Newtoncrumlin, Feb. 5, May 11, Aug. 2, Nov. 5. Oldstone, June 13, Oct. 22. Parkgate, Feb. 7, May 7, second Monday in June, Aug. 7, Nov. 4. Portglenone, 1st Tues. in each month and 2nd Tues. in May, *o. s.* Randalstown, July 16, Nov. 1. Rasharkan, Nov. 16. Roughfort, 3rd Tues. in May and Nov., *o. s.* Straid, Sep. 4, Oct. 30. Stranocum, Feb. 10, March 10, April 20, June 16, July 14, Aug. 8, Sep. 28. Nov. 6, Dec. 29. Tallaght, July 7, Nov 9. Templepatrick, May 11, July 10, last Tues. in Oct. Troome, Easter Monday, Dec. 4. Tullamore, Nov. 17.

Down

Annadoyne, May 14, Nov. 8. Ardmillan, 1st of Jan., April, July, Oct. Balloo, first Wednesday in Jan., Ap., July, & October Ballynahinch, 3rd Thurs. in each month. Ballywalter, June 22, Nov. 8. Banbridge. Jan. 12, 1st Monday in Feb. March, April, May, July, Sep., October, November and Dec., June 9, Aug. 26. Bangor, Jan. 12. May 1, Aug. 1, Nov. 22. Carrodore, 7th of Feb., May, Aug. & Nov. Castlereagh, July 5, Oct. 26, Nov. 20. Castlewellan, 2nd Mon. in Jan., Mar., Ap., July, Aug., Oct.; 1st Feb., May, June, Sep.,; Nov. 13, and Tuesday before Christmas. Clough, May 37, July 5, Nov. 22, 3rd Friday in October, and Friday before Christmas. Comber, Jan. 5, April 5, June 28, Oct. 19. Crossgar, second Wed. in each month. Donaghadee, last Wednes. in May, *o. s.*, Aug. 16, Oct. 10, last Wednesday in Nov. *o. s.* Donaghmore, 22d of June and Oct. Downpatrick, 1st Sat. in each month. Dromara, 1st Friday in Feb, May, Aug. & Nov., and 1st Friday after 15th March, June, Sep., & Nov. Dromore, 1st Sat. in March & Aug. May 12, Oct. 10, and Sat. but one before Christmas. Dundrum, Jan. 5, Thur. before Candlemas day, *o.s.*, May 12, Thursday before Aug 12, Oct. 10, Dec. 10. Gilford, 2nd Tues. each month, and 21st of June and Nov. Greencastle, 12th Jan. and Aug. Greyabbey, March 28, June 22, Oct. 29, Dec. 4. Hillsborough, 3rd. Wed. in each month. Hilltown, 2nd Tuesday in each month. Hollywood, 1st Monday in Feb., May, Aug., & November Kilkeel, 1st Wed. in each month. Killileagh, April 10, June 3 & 15, October 11, Dec. 11. Killinchy, 1st Wednes. in Feb., May, Aug. and Nov. Killough, Feb. 15, June 5, Aug. 15, Nov. 15 Kilmore, Feb 4; March 14, May 1, June 3, Aug. 5, Sep. 29, Nov. 5, Dec. 16. Kircubbin, 1st Monday in each month, & of 28th April, May, Aug., and Nov. Loughbrickland, Nov. 12, and 3rd Tues. of remaining months.

Dublin

Ballbriggan, 29th April, and September. Carrickmines, Dec. 6, April 14, June 24, Oct. 14. Donnybrook, Aug. 26. Fieldstown, Whit Monday. Garyistown, May 15, Aug. 15, Nov. 1. Kilsallaghan, Ascension day, Sep. 8. Lusk. Easter Monday, May 4, June 24, July 13, Nov. 25. Naul, March 16, April 26, May 21, Sep. 8, Oct. 2. Palmerstown, August 21. Rathfarnham, July 10. Rush, May 1, Sep. 29. Saggard, June 15, Oct. 10, Nov. 8. Skerries, April, 22, Aug. 10. St. Margarets, July 30, and 31. Swords, March 17, May 9.

Fish Table

The following Table shows the months in which the undermentioned Fish is IN or OUT of Season.

KINDS OF FISH.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
Brit	in	in	in	in	in	in	in	in	o	o	in	in
Bret	in	in	in	in	in	o	o	o	o	in	in	in
Cod	in	in	in	in	in	in	o	o	o	in	in	in
Cole Fish.	in	in	in	in	in	in	o	o	o	in	in	in
Cockles	in	in	in	in	o	o	o	o	in	in	in	in
Crabs	in	in	in	in	in	in	in	o	o	in	in	in
Dabs	in	in	in	in	in	in	in	in	o	o	o	o
Flounders	o	in	in	in	in	in	in	in	in	o	o	o
Haddock	in	in	o	o	o	o	o	o	o	in	in	in
Herrings	o	o	o	in	in	in	in	in	in	o	o	o
Lobsters	in	in	in	in	in	in	o	o	in	in	in	in
Ling	in	in	in	in	in	in	in	o	o	o	in	in
Mackerel.	o	o	o	o	in	in	in	in	o	o	o	o
Oysters	in	in	in	in	o	o	o	o	in	in	in	in
Plaice	in	in	in	in	in	in	in	in	in	o	o	in
Salmon	in	in	in	in	in	in	in	in	o	o	in	in
Soles	o	o	o	in	in	in	in	in	in	o	o	o
Shrimps	in	in	in	in	in	o	o	o	in	in	o	in
Sprats	in	in	o	o	o	o	o	o	o	o	o	in
Skate	in	in	in	in	in	in	in	o	o	o	in	in
Turbot	o	o	in	in	in	in	in	in	o	o	o	o
Whiting	in	in	in	o	o	o	o	o	o	in	in	in
Cong. Eel.	o	o	in	in	in	in	in	in	in	in	o	o

Royal Family of England

Queen VICTORIA I. born 24 May, 1819
Prince Albert . . . . August 26, 1819
Princess Royal . . . November 21, 1840
Prince of Wales . . . . . November 9, 1841
Princess AliceMaude Mary, April 25, 1843
Prince Alfred Ernest Albert, Aug. 6, 1847
Princess Helena Augusta V. May 25, 1849
Princess Louisa Caroline A. March 18, 1842
Prince Arthur Wm. Patrick, May 1, 1859
Prince Leopold Geo. Albert, April 7, 1853
Princess Beatrice Mary.. . April 14, 1857
Geo. Fred. King of Hanover, May 27, 1816
Duke of Cambridge . . . . . March 26, 1814
Duchess of Mecklenburgh, July 19, 1826
Princess Mary of Cambridge, Nov. 27, 1838
Victoria, Duchess of Kent.. Aug. 17, 1780
Duchess of Cambridge. . . . . July 25, 1793

Sovereigns of Europe

KINGDOMS.	TO WHOM SUBJECT.	WHEN BORN.	BEGAN REIGN
England, &c.	Victoria I. ..	1819	1837
France.	Napoleon III	1808	1852
Russia	Alexander II.	1818	1855
Spain	Isabella II...	1830	1833
Portugal	Don Pedro V	1837	1853
Prussia.	Fred. W. IV ..	1795	1840
Netherlands	William III	1817	1849
Denmark . .	Frederick VII	1808	1848
Sweden.	Charles XV.	1826	1859
Austria	Franc. Joseph	1830	1848
Belgium	Leopold . .	1790	1831
Popedom . . .	Pius IX . . .	1792	1846
Greece	Otho I	1815	1833
Naples	Francis II. ..	1836	1859
Ottoman Em.	Abdul Medjid	1823	1839
Hanover	George V. ..	1819	1851

Her Majesty's Ministers.

THE CABINET.

First Lord of the Treasury . . . . . Viscount Palmerston.
Lord High Chancellor.. . . . . Lord Campbell.
Chancellor of the Exchequer . . . . . Right Hon. W. E. Gladstone.
Lord President of the Council . . . . . Earl Granville, K.G.
Lord Privy Seal. . . . . Duke of Argyle, K.T.
Home Secretary. . . . . Sir G. Cornewall Lewis.
Foreign Secretary. . . . . Lord John Russell.
Colonial Secretary . . . . . Duke of Newcastle.
War Secretary . . . . . Right Hon. Sydney Herbert.
Indian Secretary .. . . . . Sir C. Wood, Bart.
First Lord of the Admiralty . . . . . Duke of Somerset.
Chief Commissioner of Works . . . . . Mr. Fitzroy.
Postmaster General. . . . . Earl of Elgin, K.T.
President of the Board of Trade.. . . . . Right Hon. Milner Gibson.
Secretary for Ireland . . . . . Mr. Cardwell.
Chancellor of the Duchy of Lancaster . . . . . Sir George Grey.

NOT IN THE CABINET.

Lord-Lieutenant of Ireland .. . . . . Earl of Carlisle.
Attorney-General. . . . . Sir R. Bethell.
Solicitor-General . . . . . Sir H. Keating.
President of the Poor-law Board. . . . . Mr. C. P. Villiers.
Attorney-General for Ireland . . . . . Mr. J. D. Fitzgerald.
Solicitor-General for Ireland . . . . . Mr. Sergeant Deasy.
Secretaries of the Treasury . . . . . Mr. F. Peel. / Mr. Brand.
Secretary to the Admiralty . . . . . Lord Clarence Paget.
Civil Lord of the Admiralty . . . . . Mr. Whitebread.
Judge Advocate-General . . . . . Mr. T. C. Headlow.
Secretary to the Poor-law Board . . . . . Mr. Gilpin.
Vice-President of the Privy Council for Education. . . . . Mr. Lowe.
Under Secretaries of State:—
Home . . . . . Mr. G. Clive
War . . . . . Lord Ripon.
Foreign . . . . . Lord Wodehouse.
Colonial . . . . . Mr. C. Fortescue.
India. . . . . Mr. Thomas Baring.
Lords of the Treasury . . . . . Mr. Huggessen. / Mr. Cogan. / Mr. Ellice, junr.

THE ROYAL HOUSEHOLD.

Lord Steward. . . . . Lord St. Germans.
Master of the Horse . . . . . Marquis of Aylesbury.
Master of the Buckhounds . . . . . Earl of Bessborough.
Mistress of the Robes . . . . . Duchess of Sutherland.

Descriptive List of Principal Lights—Scotch Coast

Name of Light.	Situation.	No. Light	Appearance.	distance visible	Points of Compass within which visible.	North latitude	West longitu.
INCHKEITH	Summit of Island, Fifeshire..	One	Revolving once every minute ..	—18—	All round the Compass ..	56° 2′	3° 8′
ISLE OF MAY	Isle of May, in Fifeshire ..	Two	Fixed. Bear from each other N.E. ¼ E. & S.S.W. ¼ W., 250 yds.	22&16	All round Compass. The low light only towards the Carr	56 11	2 33
BELL ROCK	A sunk reef, 11¾ miles S. by E. ½E. off Arbroath, Forfarshire	One	Revolving, shewing alternately a bright & red light every 2 min.	—14—	All round the Compass ..	56 26	2 23
GIRDLNESS	Girdleness, Kincardineshire.	Two	Fixed Lights, one above the other	19&16	NNE to WSW ½W. by E'ward	57 8	2 3
BUCHANNESS	Buchanness, Aberdeenshire.	One	Flashing once every 5 seconds ..	—16—	N. bE. to SW. bW. by E'ward	57 28	1 46
KINNAIRDHEAD	Kinnairdhead, Aberdeenshire	One	Fixed	—15—	WNW. to SSE¾E. N'ly & E'ly	57 42	2 1
TARBETNESS	Tarbetness, Cromartyshire ..	One	Visible 2½ min., then eclipsed ½ a min. To W. of the Ness Fixed	—18—	All round the Compass ..	57 51	3 48
DUNNETHEAD	On the Head, Caithnesshire.	One	Fixed	—23—	From SE½E to W. by N'ward	58 40	3 22
PENTLAND SKERRIES ..	On the Island	Two	Fixed N.N.E. & S.S.W., 100 feet	18 &16	All round the Compass ..	58 41	2 55
START POINT	East point of Sanda Island ..	One	Fixed	—15—	All round the Compass ..	59 17	2 22
SUMBURGHHEAD	On S.W. point of Shetlands.	One	Fixed	—22—	NE by E¼E to NW by N¼N by S	59 51	1 16
NORTH RONALDSHAY ..	On North point	One	Flashing once every 10 seconds..	—18—	All round the Compass ..	59 23	2 24
CAPE WRATH	On the Cape, N.W, point of Scotland	One	Revolving, shewing alternately a bright & red light every 2 min.	—30—	From S. ½ E. to S.W. by W. Northerly	58 37	5 0
ISLAND GLASS	NE. point of Island, Harris Isle	One	Fixed	—16—	W. by S. to E.N.E, ½E. by S.	57 52	6 33
BARRAHEAD	Highest land on Bernera Isle, Southern point of Hebredies	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—32—	From N. by E. to E. N. E. Westerly and Southerly.	56 48	7 38
ARDNAMURCHAN	Ardnamurchan Point, Argyleshire	One	Fixed	—18—	From N.E. by E. ¾ E. to S. W. by S. N'ly and W'ly	56 44	6 13
LISMORE	Mousdale Island	One	Fixed, dark 2¾ point over land ..	—15—	From E. to N.E. by E. ..	56 27	5 36
SKERRYVORE	Rock, 12 miles W.S.W. from Tyree Island	One	Revolving every minute	—18—	All round the Compass ..	56 19	7 7
RHINS OF ISLAY	Oversay Island, off S.W. point of Islay, Argyleshire . .	One	Flashing once every 5 seconds; disappears ¼ a mile off Cul point	—17—	From NNE. to SE. Westerly	55 41	6 29
MULL OF CANTYRE.. ..	South western headland of Argyleshire	One	Fixed	—22—	From NNE. ½E. to S by W. ¼ W. Westerly	55 19	5 49
SANDA ISLAND	Ship Rock..	One	Fixed, red light	—15—	NW ½W to SE by E½E by SW'ly	54 16	5 35
DEVAR ISLAND	Eastern part	One	Revolves every ½ minute	—15—	N. ¼ W. to E. by S. by N,..	55 26	5 32
PLADDA	Pladda Isle, off south east of Arran county of Bute ..	Two	Fixed, vertical, 25 feet apart ..	13 &16	From NW. by W. Southerly to N.E. by E.	55 26	5 7
CORSEWALL..	W. side of entrance to Loch Ryan, in Wigtonshire ..	One	Revolving, shewing alternately a bright and red light every 2 min.	—15—	From N.E. by E. Northerly to S.W.	55 0	5 9
MULL OF GALLOWAY ..	Southern extremity of mainland of Scotland, Wigtonsh.	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—23—	From N.E. to N.W. ¼ W...	54 38	4 51

Descriptive List of Lights—Isle of Man

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
POINT OF AYR	A quarter of a mile S.W. of the Point	54 25	4 22	One	R	—15—	Shewing alternately a Bright and Red Light every 2 min. Visible from S. by W. to W. by N., N. E'ly.
Peel Harbour	East side of entrance	54 13	4 42	One	F	— 8—	
CALF OF MAN	West side of Calf Island	54 3	4 50	Two	R	24&22	Revolving every 2 min. When in one they lead [on the Chicken Rocks.
Port St. Mary	South side of entrance	54 4	4 44	One	F	— 9—	
Castletown Harbour	South side of entrance	54 5	4 39	One	F	— 8—	Red. To be kept on the port hand in entering.
Derbyhaven	Entrance of the Harbour	54 5	4 36	One	F	—11—	Only lighted during the Herring Fishery.
DOUGLAS	Douglas Head	54 9	4 28	One	F	—14—	Not visible from Langness Point, but with three miles offing it will be seen N.E.¼E.; and the Calf Light, at the same time, N.W. by W. ¼ W.
Douglas Harbour	North Pier-head	54 10	4 28	One	F	—10—	
Ramsey Harbour	South side of entrance	54 20	4 23	One	F	—10—	Red Light.
Bahama Bank Light Vessel	A third of a mile off the S.E. tail of the Shoal. Moored in 11 fathoms.	54 20	4 12	Two	F	—10—	A Gong is sounded during foggy weather. "Bahama Bank" is painted on her sides. King William Bank Buoy, E.N.E. eight miles.

Principal Lights—West Coast of England

Lee Scar	On the Rocks	54 52	3 25	One	F	— 6—	On Piles. Base dries 6 feet at low water.
Solway Light Vessel	Robin Rigg Channel	54 48	3 32	One	F	— 6—	Red Light. Moored in 4½ fms. A Black Ball by day; tolls a Bell in foggy weather.
ST. BEES	St. Bees Head	54 31	3 38	One	F	—23—	
WALNEY.	S. Point of Walney Island	54 3	3 11	Two	1 R 1 F	—13—	Every minute. The Fixed Light is Red. N.W. by W. ¾ W. and S.E. by E. ¾ E. 340 yards.
River Wyre	N.E. elbow of N.Wharf Bank	53 57	3 2	One	F	—10—	On Piles. A Bell is tolled in foggy weather.
Fleetwood	High Light in the Town, Low Light on Esplanade	53 56	3 1	Two	F	13 & 9	N. & S. 850 feet. Shown while 9 feet water in the Channel.
River Ribble	On Stanner Point, N. side of entrance	53 45	3 1	Two	F	12 & 9	The Upper Light Bright: the Lower Red. The Lighthouse stands about 70 feet high, and bears by compass S.E. by E. ½ E. from Buoy Nelson, 7 miles.
FORMBY	On the Point	53 32	3 4	One	F	—12—	The Light from this tower has been discontinued.
Formby Light Vessel	In the New Channel	53 32	3 11	Two	F	— 8—	Painted Red; Carries Red Ball. In 25 feet at low water. Crosby Lightship S.E. ⅛ S., 2¼ miles. N. W. Mark, E. by N. ¼ N., 3⅞ miles.
Crosby Light Vessel	N.E. elbow of great Burbo Bank	53 31	3 7	One	F	— 8—	Painted Red; carries Red Ball. In 44 feet at low water.

Principal Lights—West Coast of England, continued

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
Black Rock	Rock Point, West side of the entrance of the Mersey	53 27	3 3	One	R	—14—	Making a revolution every three minutes, showing two Bright Lights and one Red Light in due succession. A Bell is tolled during foggy weather.
Leasowe	On the shore, between the Mersey and the Dee Rivers	53 25	3 7	One	F	—15—	Yellow Light. Disappears when inward bound, bearing S.W. ½ S.
BIDSTON	Bidston Hill	53 24	3 4	One	F	—23—	Obscured when inward bound, bearing S.bW.½W.
Hoylake	Near Hoylake Church	53 24	3 11	Two	F	13&11	When in one, S.W. by S., you may haul up the Rock Channel.
Liverpool N.W. Light Ship	Off the Horse and Helbre Channels	53 27	3 17	Three	F	—10—	Moored in 7½ fathoms; exhibits a black Ball during the day.
AIR	Air Point, at low water mark	53 22	3 19	One	F	—10—	On Piles. A bell is sounded in foggy weather.
LYNUS	Point Lynus	53 25	4 17	One	Fl.	—16—	Flashing once every ten seconds.
SKERRIES	Highest Island	53 25	4 36	One	F	—15—	
STACK	South Stack Rock, off N.W. Point of Holyhead I...	53 18	4 42	One	R	—19—	Revolving every minute. During foggy weather a smaller Bright Light is occasionally shown, about 40 feet above the sea, and 30 yards North of [the main Lighthouse.
BARDSEY	Bardsey Island	52 45	4 48	One	F	—17—	
SOUTH BISHOP	South Bishop Rock	51 51	5 25	One	R	—17—	Revolving every twenty seconds.
SMALLS	Smalls Rock	51 43	5 40	One	F	—13—	Erected upon pillars, 40 feet high.
ST. ANN'S	St. Ann's Point, Milford Haven	51 41	5 10	Two	F	19&17	High Light N.by W.¼W., 609 feet, from Low Light. When in one they lead clear of the Crow and Toes Rocks.
CALDY	Caldy Island, Southern part	51 38	4 41	One	F	—19—	
MUMBLES	Mumbles Head	51 34	3 58	One	F	—15—	
NASH	Nash Point	51 24	3 33	Two	F	18&16	High Light, S.E. by E.¼E. and N.W. by W.¼W., 1000 feet from Low Light. The Lights in one lead a cable's length Southward of the Nash Sand.
USK	W. side of entrance of River	51 32	3 0	Two	F	—10—	Red. A Red Light is also shown up the river.
FLATHOLM	Flatholm Island, South point	51 23	3 7	One	F	—17—	
LUNDY	On the ridge of Lundy Island	51 10	4 40	Two	1 R 1 F	—30—	The Low Light (fixed) is only visible from the Westward, between N. N. W. and W. S. W. The Revolving Light flashes every two minutes. [one.
TREVOSE HEAD	On north-western part..	50 33	5 1	Two	F	—19—	The Lower Light is 50 feet in advance of the high

Descriptive List of Principal Lights—South and East Coasts of Ireland

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather	Remarks.
FASTNET	Summit of Rock	51 23	9 36	One	R	—18—	Attaining its greatest brilliancy every two min.
KINSALE	South Point of Old Head	51 36	8 32	One	F	—21—	Red light is shown in a line to the Horse Rock in Courtmacsherry Bay, Bright to Seaward.
CORK HARBOUR or Queenstown	Roche Point, E. side of entrance	51 48	8 15	One	F	—14—	Red towards the sea. To the Harbour Bright.
	East elbow of Spit Bank, in 9 feet	51 51	8 16	One	F	— 8—	Red. From N.N.E.½E. to S.E. by E.½E. round by E.
BALLYCOTTIN	Outer Island, West side of Bay	51 49	7 59	One	Fl.	—18—	Every 10 secs. From E. ½ N. round S. to W. ½ N.
MINEHEAD	South side of Head	52 0	7 35	One	Int.	—21—	Bright 50 sec., obscured 10 sec. From E.N.E.½ N. [to W. ¾ S.
HOOK TOWER	East side entrance Waterford	52 7	6 56	One	F	—16—	
SALTEE'S LIGHT VESSEL	Off Coningbeg Rock, the Southernmost of the Saltee Islands	52 2	6 40	Two	F	—10—	Carries a Ball. Moored in 32 fathoms. During foggy weather a Gong is sounded.
TUSKAR	Tuskar Rock	52 12	6 12	One	Int.	—15—	Every two minutes. Two sides bright, one Red. During foggy weather a Bell is tolled every half-minute. Red Light seen 10 miles. [weather.
ARKLOW LT.-VESSL.	S. end of Arklow Bank, in 22 fath.	52 42	6 0	One	F	—10—	Carries a Ball. A Gong is sounded in foggy
WICKLOW	Wicklow Head	52 58	6 0	Two	F	21 &16	The Lights bear from one another N.W. by W. ¾ W. and S.E. by E. ¾ E., 540 feet. When in one they lead between the India and Arklow Banks.
DUBLIN BAY. KISH LIGHT VESSEL	Off N. Point of Kish Bank. Moored in 10 fathoms	53 19	5 56	Three	F	—10—	The Lights are triangular. Carries a Ball. A Gong is sounded during foggy weather
DUBLIN BAY. Kingstown	Centre of East Pierhead of Kingston Harbour	53 18	6 8	One	R	— 9—	Revolving every half-minute, shewing a Bright and Red light alternately. During foggy weather
	West Pierhead			One	F	— 2—	A small Red Light. [a Bell is tolled.
DUBLIN BAY. POOLBEG	End of S. Wall, at the entrance to the river Liffey	53 20	6 9	Two	F	—12—	The Lower Light, which is much fainter than the Upper, is exhibited from half-flood to half-ebb. A Ball is hoisted, at the same period, during day-time.
DUBLIN BAY. BAILEY	End of N. Wall, or N. Quay, Dublin	53 21	6 14	One	F	—10—	
	S.E. Point of Howth Peninsula	53 22	6 3	One	F	—15—	During foggy weather a Bell is tolled.
CARLINGFORD	Haulbowline Rock	54 1	6 5	Two	F	—15—	The Lower from half-flood to half-ebb. A ball is hoisted during the same period by day; and in foggy weather a Bell is tolled every half-minute.
DUNDRUM BAY	St. John's Point	54 13	5 40	One	R	—12—	Every minute. 45 secs bright, & 15 secs. obscured.
SOUTH ROCK	On the Rock	54 24	5 25	One	R	—12—	Every minute and a half.
COPELAND	Small Copeland Island	54 42	5 32	One	F	—16—	

MARINERS' GUIDE

TO THE

Principal Ports and Harbours

IN THE

BRISTOL AND ST. GEORGE'S CHANNELS,

THE IRISH SEA,

AND THE NORTH CHANNEL;

CONTAINING A SERIES OF CLEAR AND CONCISE

SAILING DIRECTIONS

FOR THE

WEST COASTS OF ENGLAND, WALES, AND SCOTLAND, THE ISLE OF MAN,

AND THE

EAST, SOUTH-EAST, NORTH-EAST, AND NORTH-WEST COASTS OF IRELAND;

WITH

Tables of the Magnetic Bearings and Distances

OF DIFFERENT

HEADLANDS, HARBOURS, AND LIGHTS

ON THOSE COASTS.

*** The Bearings and Courses in these Directions are those by compass, and the Distances are nautical miles, of 60 to a degree.

MARINERS' GUIDE.

ISLE OF MAN.

The **ISLE OF MAN** lies in a N.E. by E. and S. W. by W. direction, and is about 30 miles in length and 11 in breadth. The Northernmost Point of Ayre is in lat. 54 deg. 27 min. N., and long. 4 deg. 20 min. W. The

Calf Island,

At the S.W., is in lat. 54 deg. 3 min. N. and lon. 4 deg. 50 min. W. On this Island are TWO Lighthouses, 187 yards distant from each other, bearing N.E. ½ E. and S. W. ½ W. The *higher* Light bears from the dangerous sunken rocks called the *Chickens* N.E. ½ E., distant about a mile and a quarter: when the Lights are in one they lead on the Chickens. These Lights are DOUBLY revolving, without color, making their revolution in 2 minutes, and becoming gradually fainter during that time, until, at a distance, they appear totally obscured. At their brightest period they may be seen seven leagues off, resembling a planet. Between the Chickens and Calf is a passage about a mile broad, through which the tide sets from the W. round the Calf Point *very strong* outside of the EYE Rock, and also through the passage between the Island and S.W. Point of Man. There has been erected in the Sound of the Calf, on the "Thusla Rock," a Large Oblong Beacon. 2½ miles to the east is PORT ST. MARY, where there is good anchorage behind the Pier, which has been lately very much improved, but a dangerous rock called Carrick, lies about ¾ of a mile S.S.E.½E. from the Village. This harbour has about 9 or 10 feet water at neap tides, and 14, 15, 18, &c. at spring tides. In running for it, keep Scarlet Head to the S. of Castletown, a good sail's breadth open, to avoid the Carrick Rock. On entering, take the quay as close as circumstances will admit. A LIGHT is exhibited throughout the year, on the larboard hand on entering the harbour. Five miles E. from the Chickens and 2¼ from Port St. Mary, is Scarlet Head, the westernmost point of

Castletown Bay.

The bottom towards the entrance is generally rocky, and there are three shoals or rocks dry at low water, the largest of which, Lheeahrio, is a quarter of a mile long and 500 feet wide, and is marked on the east end by a large Black Buoy. A RED stationary light, to be kept on the larboard hand on entering, is erected on the new pierhead, which lies 80 yards outside the old pierhead, in a S.S.E. direction therefrom. The Buoy on Lheeahrio Rock is placed in five fathoms at low water, having Langness Point, by compass bearing S. ¾ E., and the lighthouse on the pierhead, N. ¾ E. On entering the Bay, be careful to leave the Buoy on the *larboard* hand, and in working into the Bay from the Westward, you must not bring the Buoy to the Southward of E.S.E.; nor open Spanish Head to the Northward of the Stack of Scarlet until Eastward of the Buoy, or until the lighthouse on the pierhead bears N. ½ E., then steer for the harbour. The anchorage is sheltered from N.W. round by N. to S.S.E., the marks for which are, Spanish Head just open to the Southward of the Stack of Scarlet; the Steeple of Castletown Chapel in line with the Eastern part of a Gap in the Mountain bearing N. by W., and King William's College N.E. by N., where there are 9 fathoms at low water, spring tides, and safe anchorage.

Langness Point,

An isthmus running out from the main land, 2 miles to the S.W., has a turret on the point to identify its situation. There are SUNKEN rocks all about it, and the tide sets like a race upon the Point from the Chickens, at the rate (spring tides) of 6 miles an hour, and runs E.N.E. from 2 to 5 or 6 miles from the land, diminishing in strength to Maughold Head. To avoid the inset between the Chickens and Langness Point, it is advisable for strangers on no account to come within 3 or 4 miles of the land. On the E. side is

Derbyhaven,

Affording anchorage for large merchant ships, and sheltered from all winds except E. to S.E. The best ANCHORAGE is on the N. side of St. Michael's Island, in 3 or 4 fathoms, the castle (or fort) on it bearing S.E. by S. Small vessels may run further up. There are two LIGHTS, one at the entrance of the harbour, and one on the S.W. end of the breakwater. The stream, or rather eddy, along the E. side of Langness runs 10 hours S., from 2 hours of flood to the last of ebb on the shore. About 3 miles to the E. of Derbyhaven is St. Ann's Head, from which to

Douglas Head,

E. is about 2 miles, upon which a LIGHTHOUSE has been erected, the light from which is STATIONARY, and appears like a star of the first magnitude at the distance

14 miles. The Bearings of the light are follows:—From CLAY HEAD, W. by S. S., 4 miles; from LANGNESS POINT, E. N., 7½ miles. The light will not be vi-ble from Langness Point; but with an ing of 3 miles from that Point, the light ll be seen bearing N.E. ¼ E., and the lf Lights at the same time bearing N. by W. ¼ W. Vessels running for Dou-as, between E. by N. ½ N. to W. by S. ½ will see the light at 5 miles' distance. owing fresh from the W. and bound for e bay, a vessel should keep pretty close Douglas Head, or she will be thrown to eward of St. Mary's Rock, by the strong d variable gusts off the high land to the W., where she will be exposed and in d anchorage. On this rock a TOWER s been erected, the appearance of which the night is like a square-rigged sloop der sail. Anchor in the bay between t. Mary's and the S. shore, 3 or 4 cables ast of the pierhead, where there is a GHT exhibited throughout the year, to ew ships into the Harbour; to enter hich keep close to the pierhead. Four iles E.N.E. from Douglas Head is

Clay Head,

ound which is Laxey Bay, where there good anchorage in 6 fathoms depth. rom Clay Head to Maughold Head the ourse is N.E. ½ E. 7 miles, and round the atter to

Ramsey,

N.W. N'ly. 2½ miles. To the E.S.E. of the own is Port Lewague. There is excellent nchorage and shelter from 1 to 1½ miles pposite the town, as the bottom is good tiff clay; but there is generally a heavy ea and hard riding in it with winds from S. to E.N.E., to all of which it is open. The harbour, which is a dry one, will admit vessels drawing 17 or 18 feet water at spring tides, and 11 or 12 feet at neap tides. There is a lighthouse on the quay, and the light, which is stationary and of a RED colour, is exhibited throughout the year. In the bay the stream runs nine hours N. and three hours S., beginning at 2 hours' flood. There are three banks off this bay that deserve notice. The BA-HAMA BANK, or RIG, bears N.E. 2 leagues from Ramsey town, and is about 6 miles in length from S.S.E. to N.N.W., with only 6 feet depth of water at the S. end, differing in other parts from 9 to 12 feet, and is rather more than ½ a mile broad. The BAHAMA FLOATING LIGHT, exhibiting two BRIGHT FIXED lights, is moored a mile off the S.E. tail of the shoal, in eleven fathoms, low water, spring tides, and with the following com-pass bearings:—King William's Bank Buoy, E. by N. ½ N. nine miles; Point of Ayre lighthouse, N. by W. ¾ W.; Maughold Head, W. by S.; Clay Head, S. W. by W. ¼ W. WHITESTONES BANK, so called from its composition, lies S.S.E. 1½ miles from the extreme Point of Ayre, with a good passage between them; it bears N.N.E. from Maughold Head, and is ½ a mile in length N. and S. and a ¼ in breadth E. and W., with 6 feet at low water spring tides. POINT OF AYRE BANK is a ridge extending ½ a mile from the Point to the distance of 1 mile E., and thence circularly to the S. and E., always with a considerable ripple, nearly in a line with the BAHAMA BANK. KING WILLIAM'S BANK is 8 miles in length from S.E. to N.W., and ½ a mile broad: the N. W. end is E. 6½ miles from the Point of Ayre, and N.E. 11 miles from Maughold Head, from which the S.E. end bears E. N.E. ½ E. 13½ miles, and from the Point of Ayre, E. S.E. 12 miles distant. The least depth of water on it is 18 feet. The

Point of Ayre Lighthouse

Bears N.N.E. ½ E. from Maughold Head, distant 8 miles, and the lantern is 106 feet above the sea. It is REVOLVING, showing alternately a BRIGHT and RED coloured light, becoming from a star-like appearance gradually stronger, until the attainment of the utmost brilliancy every TWO MINUTES. The light of the common colour is to be seen 4 or 5 leagues off; but the RED one is not distinct at so great a distance. Maughold Head prevents the light being seen by a navigator S. of it, as does Rue Point when he is W. of it. N. by W. ½ W. 1½ miles from the Point of Ayre is STRUNAKILI BANK, bearing from Jurby Point E. by N. 5 miles; it is 1½ miles long E.S.E. and W.N.W., and nearly ½ a mile broad. There are 3 fathoms on the shoalest end, but the sea breaks and the tide sets strong upon it; keeping WITHIN 1½ miles of the land will clear the whole.—From the Point of Ayre to Jurby is 7 miles to the W., and hence to the Peel Light, S.W. ½ W. 11 miles; 4 miles from Jurby W. ½ N. and about 3 miles from the land abreast, is a BLIND ROCK, and from

Peel Light,

N.E. by E., 9 miles. This light is stationary, is exhibited throughout the night, and is visible at a distance of eight miles in clear weather. The harbour at Peel is a dry one. Between Jurby and Peel, off Ballabui, lies a shoal 1½ miles from the land, and 3½ miles N.E. ½ E. from the light. A vessel may ride in the bay with the Castle bearing from S.S.W. to S.W. in 6 or 7 fathoms' depth of water. On entering the Harbour, keep the point of the Jetty close on board on the starboard hand and run in, keeping the light on the pierhead on the larboard hand. The Mull of Galloway light adds considerably to the importance of this Harbour, being visible from the Castle, and only distant N. by E. 26 miles. The Peel Light

is about 300 yards S.S.W. from the N.E. point of the Castle. The streams of flood that come to the E. from along the S. coast, and along the N. coast of Ireland, meet about a mile W. of Contrary Head, so called from this circumstance, and there divide into two branches, one of which runs N.E. to the Point of Ayre, and on to Maughold Head, the other S.W. to the Calf; one proceeding round the Calf at 6, the other round the Point of Ayre at 4 miles an hour, meeting off Maughold Head. From Contrary Head to abreast the Calf Lights the course is S.W. 10 miles; and 4½ miles from the W. end of that Isle is

Port Iron,

a good little Harbour, easy of access, and affording shelter against all E. winds. At the entrance of the bay, between the headlands, there is a depth of about 15 fathoms water; here the tide runs very strong at the rate of 6 miles an hour. In the Sound of the Calf the stream runs W. 2 hours before high water on the shore, and continues 6, i.e., two hours before it ebbs on shore. Keep the Calf Lights well open when passing Langness Point.

TIDES.—On the full and change days, it is high water on the shore at Peel at 10h. 48m.; in the Calf Sound, 10h. 57m.; at Douglas, 10h. 48m.; at Ramsey, 10h.; and at the Point of Ayre, 10h. In the Isle of Man, spring tides rise 18 or 20 feet perpendicular; neap tides 9 or 10.

Magnetic Bearings & Distances,

FROM THE HEADLANDS OR HARBOURS IN THIS ISLAND, TO OTHER HEADLANDS OR HARBOURS IN THE CHANNEL.

FROM DOUGLAS HEAD TO	MILES.
St. Bees Light ..... E. by N.	42
Ravenglass ..... E. by S.	40
Lancaster Channel ..... S.E. ¾ E.	54
Liverpool Floating Light, S. by E. ½ E.	59
Chester Bar ..... S. by E.	60
Great Ormshead ..... S. ¼ W.	54
Skerries Light ..... S.W. by S.	46
Langness Point ..... S.W by W.	8
FROM THE POINT OF AYRE TO	
Maughold Head ..... S.S.W. ½ W.	8
St. Bees Light ..... E.S.E. ¼ E.	26
Whitehaven ..... E.S.E. ¾ E.	28
Maryport ..... E. ¼ N.	37
Ross Light, Kirkcudbright N.E. ½ E.	24
Burrow Head ..... N.N.E.	16
Mull of Galloway ... N.W. by N. ¾ N.	21
Copeland Light, Belfast .. N.W. ½ N.	44
Liverpool Floating Light .... S. ½ E.	70
FROM MAUGHOLD HEAD TO	
Skerries Light ..... S.W. ½ S.	56
Great Ormshead ..... S. by W.	60
Liverpool Floating Light .... S. ¾ E.	63
Lancaster Channel ..... S.E. ½ S.	50
St Bees Head ..... E.	27
Ravenglass ..... E.S.E.	32
Whitehaven ..... E. ½ N.	31
FROM THE CALF OF MAN TO	**MILES.**
Langness ..... E.S.E. ½ S.	7
Mull of Galloway ..... N.N.E.	38
Copeland Light ..... N. ¼ W.	48
South Rock Light .... N. by W. ⅝ W.	31
Strangford Lough .... N.N.W. ½ W.	31
Carlingford Lough ..... W.N.W.	45
Drogheda ..... W. ⅝ N.	55
Howth Head ..... W.S.W. ¾ W.	60
Kish L'ship, Dublin Bay W.S.W. ¼ W.	60
Holyhead ..... S.S.W.	41
Great Ormshead ..... S. by E.	54
Liverpool Floating Light S.S.E. ⅝ E.	65
Skerries Light ..... S. by W. ¼ W.	38
Point Lynas ..... S. ¼ E.	42
FROM PEEL TO	
Mull of Galloway Light .... N. by E.	26
Copeland Light ..... N.N.W. ¼ N.	40
Strangford Lough ..... N.W. ½ W.	29
Maidens Light ..... N. by W. ¼ W.	57

Free Harbours

No tolls are exigible on vessels entering any of the Harbours in the Isle of Man.

Abstract of the Bye-Laws for regulating the Harbours.

1. Any vessel, through mismanagement, injuring the quays, &c., such injury to be repaired, under penalty of double the value of the damage.

2. No chain cables to be used for mooring vessels, under penalty of £2.

3. No ballast to be discharged without a port sail, under penalty of £2.

4. Vessels heaving ballast or stones into the harbours, penalty £2 per ton.

5. That no person heave stones, dung, &c., into the harbours, under the penalty of £2; and if not removed when ordered, a further penalty of £2.

6. Masters of vessels not obeying Harbour Masters in mooring vessels, penalty £2: all expenses incurred by the Harbour Master in mooring vessels to be paid by master or owners of said vessel. Any person obstructing Harbour Master in executing his duty, penalty £5.

7. No person to make a fire on the quays without permission, penalty £3.

8. No clog fenders to be used, under penalty of £1, unless hung lengthways.

9. Any person throwing off ends or cutting hawsers, besides paying the damage to the owners, to forfeit £5.

10. That all gunpowder be landed immediately after arrival, under penalty of £10 for every 24 hours it remains on board; and no fire or light to be kept on board while such gunpowder remains in the vessel, further penalty £20.

11. Any dock made for repairing vessels in harbour to be filled up in 24 hours after removal of the vessel, under penalty of £5 for every 24 hours it lies open.

12. No vessel to unload ballast at night under penalty of £10.

13. That no timber, iron, &c. (unless for repairing vessels) be left on the quays longer than two days, on penalty, for every day longer than the said two days, after notice given by the Pier Master, of £1.

14. That no vessel be allowed to take ballast from another, penalty £1, unless by leave of the Harbour Commissioners.

15. Ballast not to lie on the quay longer than 24 hours, under penalty of 5s. per day.

16. All vessels unloading merchandize to have preference of berth in turn.

17. Vessels taking in goods to have any unoccupied berth, but to give it up on the arrival of a loaded vessel.

18. & 19. One person at least to be on board every vessel when afloat, in harbour or bay, under penalty of £2.

20. & 21. No person to act as pilot without commission, under penalty of £10. No vessel compelled to take a pilot.

22. Proprietors of lime-kilns to screen their lights, if liable to be mistaken for harbour lights, under penalty of £5.

23. Persons firing on pier, &c., (except on days of public rejoicing,) penalty 10s.

24. Boats plying for passengers without licence, penalty £2; and owners to be accountable for breach of harbour laws by any of the crew.

25. No person to erect stalls on the quays to cure fish, or deface the quays, &c. under penalty of £2 for every offence.

26. No person to enforce higher rates for pilotage than as follows, which include attendance of boat and four men:

Vessels of 40 Tons	£0	5	0
Vessels above 40 and under 60	0	7	0
Vessels above 60 and under 100	0	13	0
Vessels 100 Tons and larger	1	0	0

27. Vessels must allow ropes or warps of other vessels to be made fast to them, under penalty of £2.

28. All vessels in harbour must keep in their jib and mizen booms, under penalty of £2.

29. No lumber to remain on the quays or steps, under penalty of £1.

30. No conveyance having wheels shod with iron, allowed on Douglas pier, under penalty of £2.

WEST COAST OF ENGLAND.

RIVER RIBBLE TO SOUTHERNESS LIGHT.

The **River Ribble.**—PRESTON and LYTHAM.—About 5 miles northward of the Formby Channel is the entrance to the River Ribble, leading to Preston. The shore on the starboard side is lined with an extensive sandbank, which runs out full 2 miles from the land, drying at 4 hours' ebb; while on the port hand is the Butler's Wharf, a large shoal, contracting the passage, rendering its navigation almost impracticable without a pilot. There is also a smaller bank to the northward of the Butler, which also dries at half-ebb. Outside the bar is a large buoy called the *Nelson*, which vessels should endeavour to pick up when bound for the river. It is a large round black buoy, with a cage ball at the top, stands about 26 feet out of water, and may be seen in clear weather ten miles; its name, *Nelson of Preston*, is painted upon it. The bearings and distances from the Buoy Nelson, of Preston, to the undernamed places are as follows:—Blackpool, E. by N., 8 miles; Calf of Man, N.W., 57 miles; Liverpool N.W. Lightship, S.W. by S., 17 miles; Pile of Foudry Light, N.E. by N., 18 miles; St. Bees Head, N. by E., 50 miles; Point Lynas Light, W., 41 miles; Douglas Head, N.N.W. ¾ W., 50 miles; Maughold Head, N. by W., ¾ W., 51 miles. The entrance to the River Ribble is by two Channels, called the North Channel and the Gut. The compass course is on Nelson Buoy; that leads to the different outer buoys at the entrance of each Channel. There are buoys placed in the deepest parts of the Channels, which in some places are narrow. There are 11 buoys placed in the North Channel, numbered from 1 to 11, and marked with the letter N. In the Gut are 5 buoys, with cages on the top of each: these lead to No. 8 in the North Channel, where the two Channels meet. The outer buoys of the two Channels lie in 3 fathoms, low water spring tides: from them the other buoys can be seen. No vessel drawing more than 10 feet water should enter the Ribble later than one hour after high water. There are two tug boats at Lytham to tow vessels up to the Preston quays, if required. Vessels drawing 12 feet water can go up to Preston at spring tides. The quays are connected by a branch with all the railways in the district.—On the northern side of Preston Bay is the village of LYTHAM, where coasting vessels resort, before which is a small tide-light. Here is a dock where vessels can lie in safety, and also a branch railway to Preston. The Lytham Lighthouse, exhibiting two fixed lights, one being Red, stands on the Gravel Point

near where the two Channels meet, and bears S. E. by E. ½ E., 7 miles from Nelson Buoy. Both lights are visible all round from the Blackpool to the Southport shores.—Masters of vessels not acquainted with the navigation of the Ribble, are advised to put into some safe harbour inside the line in the South Channel, from St. David's Head, on the Welsh Coast, to the Tuskar Rock, on the Irish Coast, and inside the line in the North Channel, from the Mull of Cantyre, in Scotland, and Fair Head, in Ireland, and to address a letter to the Harbour Master at Lytham, who will immediately send a Pilot well acquainted with the river to conduct the vessel to Lytham, at the following rates:—From inside the above lines—foreign bottoms, 10s. per foot, English bottoms, 8s. per foot; from outside the Nelson Buoy—foreign bottoms, 5s. per foot, English bottoms, 4s. per foot; from Nelson Buoy—foreign bottoms, 4s. per foot, English bottoms, 3s. per foot; from No. 1 Buoy—foreign bottoms, 3s. per foot, English bottoms, 2s. per foot; and from outside the two lines above mentioned, 2s. per foot extra.

Morecambe Bay.—In sailing towards this bay, which is about 8 leagues from Formby Point, keep full 4 miles from the shore, on account of the flat shoal water, known by the name of the Oyster Grounds; these begin nearly abreast of Blackpool, and extend to Rossall, the north bank of the Wyre River, which they now join. The western edge of these grounds is steep-to, and there are on some parts of the Oyster Grounds not more than 6 and 9 feet at low water. The entrance to Morecambe Bay is known by the name of Lune Channel, and is 2½ miles wide. On the southern side is the Point of Rossall, and on the northern side is the Island of Walney; on the former is a conspicuous beacon or landmark, and on the latter is a lighthouse, which bear from each other nearly north and south, distant 8 miles. The Point of Rossall is low land, and the beacon, when seen at the distance of about 5 miles, has the appearance of a vessel under sail. Morecambe Bay is encumbered with numerous large sandbanks, many of which dry at low water, and some at half-ebb. The general direction for the mariner, if bound to Lancaster, will be to attend particularly to his soundings, taking care to get into the deep water of the Lune Channel, and to remain there until he obtains a pilot. When in 24 and 25 fathoms, you will perceive the ends of the rock weeds floating, and the water of a darker blue than when you are over any of the banks.

The **River Wyre.**—The following are the directions for entering the Port of Fleetwood:—On coming from sea, keep the westernmost part of Walney Island to the eastward of Blackcombe until Rossall Landmark bears S.E.: here you are entering the deep water of Lune, where you will have 28 fathoms at low water. The shoals to be avoided on approaching Wyre are, Shell Wharf, North Wharf, and King's Scar Ridge. A large red buoy is laid down nearly on the point of the Ridge, to which a good berth should be given; it also marks the southern side of the Lune deep. A black perch is placed on North Wharf, about three-quarters of a mile S.E. by S. from the King's Scar Buoy. On the north side of Lune deep a black buoy, with globe on the top, and marked "Danger Patch," is placed a few fathoms westward of a shoal patch bearing that name. Between these buoys is the Lune deep or channel. Rossall Landmark is a large wooden structure (of a conical shape) built on the shore of Rossall point, and denotes the southern limit of Lancaster or Morecambe Bay. Walney Island, on which is a revolving light, is the northern limit. Shell Wharf extends to the westward of Rossall Landmark and North Wharf. If in hazy weather you fall in with low land, and not knowing whether it is Walney or Rossall land, your lead, which should never be neglected, will at once inform you; for 4 or 5 miles off Walney, you will have 8 or 10 fathoms, but at the same distance off Rossall only 4 or 5 fathoms. After passing the Danger Patch and King's Scar Buoys, you will observe the Fairway Buoy to Fleetwood channel. It is a vertically striped black and white buoy, and lies half-a-mile N.N.W. from the Screw Pile Lighthouse. Enter the channel between the Fairway Buoy and the lighthouse, leaving the lighthouse on the starboard hand, and running up for the chequered buoy on the Little Ford, leaving that buoy on the port hand. You will now have come up with the red buoy on the Big Ford; leave that on the starboard hand; then leaving all the black buoys, which mark the eastern side of the channel, on the port hand, and the red buoys and perches (the latter having red globes on the top) on the starboard hand, round close-to the Steep Breast, on the edge of which stands the Lower Shore Lighthouse, and where the tides run very strong: you then enter the Harbour. There are large red buoys for mooring ships to. Sail between the buoys and the shore, letting go your anchor when you reach the upper part of the Canshe Hole; but be careful not to foul the moorings of the buoys, as they run in various directions across the harbour. Strangers visiting this port should always hoist signal for a pilot, several of whom are constantly on the look-out. There are two pilot cutters (numbered 1 and 2)

with pilots for any ports in the bay; the former is stationed at Fleetwood, the latter at Pile, and both are generally cruising off the bay. The Screw Pile Light is a Fixed Bright Light, seen 8 or 10 miles in clear weather. There are also two Fixed Shore Lights, lighted from half-flood to half-ebb. By day, a black ball hoisted on a pole at the Screw Pile Light and Lower Shore Lighthouses, denotes the same interval of tide. A bell, tolling three strokes per minute in foggy weather, is sounded from the Screw Pile Lighthouse, and may be heard at the distance of two miles. There is good anchorage off North Wharf, anywhere between the King's Scar Buoy and the Lighthouse, in such water as the state of the tides and a vessel may require. A green buoy is placed near a wreck on the Bernard Sand, about half-a-mile N.E. of the Screw Pile Lighthouse; but your vessel should never be that far to the eastward, as the tides generally run across there, and will set you ashore.

The **River Lune.**—SUNDERLAND, GLASSON, and LANCASTER.—Sunderland harbour is at the mouth of the River Lune, and is dry. Large vessels may go in after half-flood, and lie on clean ground below the houses, and with neap tides, ships of 12 feet water may ride afloat in the pool, off the westernmost houses in the village. It is not safe riding in the pool with spring tides, because of the rapidity of the stream, which runs there about 4½ miles an hour when strongest. The channel leading into Sunderland is buoyed, and there is a Lighthouse on the south side, over against the point of Sunderland. Bernard's Wharf, the westernmost bank, begins to dry at half-ebb. At the easternmost buoy there is a patch of sand that dries with spring tides only. To come up with the outer or westernmost buoy of the channel of Lune River, take half-flood, and stand no nearer the North Wharf Bank than 8 fathoms water; or keep Lancaster Church Steeple a small sail's breadth open to the southward of the Bluff End of Highfield—a long hill under the same high land, which terminates in a remarkable Bluff Point, a little to the northward of the Church Steeple. This mark will bring you up to the Outermost Buoy, clear of North Wharf and Bernard's Wharf; or, when this mark cannot be seen, keep the westernmost part of Walney Island to the eastward of Blackcombe, until the Landmark bears about S.E. In this situation you are entering the deep water of the Lune, where you will have 28 fathoms at low water, and the Outermost Buoy bearing about east from you; and should you be forced in by strong gales, or night coming on with a flood-tide, that you cannot keep an offing, you may bring your vessel safely to an anchor to the southward of the buoy.—If in dark hazy weather you should fall in with low land, bearing E.N.E., &c., and not know whether it is Walney or Rossall land, your lead will at once inform you; for at the distance of 4 or 5 miles from Walney, in that direction you will have 8 or 10 fathoms water, but at that bearing and distance from Rossall, only 4 or 5 fathoms.—*To avoid the Shoals on the north side of the Bay:*—Near low water come no further in, with a vessel of considerable draft of water, than where Walney Lighthouse is open to the eastward of the highest part of Blackcombe, when the Landmark bears S.E., as you are here to the westward of the Stony Patches on the north side of the Lune, where you may safely stand off and on for a pilot.—*To avoid the Shoals on the south side of the Bay:*—Shell Wharf extends W. by N. to W. by S. from the Landmark, therefore you must take care about low water to keep the Landmark to the southward of E.S.E., and when you steer for the buoy at the proper time of the tide, and having fallen into the deep water of the Lune, you must allow for North Scar and North Wharf, a high bank, which runs out 2 miles northward of the Landmark, and covers about half-flood. About high water, you may venture in the day time to stand over any part of the bay from Pile of Foudry to the Outermost Buoy in the Lune; but in the night or thick weather, keep further out to the westward, taking care to keep the lead constantly going, and watch every opportunity to take the bearings of the marks before mentioned, until you obtain a pilot.—The *First*, or Outermost Buoy, lies in 6½ fathoms at low water, neap tides, with Pile Castle bearing N.N.W. ½ N.; Lighthouse on Walney, N.W. by N. ½ N.; North End of North Wharf, W. by S.; Landmark on Rossall Point, S.W.; Foot of Wyre Lighthouse, S.W. by W.; Lancaster Church Steeple, a little open with Highfield, E. by N.; Second Buoy, E.S.E. The First Buoy must be passed on the south side. If too early of the tide, or too late in the evening to proceed up the river, you have good anchorage one cable's length to the eastward of the Second Buoy, under Bernard's Wharf, where you will have 3 fathoms at low water, and little current; but you must not proceed up the river with a vessel of considerable water draft until after half-flood. The *Second* Buoy lies in 3 fathoms, with Outermost Buoy bearing W.N.W.; Third Buoy, S.E. by S. The *Third* Buoy lies in 5 feet, with Second Buoy bearing N.W. by N.; Fourth Buoy, S.E. by E. The *Fourth* Buoy lies in 5 feet, with Third Buoy bearing N.W. by S.W.; Fifth Buoy, E.by N.½N. The *Fifth*, or In

nermost Buoy, lies in 5 feet, with Fourth Buoy bearing W.byS.½S.; Lighthouse on Abbey Scar, E. by S. Keep the Upper and Lower Lighthouses in a line, and guard against the flood-tide setting strong to the southward, up Cocker. Soon after you have passed the Lower Lighthouse, keep Basil Barn a little open to the southward of Overton Chapel, which will take you clear of Thornbush Fishery and Town's Skear, to Sunderland, where you may obtain a pilot. The deepest water is on the south side of all the Buoys, and the River Buoys are placed on the north side of the channel.—GLASSON is about 5 miles before you reach Lancaster. Upon the pier is a harbour light, shown at tide time. The tide flows at the dock gates the same time as at Liverpool; adding two inches to every foot of water at Liverpool, will give the height at Glasson. Every vessel going into the dock must clew up her sails, and (if the wind be any way to the northward) let go an anchor before coming into the Dock Gut, to prevent her anchor bills running through her bows and destroying the works. If the wind be from the westward, and a flowing tide, she may safely touch on the west side, and be veered alongside the pier-head, by a line from the westward; but on no pretence whatever is any vessel to attempt going in under ever so easy sail, as several serious losses have already been sustained thereby; and no steam-vessel is to use her paddle wheels either in going in or out of dock, but to let off steam before doing so. Masters of vessels offending in these particulars are liable to a penalty of £5, besides having to repair the damage.—From Glasson to LANCASTER the Channel is irregular, variable, and shallow; the shallowest part of it having no more than 7 feet water at high water with neap tides, and 12 or 14 at high water with spring tides. Pilots, legally appointed to conduct vessels to and from the quays at Lancaster, may be obtained at Snatchems, near Sunderland.

Morecambe Harbour.—This harbour is situate at the terminus of the North Western Railway, and is connected with the Midland, and Lancaster and Carlisle Railways. A new stone pier has recently been constructed, and superior accommodation provided for the transhipment of passengers and merchandise between the railway trains and steamboats. The dues levied on vessels in respect of lights and buoys are 2d. per ton on vessels from ports in the United Kingdom, and 3d. per ton on vessels from ports beyond, but when such dues have been paid three times in one year by any vessel, they are then reduced to 1d. per ton on the same vessel for the remainder of the year. There are no other dues or port charges on vessels.—The sailing directions for Fleetwood or Lancaster must be adhered to until the Screw Pile Light at the foot of Wyre bears south, then, if flood tide, haul up N.E. by N., and if ebb, N.E., which course leads to the New Screw Pile Light at the entrance of the Channel to Morecambe Harbour. This Lighthouse is upon the same plan, and is similar in appearance to the Foot of Wyre Lighthouse, but exhibits a *Red Light*, visible at a distance of 6 miles, and with the following compass bearings:—Walney Light, N.W. ¾ W., 6¼ miles; Wyre Light, S.W. ½ S., 4⅘ miles; Morecambe Harbour Pier Head Light, E. ¼ N., 5⅓ miles. The Light is masked to the extent of one-fourth of the circle facing Heysham Lake and Lune Estuary. A Ball by day, and a small *Green Light* by night, on the west side of the house, indicate when not less than 8 feet water in the Channel up to the Harbour. A Bell is tolled during foggy weather or snow.—Seven Buoys define the Channel leading to Morecambe Harbour, namely:—No. 1 *Red* Buoy, on the Western Point of Clark's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W.; Morecambe Harbour Pier Head Light, N.E. ½ E.; Walney Light, N.W. ¼ N.; No. 2 Red Buoy, E. ¼ N.; No. 2 Black Buoy, E. by N. ¼ N. No. 1 *Black* Buoy, on the Western Point of Yeoman's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W. ½ S.; Morecambe Harbour Pier Head Light, E. ¼ S.; Walney Light, N.W. ¼ N.; No. 2 Red Buoy, E. by S. ¼ S.; No. 2 Black Buoy, E. ¼ S. These two buoys define the mouth of the channel; they are about three-quarters of a sea mile apart, and have a depth of about 9 feet between them at dead low water. No. 2 *Red* Buoy, on the north side of Clark's Wharf, the compass bearings being—No. 2 Black Buoy, N.E. ¼ W.: No. 3 Red Perch Buoy, E.N.E. No. 2 *Black* Buoy, on the south side of Yeoman's Wharf, the compass bearings being—No. 3 Red Perch Buoy, E. ¼ N. No. 3 *Red* Perch Buoy is placed on the western point of Low Scare, and may be passed on either hand. The compass bearings from this buoy are—No. 4 Red and No. 4 Black Buoys, E. ¼ S. No. 4 *Red* Buoy is on the end of the Old Scare, and No. 4 *Black* Buoy is on the end of Stone Scare. It is larger than the others, and has a circular cage on the top; it rolls very heavily during the strong current of flood or ebb tide. Vessels approaching the Harbour at low water should anchor below this buoy, where there is excellent holding ground in a depth of not less than 5 fathoms at dead low water, spring tides, and remain there until a Black Ball by day is exhibited at the end

of the Pier, and at night until half-flood, when there will be a depth of 8 feet in a clear course between the No. 4 Buoy up to the harbour. A Beacon on Stone Scare must be left on the starboard hand coming in. A Lighthouse is erected on the New Pier, which exhibits a *White Light* from sunset to sunrise; in the daytime a Black Ball is hoisted when there are 8 feet water between the No. 4 Red and Black Buoys.

Pile of Foudry.—Pile of Foudry is a harbour near the south end of Walney Island, where large merchant ships may ride in good shelter near the west or south-west side of Roe Island, in from 3 to 5 fathoms water. Small vessels commonly lie aground in the bight, on the east side of Pile of Foudry Island, about a cable's length from high water mark, when the house bears S. by W. In the anchorage near Roe Island the streams of flood meet; one from the north, the other from the south, and make it troublesome to keep the anchor clear. The stream here runs abont 3 miles an hour when strongest. On the south end of Walney Island is a stone lighthouse, exhibiting a revolving light 70 feet above high water, flashing every minute, visible in clear weather 3 or 4 leagues; there is also a small fixed light of a red colour. On the north side of this channel is Walney Island, which is low land, and on the south side are several sandbanks or stony ledges; the most dangerous of these is the Stony Patch, which lies to the westward of all the others, distant from the lighthouse on Haw's Point about four miles; to clear it to the westward, bring the Old Castle on Pile Island just open to the eastward of the lighthouse. The lead should be kept constantly going, and if coming from the southward, bring Blackcombe Hill on with the north end of Walney Island, and keep them so until Walney Lighthouse comes E.N.E., and the ruin upon Foula Island touches Haw's Point. The Helpsford Sand is on the S.E. side of Walney, within a mile of the shore, to clear which, you must bring the dwelling-house near the lighthouse a sail's breadth open of the southernmost sandhills, or the lighthouse just clear of the eastern chimney of the same house, bearing N.E. by E.; then, as you advance, bring the ruin of the house on Foula, before mentioned, on with Haw's Point, and these marks will lead you in. Upon the bar is 15 feet water at 2 hours' flood, and the rise of tide is sometimes 29½ feet. The strength of the flood tide is 2½ knots an hour, and the ebb nearly the same. In leading to the anchorage with a flood tide, and the wind scant, you may stand along the southern part of Walney about a mile from the shore, and have regular soundings. In dark weather, should you fall in with land bearing E.N.E., and uncertain whether it is Walney Island or the land adjacent to Rossall Point, then you must be guided by your lead, for at the distance of 5 miles from the former are 7 and 8 fathoms, but at the same distance from Rossall there are only 4 or 5 fathoms; allowance must be made for the rise and fall of the tides, making high water full and change at 11 o'clock. In running for the Pile of Foudry anchorage at half-flood, give Haw's Point a berth of half a cable's length, and keep off Pile Castle Point a similar distance, then, should your vessel draw 10 feet water, anchor in the bight below the house on Pile Island, or near to Roe Island, in 5 fathoms, with the lighthouse open to the starboard of Pile Castle. The breadth of the anchorage above Roe Island is nearly 2 cables. Here the ground holds well; as the tide ebbs you become quite landlocked, and may shorten your cable, to enable you to swing clear of either side at low water in 3 fathoms.—Vessels bound from Pile to Barrow should leave Roe Island Lighthouse on the starboard hand, when they will fall in with the Fairway Buoy for Barrow, painted black and white. Further on they will find *Six Red Buoys*. Nearly in a line by keeping them on the starboard hand will lead vessels up to Barrow Pier, where they will have 18 feet water spring tides, and 10 feet neaps.

Ravenglass is a dry harbour, where three rivulets, the Esk, Mite, and Orte, unite about 12 miles to the southward of St. Bee's Head. There is a buoy placed a little within the mouth of the channel, in the middle, near the Fish Wear, which marks the entry. At this buoy, and in most parts of the channel, the depth is fathoms at high water, with neap tides. The best part for vessels to lie aground on is, half a cable's length from the west end of the town of Ravenglass, on the south side of a perch which stands on the point of a sand there. At this anchorage, in the mouth of the river Esk, and also at the meeting of the other rivers, there are 3 fathoms at high water with spring tides, and 10 feet with neaps. To sail into Ravenglass Harbour, take 4 hours of flood, keep above a mile from the coast to avoid Selker and Drig Rocks (till Ravenglass town bears E.N.E.); steer in that course till you see the buoy bearing east, and then steer right for it, keeping within a ship's length of it on either hand; when you are just past the buoy, steer E.N.E., or keep Ravenglass a sail's breadth open to the north of your stern, till you are about half a mile from the east end of the sandy hillocks; hook the small bay, which begins there; keep near a cable's length from the point at the end of the

small bay, and anchor half a cable's length from the west end of the town, or off the perch, in the meeting of the three rivers. When the buoy in the entrance bears E., it is also in a line with the south shoulder of Newton Knot Hill, which is a small hill half a mile south of Ravenglass. The tide flows here, full and change, at 11 o'clock; and off the Bar runs as follows: the last half-flood and the first half-ebb set Northward, at the rate of 2 miles per hour, spring-tides; and the last half-ebb and first half-flood Southward at the same rate. There is a foot of water more on the Bar than shown by this Tide Table.

St. Bees Head.—To the Northward of Ravenglass Harbour, distant 13 miles, is St. Bees Head. On its summit is a LIGHT-HOUSE, the light from which is *stationary*, appearing like a bright star at the distance of 6 or 7 leagues in clear weather. From the entrance of Formby Channel to this Head, the course and distance are N. by E. 20 leagues. In sailing along from Walney Island to St. Bees Head, keep 2 or 3 miles from the shore, and you will clear every danger. Vessels in moderate weather, may stop a tide any where along the coast, for the stream seldom runs more than a mile an hour.

Whitehaven.—About 3 miles E.N.E. from St. Bees Head is the town of Whitehaven: the harbour is dry, and divided into basins by strong quays, which break off the sea. Within the second basin is the best place for vessels drawing above 10 feet water. Here you will find 20 to 22 feet water spring-tides, and 12 to 14 neap. The HARBOUR LIGHTS are upon the outer and inner Pierheads. The inner Light is *stationary*, of a RED colour, and is lighted while there are 9 ft. water between the Pierheads. The outer Light *revolves*, is lighted all night, and is seen at a distance of 3 or 4 leagues in clear weather. The light appears in its brightest state once every 2 min., and gradually becomes less luminous, till eclipsed. In the day a *Flag* is hoisted on a pole at the top of the old Lighthouse, while there are 9 feet water in the harbour, on entering which, keep both lights on the starboard hand.—A Blue Light is shown from a lighthouse on the end of the north pier, which has been extended 352 yards.

Harrington Harbour is 4 miles Northward of Whitehaven. A *Lantern* is hoisted upon a pole on the starboard side of the entrance, while there are 8 feet of water in the harbour, and in the day a Red Ball, at the inner end of the pier, during the same interval of tide.

Workington is 2 or 3 miles north-eastward of Port Harrington. A red ball is hoisted upon a pole on St. John's pier when there are 8 feet water in the harbour; and at night a light is exhibited on the pier-head, which answers a like purpose, and can be seen in clear weather at about 3 leagues from any point seaward. The channel into this port is along the south shore, its entrance bearing from St. John's pier nearly E. by S. by compass. It is formed by red buoys on the south side, and black buoys and perches on the north side, the deepest water being midway between. The outer perch has a cask upon it, painted black, which must be kept on the port side in entering. Steer in between the perches and red buoys, giving St. John's pier-head a berth of about 100 feet on the starboard side. After passing St. John's pier a perch with a white board upon it is the leading mark for the channel by day; and, by night, the southernmost of the blast furnaces on the north side kept right a-head, until an inner light which is on a wooden pier bears about S. E. ½ S.; then steer S.E. ½ E. for the entrance to the harbour, keeping the light upon the wooden pier on the starboard side, and passing a perch with a small black cask upon it by about 10 feet on the larboard side, when the harbour boat will be in attendance.

Maryport, situate about 5 miles N.E. of Workington, is easy of access, free from sand banks, and has a capacious dock, in which vessels are kept constantly afloat, as well as its original tidal harbour and basin. Depth of water in ordinary spring tides, 21 ft. 6 in., neap tides, 13 ft. 6 in.; or by adding 3 ft. to the water shewn in Holden's Liverpool, and the Manx tide tables, a near approximation for each tide will be obtained. A fixed bright light is exhibited on the outer pierhead all night, and another on the inner stone pier whilst there are 8 feet in the harbour; both lights are on the starboard side in entering, and are visible at sea from E.N.E. to W.S.W., the former at a distance of 15 miles, and the latter 10 miles. A Red Ball near the inner lighthouse denotes 8 feet in the day time. The jetty on the south side is distinguished by a Red light, and the north tongue by a Green one. Steam tugs are in readiness every tide, and when required by vessels at night, two lights must be shown one above the other; or by day a union jack at the main. There is good anchorage in stiff clay, about 1½ miles off shore, the outer lighthouse bearing S.E.

Solway Frith.—The entrance to Solway Frith may be considered to commence abreast of Workington, on the English, and at Abbey Head on the Scottish shore, the distance between which is 5 leagues. On the eastern side of the Frith of Solway, about 10 miles north-eastward from Maryport, is

Port Silloth.—This place is daily increasing in importance, being connected by railway with Carlisle, Newcastle, and Edinburgh, the rails of which are laid on the quays. It contains a wet dock, with entrance gates 60 feet wide (opened Aug. 3rd, 1859), and a jetty from the dock entrance into 10 feet at low water. The dock sill is 3 feet 6 inches above low water mark; and by adding 5 feet to any tide in this tide table, the depth over the sill will be given for high water. A Yellow Light is exhibited in the Lighthouse at the end of the jetty from Sunset to Sunrise; and during the time the gates are open a Green Light will be shown under the Yellow Light when vessels may enter the dock. In the day time a Red Ball will be hoisted. The dock is fitted up with Hydraulic Machinery, by which vessels are discharged with the greatest possible dispatch. In Silloth Bay (between Lee Scar Light and the jetty) there is excellent anchorage in from 4 to 6 fathoms at low water, clay bottom. It is high water here, full and change, 11h. 35m.; spring tides rise 26 feet and neaps 20 feet. The fairway course, from about a mile off Workington to the Light Vessel at the entrance of the channel, is N.E.; and to avoid the tail of Robin Spit, care should be taken not to bring the vessel to the eastward of E.N.E, on which bearing the bright Light on Lee Scar will be in one with it. This Light Vessel is in the middle of the channel, in 3¾ fathoms at low water, and exhibits a fixed Red Light at 25 feet above the water, visible six miles. From it Maryport Outer Light bears S. by W.½W., 4¼ miles; Southerness Light, N. ¼ E., 5½ miles; and Lee Scar Light, E. N. E., 6 miles. It has a black ball at the mast-head during the day, and in fogs a bell is tolled. Having passed the Light Vessel, continue to run on N.E. ¼ N. a mile and a quarter, which will lead you up mid-channel in 3½ to 4 fathoms at low water till you are abreast of Buoy No. 2 Black, or if at night when the bright Light on Lee Scar comes in one with the Cott Red Light, bearing E. by N.½N., alter your course to that direction, which will carry you up the fairway as far as Lee Scar in a depth of 2¼ to 5 fathoms. On passing Lee Scar Lighthouse keep a good cable's length to the northward of it. Silloth Harbour is about half a mile above Lee Scar. When following the preceding instructions, it is necessary to bear in mind that, as far as Silloth Bay, the black nun buoys should be kept on the port, and the red can buoys on the starboard hand. The black and white striped buoy marked F in the fairway off Beckfoot is passable on either side. The shoalest part of the channel, on which there are 2¼ fathoms at low water, is about half a mile below this latter buoy; thence to Silloth the depth is from 3 to 5 fathoms. The harbour expenses, including light charges, are—Coasting vessels 6d; Foreign vessels 9d., per register ton. Branch Pilots for Silloth may be had (if required) off Maryport; charge, 1s. 9d. per foot.

Port Carlisle, a dry harbour, 10 or 11 miles up the Frith from Silloth Bay, is connected with Carlisle by railway, the rails of which run on the quays. It is high water here, full and change, at 12h. 10m.; springs rise 18 feet, and neaps 11 feet; the flood runs 3 hours. In this part of the Frith the sands so frequently change their position that detailed instructions for running up are useless; it is necessary, therefore, to keep a good look-out for the buoys, which are all placed in the deepest water, and numbered 1, 2, 3, &c. The harbour expenses, including light charges, are—coasting vessels, 4d., and foreign vessels, 9d. per register ton. Pilots may be had off Maryport; charge, 3s. 6d. per foot.—At Annan Foot there is a bright tide-light, and 2 perches on the western side of the entrance; the light is shown from half-flood to half-ebb. There is also a tide-light on the end of the jetty at Port Carlisle, 3 miles above Annan Foot, on the opposite or southern side of the channel; this light opens off Knockcross Point, on a S. E. by E. bearing. After passing Annan, soundings should be taken of the English side of the channel up to Port Carlisle.

Magnetic Bearings & Distances

FOR THE WEST COAST OF ENGLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

BUOY NELSON, OFF PRESTON (Lat. 53 43 N., Long. 3 11 14 W.)

	MILES.
To Beaumaris entrance....	W. by S. 39
Dundalk Bar.....	N.W. by W. 112
Douglas Head Light	N.N.W. ¾ W. 50
Ross Light, Kirkcudbright....	N. 71

WYRE LIGHT, FLEETWOOD (Lat. 53 57 14 N., Long. 3 1 46 W.)

To Great Orms Head..	S.W. by W. ¾ W. 45
Dundalk Bar....	N.W. by W. ¾ W. 112

WYRE LIGHT, FLEETWOOD

	MILES.
To Wicklow Head Light	W. ¼ S. 118
Calf of Man L'ts.	N.W. by W. ½ W. 65
Walney Light	N. by W. ½ W. 8

WALNEY LIGHT (Lat. 54 2 56 N., Long. 3 10 32.)

To Wyre Light	S. by E. ½ E. 8
N.W. L'tship, L'pool. .	S.W. by S. 35
Kish Lightship	W. ¼ N. 104
Calf of Man	N.W. by W. ¾ W. 57

ST. BEES' HEAD (Lat. 54 30 50 N., Long. 3 18 W.)

	MILES.
To N.W. L'tship, L'pool	S. by W. ½ W. 65
Tuskar Rock Light	S.W. by W. ½ W 162
Douglas Head Light .. .	W. by S. 42

WHITEHAVEN (Lat. 54 33 N., Long. 3 26 2 W.)

To Beaumaris entrance ..	S.W. ¾ S. 76
Skerries Light	S.W. ¾ W. 65

WEST COAST OF SCOTLAND.

SOUTHERNESS LIGHT TO THE MULL OF CANTYRE.

Southerness Light, at the west side of Solway Frith, is chiefly useful as a direction to the harbour of Dumfries. It shows a fixed bright light, from N.E. seaward to W., which can be seen at the distance of 11 miles in clear weather.

Little Ross Island—A Lighthouse has been erected upon this Island, which lies off the entrance of Kirkcudbright bay and harbour. It bears a fixed and flashing light, producing 12 bright flashes in a minute, visible from N. by E. to N.W. by W. Southerly, at the distance of 6 leagues.

Kirkcudbright is formed by the Points Balmae and Torrs to the E., and the Island of Little Ross to the W. There are two Towers on Little Ross bearing S.W. from each other, which being kept in one lead over the Bar in the best water to the First Perch on the S E. shore; thence running N.E. about 300 yards, passing a Red Buoy on the point of the bank on the larboard hand; thence N.N.W. passing the Perch on the point of St. Mary's Isle on the starboard hand; thence direct to the lower Fish-house, where is a Pool a vessel can ride afloat at spring ebbs. Abreast and above the upper Fish-house there is excellent lying on soft mud, moored to rings on the rocks, and no stream of tide. On the bar of Kirkcudbright River there are about 8 feet water at half-flood. Vessels running for this place, and not having water over the Bar, will find good anchorage in the Ross Roads in from 2 to 3 fathoms at low water, in good clay ground. Should the wind be Southerly, blowing hard, a vessel should bring up on the W. side of the beach just as the sound begins to open, the closer to the beach the better, as it is very steep-to and quite out of the sea. At half-tide she can trip and run up the lake to the Lake or Fish-house, or waiting 4 hours' flood may run up for the Perch off St. Mary's, and proceed to Fish-house or the town. The coast from Kirkcudbright to Belcarey Bay and River Urr is a bold rocky shore, with neither beach nor harbour.

Belcarey Bay, about 8 miles to the E. of Abbey Head, is formed by the High Lands of Aairds to the W., and Heston Island to the E.; entrance ½ a mile wide. The Heston Island is also high, and highest in the middle: this is an excellent place and too little known. Vessels running for it should keep close past the Aairds, and keep close up till they come above the first salmon weir opposite the large house in the bight, when they may go as far in as water will admit, as it is all clean ground, and quite landlocked from all weathers. The tide sets strong E. and W. past all these places, till a vessel comes within the points mentioned.

Wigton Bay lies to the westward of Kirkcudbright Bay, and has a spacious entrance. Here are several places where vessels may stop in moderate weather, or when the wind blows off the shore. The channel to Wigton is shallow and intricate, and will admit only small craft. Vessels may stop with good anchorage in 7 or 8 fathoms water, about a mile to the northward of Stone Head, and half a mile from the shore, where the bottom is clean sand.

Garlieston. — The entrance to this harbour, situate in the Bay of Wigton, is spacious and of easy access, no pilot being required. Here coasters will find good shelter, with an easy loose for any part. When desired, a light is shown from the pier-head, which has been recently extended 250 feet, and where are at springs, 18 to 20 feet, and 11 to 12, neaps. From the pier-head the Ross Light bears S.E. by E. In taking the harbour, keep the perch off the breakwater on the larboard hand. Port charges, 1d. per ton; harbour boat, 3s. to 6s.

Whitehorn.—To the southward of Stone Head and near Burrow Head is Whitehorn Island, between which and the coast is Whitehorn harbour, in which vessels drawing 12 feet water cannot be neaped above twice a year at the quay. It is well sheltered from all winds. The only danger is the Screen's Reef, a rocky ledge extending from the west point, upon which the tide sets very strong. Going into the harbour from the W., if Stone Head be kept open of Kairn land it will clear the rocks on the W. side.

Glenluce Bay.—To the westward of Burrow Head is the bay of Glenluce, within which and near to the Mull of Galloway lie the Scar Rocks, always above water. There are no shoals near them; but off the Little Scar are two or three rocks, which the sea sometimes washes over. In moderate weather, with W. and S.W. winds, vessels may stop anywhere on the west side of the bay.

Mull of Galloway.—On the Southern point of the Mull of Galloway, a

ighthouse has been erected, and bears, y compass, from the largest of the Scar Locks, W. ½ N., 6 miles; from Burrow Head, W. by N. ¼ N., 18 miles. The ght is intermittent, 2½ minutes bright, hen eclipsed ½ a minute; is visible sea- ard 23 miles from N. E. to N. W. ¼ W.; ut the high lands of Dramore shut the ght from the view of the mariner in asting along the Port Patrick shores. fter rounding the Mull, which is a rocky hore, you will soon reach

Cromack Point, about 4 miles from hich is

Port Nessic Harbour, fit only for mall craft; but a vessel drawing not ore than 6 or 7 feet, may find shelter om N. or N. W. winds, by running round near the pier head. Seven and half miles further is

Port Patrick, a small and dry arbour open to the westward. Small essels must go in at high water, and run round on the N. side of the creek, or ithin the pier, so as to be out of the reach f the sea, in case the wind should blow om the W. or South-westward.

Point Corsewall is about 14 miles o the northward of Port Patrick, and is he north-west point of entrance to Loch yan; between are some rocks, but they e close in shore, and are mostly above ater. On the rocks off Laggan Point, alled Ebbstone Rocks, which dry at low ater, is a red beacon consisting of a yramid of iron pillars, 40 feet high, with cylindrical open cage on the top. From t Corsewall Lighthouse bears N.E. by E.; he highest point of Ailsa Craig, N.E. ¾ N.; and Laggan Point, S.S.E. ½ E. On Corsewall stands a Lighthouse, exhibiting white and red light alternately; these ights revolve, and attain their greatest rilliancy every 2 minutes. They may be een, like a star of the first magnitude, t the distance of 5 or 6 leagues, and are isible from N.E. by E. northerly, to S.W.

Loch Ryan is capacious, of easy ac- ess, well sheltered, with good holding round, and depth sufficient for large ves- els. The only danger to be avoided is the Scar, a tongue of sand on the western side f the Loch, and about 3 miles up the arbour, which extends 1½ miles south- astward from Kirkholm Point. There is large Red Nun Buoy on the end of the Scar, which distinctly shews its position. The best anchorage is about ½ a mile to the southward of Cairn Point, in 6 and 7 athoms. On this point is a tower, exhibi- ing a fixed light of the natural appear- ance, serving to lead to the anchorage. Opposite the Lighthouse Tower is a small Red Buoy, to mark the eastern edge of the Scar. Fourteen miles N.N.E. from Loch Ryan is the

Craig of Ailsa, a rock 940 feet high, with deep water all round it, serving as a beacon to guide ships to the entrance of the Clyde.

The **Frith of Clyde** makes a fine open entry to several rivers, having no danger more than a quarter of a mile from the shore, excepting the Brist Rock, which lies three-quarters of a mile W. ½ S. from Turnberry Point; it dries at half-ebb, and is about half-a-mile from shore.

Ayr.—Ten miles from Turnberry Point is the Town of Ayr, with a lofty Spire seen from a considerable distance. Here is a commodious harbour, fit for vessels drawing 12 to 14 feet water. The bar, at low water, has from 4 to 6 feet water over it, and with spring-tides at high water there are from 13 to 15 feet, and with neap from 11 to 12 feet over it; with fresh southerly winds there will be a foot more; for S. and S.W. winds raise the tides in all the rivers of the Frith of Clyde, and N. and N. E. winds have a contrary effect. On the north side of the harbour is a light-house exhibiting two lights; the upper bright, having a star-like appearance, and the lower red. There is also a tide-light (red) shown when 8 feet water are on the bar. The distance between the lights is 850 feet; and they bear from one another S.E. by E. ¼ E., and N.W. by W. ¼ W., and are leading lights for entering the harbour, and when kept in one lead over the bar in the deepest water. The upper or bright light may be seen 12 miles off; the red 9 miles; and the tide light 4 miles off. Vessels drawing 7 feet water may make directly for the bar so soon as the tide-lamp is lighted. A flag is hoisted in day-time at half-flood, and continues to be so until half-ebb. About a cable's length S. W. of the south pier lies St. Nicholas Rock, which dries with spring tides only; you will avoid it by keeping the two red buoys on the starboard hand coming into the harbour, the breakwater being on the larboard hand. There is an iron steam tug for towing vessels in and out; and the bar and harbour are being further deepened by means of a powerful dredging machine.

Troon Harbour has an extensive pier and breakwater, with 4000 feet of quayage room, and an average depth of 12 feet at low water; at the outer pier the rise and fall of the tide is from 8 to 11 feet. About 1 mile S.S.W. of Troon Pier is the Lady Isle, a large patch of rock with a large and small Beacon on it. These Beacons are not leading marks, and there is plenty of water inside the Isle. At the distance of half-a-mile N.E. from the pier,

is a half-tide shoal, on which is a red buoy. Here are exhibited two Lights; one, on the inner end of the Pier, intermittent, 40 seconds bright and 20 obscured; the other on the Pier-head, red. They bear from each other N.E. ½ N. and S.W. ½ S. 350 yards; and are visible, respectively, 9 and 6 miles. This harbour is perfectly safe, and may be run for in any weather by vessels of moderate draught of water, as there are no dangers but what are to be seen, and pilots are always in attendance. An extensive open wet dock or basin, 400 feet long by 300 wide, with 20 feet at low water tides, and capable of admitting the largest ships or steamboats, adds to the importance of this port. A branch of the Glasgow and Ayr Rail way comes down to the harbour, as does also the Railway of the Duke of Portland from Kilmarnock. There is also an extensive ship-yard, with one of the finest graving docks in the west of Scotland, capable of receiving ships of the largest size. The magnetic bearings and nautic distances are as follows:—From Troon pier head to Ayr Harbour, S. by W., 5 miles; Dunure Point, S.W., 9 miles; Beacon on Lady Isle, W. by S., 2½ miles.

Irvine.—Four miles and a half from Troon are the town and harbour of Irvine; and nearly midway, is Lappock Rock, upon which was erected, in 1843, a beacon about 40 feet above the level of the sea, bearing S.W. Southerly, distant about 2 miles from Irvine bar. There are now from 12 to 13½ feet water on the bar at high water spring tides; ordinary tides, 12 feet; and at low water 4 feet. There is a red warping buoy placed in the *fairway* of the river, about two cables' length from the bar perch, which perch must be kept on the starboard hand on going in. There are also pawls all the way up the river on both sides. Vessels running in should keep the middle of the river, and run right up till they come to the end of the stone quay, where they can either beach or anchor. There is a steam tug for vessels frequenting this harbour.

Ardrossan. — At about a mile to the N.N.W. of Saltcoats are the spacious wet dock and harbour of Ardrossan, in which 100 sail of coasters can lie with ease. The pier and breakwater completely shelter the harbour from southerly and westerly winds; and Horse Isle, with the other rocks, protect it from the N.W. The greatest depth at low water in the Inner Tidal Harbour is 10 feet, and in the Outer Harbour 18 feet. The entrance loch to the wet dock is 160 feet long and 40 feet wide; and at average tides there is a depth of 18 feet over the sill of the loch. The railway trains come alongside all the berths in the wet dc and harbour. There are a graving dc and patent slip attached to the wet dc —In place of the two previously existi harbour lights, a new lighthouse, exhit ing a red light, has been erected at extremity of the Breakwater. This lig illuminates an arc of from 15° to in the direction of the open chan leading into the harbour, and bears fr the middle of this channel E. and by on which bearing it is brightest. vessel running for the harbour sho steer the usual course from Pladda wards Cumbray Light, and when ab 14 miles past the former, and 7 m from the latter light, the Ardrossan Li will be seen, in favourable states of weather, on the starboard, at the dista of about 5 miles, and bearing E. by In running into the harbour the li should never be closed; but the ve must be kept within the illuminated sp in which there is nowhere less than feet at low water. A black can buoy ma the north side of the channel by which is on the west Grinan Rock, there is a perch on the Grinan Ro both to be kept on the larboard hand.

The **River Clyde** is remarkable the ease and safety with which it may navigated. It is provided with numer well sheltered harbours, and spaci arms of the sea, of easy access, and ca ble of containing the largest fleets. In proaching it, there are neither rocks, shoals, nor rapid tides to be feared. A is a high mountainous rock in the mo of it, conspicuous at more than 10 leag distance, and serves as a remarkable con to direct ships to it; there are 4 Li Houses to direct mariners farther up, to good shelter in the night; and ther hardly one opening to be seen but wh stranger, without draft or pilot, mi venture safely to run for in the day ti and find good anchorage within it coming up the SOUTH or St. Geor Channel, and having got up as far as A Rock, say passing it at 2 miles' distan the course by compass for Cumbray H is N.N.E. ½ E. nearly, and will carry clear of Holy Island, which forms the h bour of Lamlash. If at night, the Lig will be seen on Pladda, a small low land off the S.E. of Arran Isle. The tance between Ailsa Rock and Pla Lights is about 11 miles, and from Pla Lights to the Light on Cumbray Island There are very large Furnaces of I Works between Troon and Ardross which shew for a long distance at nig and might mislead a stranger, unl aware of what they are. It would, ho ever, be advisable for strangers to k between the Rock Ailsa and the Island Arran, till daylight. When coming

the NORTH Channel, particularly during the winter months, with a N.W. gale, ships should never run to leeward of Arran during the night, but as soon as they pass the Island of Sanda, inside the Mull of Cantyre, they should by all means haul by the wind, on the larboard tack, with the ship under easy sail, standing 2 hours each way. By this you keep in smooth water, and when daylight comes, can act according to circumstances. Should you run to the leeward of Arran, the wind, which was N.W. will be found at N.W. by N. and sometimes N.N.W. blowing heavy, with very heavy gusts, fit to tear every thing away. Keeping to windward, should the gale increase or continue long, you have Loch Ryan under your command; its entrance about 17 miles S. ½ W. from Ailsa; but once getting to leeward you can never regain your ground and you have a lee-shore to encounter. On approaching the Cumbray Islands, 3 entrances appear before you: the middle one is the main ship channel. In clear weather you cannot mistake the Cumbray Island, being distinguished by an old Light Tower on its highest part, a little to the southward of the present Light-house, which is low down by the side of the channel. There is a good ship channel to the southward of the Cumbray Island, but strangers never should attempt it without a pilot. The part of the Island of Cumbray on which the Light stands, is bold and steep close to. Opposite to it lies the Island of Bute, the nearest head or point of which is called Garroch Head, distant about 3 miles. Entering between these 2 head-lands, with the Cumbray Light on your starboard hand, when in mid-channel your course to the Light on the Point of Clough is N.E. ½ E., 12 or 13 miles. In proceeding on this course, a little more than half distance, you will fall in with a REVOLVING LIGHT on your larboard hand, situated on the Point of Toward, which forms the starboard side of the entrance of Rothsay Bay. The Clough light stands on a bold shore. On the opposite side is the town of Dunoon, off which lies a ledge of half-tide rocks, called Gantocks. The position of these rocks is marked by a large stone obelisk, which can be seen from a considerable distance. The river afterwards inclines a little to the eastward, until you get opposite to Gourock, situated in a small bay on your starboard side. Opposite the middle of this bay is good anchorage; and here it is advisable to anchor till a pilot comes on board. The mark, the centre of the bay with the Clough Light on with Kempuck.

Greenock, which is the chief port for large vessels in the Clyde, has three fine basins adjacent to each other. They are known as the west, the east, and the Victoria harbours. Between the pier-heads, at the entrance of the west harbour, there are about 20 feet at high water, spring tides, and from 10 to 12 feet at low water; alongside the quays is a depth of from 17 to 19 feet. The east harbour contains about the same depth of water, but is more spacious; on the quay is a crane capable of raising 50 tons. The custom-house stands between these two basins. On the eastern side of the east basin is the Victoria harbour, opened in 1851. It has an area of 6 acres, is 563 feet long, and 458 feet wide, with a uniform depth of 26 feet at high water, and 14 feet at low water, spring tides. On the quay is a large crane of 70 tons lift; there is also a steam crane of 15 tons lift, for loading coals. Connected with the east and west harbours are graving docks, the widths of their respective entrances being 34 and 38 feet. There are two lines of Rails all round the Victoria and East Harbours, in connection with the Caledonian Railway. A large Coal Shoot has been erected at the East Harbour, from which a great quantity of Coals are shipped daily. A small light is placed on the quay, in front of the custom-house, as a guide to the shipping, and lights of a red colour are exhibited at the several entrances of the port. In the roadstead are warping buoys; but in order to avoid the shoal off the custom-house, care must be taken to anchor as close as possible *outside* the line of buoys. The best anchorage for small vessels is off Albert Quay, in 4 fathoms water. About a mile N. N. W. of the custom-house are two fixed red lights, visible at the distance of two leagues: when in one, bearing W.S.W. ¾ W., they lead to the anchorage below the "Tail of the Bank."—COCKLE BANK reaches from the east end of the town of Greenock to the *Old Castle of Newark* at Port Glasgow.

Port Glasgow.—The channel from Greenock to Port Glasgow is narrow and intricate as far as *Garville Point*, and should not be attempted without a pilot; about a ¼ of a mile N. from Garville Point is a buoy on the south edge of the *Cockle Bank*. Keep that buoy on the larboard hand, and run about a cable's length from it. Near the E. side of Garville Point is a beacon, which pass on the starboard hand, keeping not less than 2 ships' length from it, nor more than half a cable, to avoid the Cockle Bank. Between this last-mentioned beacon and *Inch Green* is first a buoy and then a beacon; keep both on the starboard side, sailing at the distances before directed. There is also a beacon near the quay of Port Glasgow, which you must pass at 2 ships' length on the starboard side, and enter the harbour about high water. At the quay there is water for small craft only. At low water

it is dry, and with spring tides is capable of containing vessels that draw 10 and 11 feet water; the ground is soft and easy to lie on, and a good place for graving ships' bottoms is made here. A light is exhibited on the pier to direct the steamers; and at the entrance of the harbour is a light of a red colour on the west quay. About four miles from Port Glasgow is

Dumbarton, a creek in the mouth of the river Leven. Vessels drawing not more than 8 or 9 feet may go in at high water. If pilots cannot be had, the following directions may be useful. Weigh anchor and sail from Port Glasgow at half flood; keep a cable's length from shore at the Old Castle of Newark; from thence steer eastward between Audoch and Dumbarton Castle, about 2 miles, until you come abreast of Finlayston; then steer south-eastward for the western buoy off Dumbarton Castle; there anchor until it is high-water. Leave that buoy to the larboard, and the other on the starboard, and stand in for the entry, keeping that side close until you have passed the Castle.

Between Port Glasgow and Bowling Bay are three Lights: at Auchenleck, the Garmoyle Floating Light, and the third about a mile above Dumbarton: all to be left on the starboard hand in going up the river.

Glasgow.—On the lower or western extremity of Broomielaw Quay, and larboard hand going up the river, a light, of star-like appearance, is placed for the direction of shipping.

Isle of Bute.—To the westward of the Isles of Cumbray is the Isle of Bute, on the eastern side of which, directly opposite Great Cumbray, is Killichattan Bay, where vessels may anchor in from 11 to 16 fathoms. To the northward is the Bay of Rothsay, the ground good and clean, and well sheltered: you may anchor in any part on the E. side of the Bay: but the most convenient place is 2 cables' length N. of the pier-head.

Kyles of Bute.—The channels between Bute and the Main are termed the Kyles of Bute: their access is easy, and well sheltered, the bottom is extraordinarily good, and the depth sufficient for the largest ships. They are distinguished by the names of the East and West Kyles.

Island of Arran lies to the southward: at its S. E. extremity lies the ISLAND OF PLADDA, upon which a LIGHT HOUSE is erected, 3 miles north-easterly of which is the ISLAND OF LAMLASH. This island lies right in the front of the bay and forms a good and well-sheltered anchorage: the N. side of it is shallow about 2 cables' length from the shore, but the best parts to ride in are off the houses in Holy Island, in 9 or 10 fathoms, or about 2 cables' length E. by N. or E.N.E. from the pier at the town of Lamlash. A red buoy (called Fergusson's) is placed on a rock, with 14 fathoms water in the south entrance to Lamlash. You can go either side; but the Island side is best. At the north entrance on the mainland side is Hamilton's Rock, for which, in thick weather, a good look out should be kept, though it is scarce a ¼ of a mile from the shore and never quite covers. The lighthouse on Pladda exhibits two bright fixed lights, and may be seen from N.W. by W. southerly, to N.E. by E.; the upper at 17 and lower at 14 miles' distance. At the northern extremity of Arran Island is

Loch Ranza, the ground in which is very good, and water sufficient for large ships, but the place being narrow renders it fit for small vessels only. On the east side of the entrance there is a rocky ledge, dry at low water, which extends near one-third over to the opposite side; to avoid this ledge, keep in the middle of the channel. Anchor abreast of the houses of Ballino, in 5 or 6 fathoms water, nearest the E. side of the Bay, about a cable's length north of the Old Castle, which stands quite at the bottom of the Bay.

Loch Fyne.—To the northward of Arran is Loch Fyne, an extensive and good place for shipping, but is too deep in the middle for anchorage. Between Ardrishaigh and Ilan Yone there are from 20 to 30 fathoms, and from thence to Inverary from 30 to 70 fathoms; near either side, therefore, about a cables' length or two from the shore, is the best anchorage for large ships, and the north side is reckoned better than the south. In sailing up Loch Fyne the south shore, from Otter Ferry to Inverary, is the cleanest and boldest, and is the tract used by all large vessels. Opposite Minard Castle about 10 miles below Inverary is a shoal extending across the middle of the Lough, it is marked by beacons, and you can go either side, but the west is the safest: all the middle part dries at low water.—On the west side of Loch Fyne, and about 8 miles below Skipness Point, is the little harbour of EAST TARBIT, much frequented by steamers and sailing vessels. INVERMIEL BAY is also used as an anchorage by large vessels, in 10 fathoms water.—At Ardrishaig Point is the Crinan Canal, where there is a Pier, and good anchorage for vessels bound north or to Loch Gilp Head. The best place is on the north side of Ilan Yone, in 3 fathoms, to enter which sail up to Ardrishaig Pier or Lighthouse, and then cross to Ilan Yone.

Campbeltown Harbour lies about 11 miles south-westward of Point Carradale; it is large, well sheltered, the ground good, and there is very little to be feared in sailing into it. On coming from the S. or S.E., you will first see the Island of Devar and the *blind* sound to the south-west of it, through which is a view of the town. On Otter Buoy, the north-east point of Devar Island, is a light-house, from which is exhibited a bright light every half minute; it is visible from N. ¼ W. to E. by S. by the N., and may be seen in clear weather about 15 miles. This light is a good guide for clearing Paterson's Rock; if kept in sight, it will lead about 3 miles to the eastward of it. In standing in for Campbeltown at night, be careful to keep to the eastward until the light upon Devar Island is fairly open; then stand for it, keeping it on the port hand, and steering about one or two cables' length from the point of the island, until you open the harbour; then haul up W. ½ N., or W. by N., still keeping about the same distance from the shore. When abreast of the western end of Devar, a black buoy will be observed on Mullbeg Bank, about 60 fathoms from the island; this must be passed on the port hand. Steering half a point more northerly, you will next pass, on your starboard hand, a red buoy, placed nearly opposite a sandbank, which is always dry, except with spring tides. On this bank is a beacon, painted black. There is also another beacon, painted red, on Trench Flat. Hence the red light on the north pier will be seen, and soon after, on passing Trench Point, the green light shown from Dolintober Quay. Now steer W.N.W., or N.W. by W., and you may come to an anchor in any part of the loch—observing, however, to give the west shore a berth of two cables' length. In the loch inside the beacons, the deepest water is on the north side; a stranger should, however, keep the lead going if working in, and put about the first shoal cast, as the bank is steep on both sides. The harbour has a depth of water of from 5 to 10 fathoms.—Masters of vessels turning in with a west wind at night, must be careful not to shut the light on the Island when standing south, but tack as soon as it becomes obscured by the high land of the Island, for in that case they are close to the South Bank, and the water shoalens at once; but by keeping the light E. by S. they will go clear. At night, however, it will be better to anchor at Black Rock, on the north side, about a quarter of a mile E.N.E. from the red buoy, or when Devar Light bears about S.E., in 4 or 5 fathoms water, good holding ground, and well sheltered, being within Macrinian's Point, which forms the north entrance to the harbour.

Sanda Island.—About 6 miles to the southward of Campbelton is Sanda Island, where is a kind of harbour fit only for small vessels in summer time, or in moderate weather, the anchorage is on the N. side to the westward of Ilanagurach. On the ship rock of Sanda, in lat. 54° 16′ 30″ N., and lon. 5° 34′ 55″ W., a lighthouse, exhibiting a fixed red light, has been erected. It is visible from N.W. ½ W. to S.E. by E. ½ E. by south-westerly, and may be seen at a distance of 5 leagues. It bears by compass from Pladda Light, W. by S. ¾ W., eighteen miles; from Ailsa Craig, N.W. by W. ⅛ W., sixteen miles; from Corsewall Light, N. by W. ¼ W., twenty-two miles; from the Maiden's Rocks Lights, N.E. ¼ N., twenty-one and a half miles; from N.most Point of Rathlin Island, S. E. by E. ⅛ E., twenty-one miles; and from southernmost Point of the Mull of Cantyre, S.E. ¾ E., six miles. From Sanda Light, E. by S., distant one and a half miles, is the Paterson's Rock Buoy, pointing out a dangerous rock, uncovered at low water. When the Mull Head of Cantyre is seen to the southward of Sanda, you are to the southward of this rock; when the Mull Head is to the northward of Sanda, you are to the northward of it. When Gluinmore Rock appears to the west end of Ilanagurach you are to the eastward: and when Gluinmore Rock appears to the east end of Ilanagurach, you will be to the westward of Paterson's Rock.

Tides.—The stream of flood within a mile of the Mull Head runs southward, and turns sooner than at a greater distance from the land, so that a vessel keeping near the W. coast of Cantyre, will have the benefit of the stream 2 hours before one above a mile from the land.

Magnetic Bearings & Distances

FOR THE WEST COAST OF SCOTLAND.
WESTERLY VARIATION 25 TO 26 DEGREES.

ROSS, OFF KIRKCUDBRIGHT (Lat. 45 46 N., Long. 4 5 1 W.)		MILES.
To Maryport	SE by E	20
Workington Harbour	SE ¼ S	19
Harrington do.	SE by S	20
Whitehaven Harbour	SE by S ½ S	21
St. Bees' Head Light	S by E ½ E	21½
Rossall Landmark	S ¾ E	61½
Buoy Nelson, off Preston	S	71
Zebra Channel, Liverpool	S ⅛ W	81
Bell Buoy, Liverpool	S ¼ W	82
NW Lightship, Liverpool	S ⅜ W	83
Beaumaris entrance	SSW	85
Bahama Lightship, I. M.	SW by S	26

MULL OF GALLOWAY (Lat. 54 38 9 N., Long. 4 51 20 W.)

		MILES.
To Beggar Scar Rock	E ¾ S	6
Maryport Harbour	ESE	47
Workington do.	SE by E ¾ E	44
Harrington do.	SE by E ½ E	44
Whitehaven do.	SE by E	44
St. Bees' Head Light	SE ½ E	43
Ravenglass	SE	53
Walney Light	SE by S ¼ S	67
Point of Ayre, I. M.	SE by S ¾ S	21
Jurby Point	S ½ E	19
Peel Harbour	S by W	26
Calf of Man	SSW	38
Bardsey Island Light	SSW ¼ W	113
South Bishop Light	SW by S	174
Smalls Light	SW ¾ S	180
Tuskar Rock Light	SW	153
Arklow Lightship	SW Westerly	124

POINT OF CORSEWALL (Lat. 55 0 29 N., Long. 5 9 28 W.)

To Larne Loch Light	W ¼ N	24
Fair Head	NW ½ N	37
Mull of Cantyre	NNW	30
Sanda Light	N by W ½ W	26
Pladda Light	NE by N ¼ N	25
Ailsa Rock	NE by N	14½
Cumbray Light	NE ⅜ N	43
Ardrossan Harbour	NE	40

TROON (Lat. 55 33 N., Long. 4 41 W.)

To Heads of Ayr	SW ½ S	8
Corsewall Light	SW ¾ W	36
Copeland Light	SW by W	58
Ailsa Rock	SW ¾ W	22½
Larne Loch Light	WSW	56
Maidens Lights	W by S ¾ S	55
Pladda Light	W	16

ARDROSSAN (Lat. 55 38 27 N., Long. 4 49 28 W.

To Troon	S by E	7½
Ayr Harbour	S	11½
Heads of Ayr	S by W ½ W	13
Loch Ryan	SW ½ S	38
Tt Corsewall Light	SW	40
Ailsa Rock	SW ½ W	26
Copeland Light	SW ½ W	61
Pladda Light	SW by W ½ W	17

CUMBRAY LIGHT (Lat. 55 43 16 N., Long. 4 58 W.)

To Ardrossan	S ½ E	6
Ayr Harbour	S ¼ E	12
Heads of Ayr	S by W	18½
Turnbury Point	SSW	23
Loch Ryan entrance	SW by W	42
Corsewall Light	SW ⅜ S	43
Ailsa Rock	SW ½ S	29½
Copeland Light	SW	64

PLADDA ISLAND LIGHT (Lat. 55 26 N., Long. 5 7 9 W.)

To Cumbray Light, from 1 mile North of Pladda Light	NE	19
Irvine Harbour	E by N	18
Troon do.	E	16
Ayr do.	E by S ½ S	16
Turnbury Point	SE by S	11
Loch Ryan entrance	SSW	24½
Ailsa Rock	SW by S ½ S	11
Corsewall Light	SW by S ¼ S	25
Copeland Light	SW	45
Belfast Loch entrance	SW ¾ W	45
Larne Loch Light	SW by W ½ W	42
Maidens Lights	SW by W ¾ W	36

MULL OF CANTYRE (Lat. 55 19 N., Long. 4 49 W.)

To Sanda Light	SE by E ¼ E	5
Ailsa Rock	SE ½ E	24
Corsewall Light	SSE	30
Calf of Man	S ⅜ W	84
Maidens Lights	SSW	24
To Fair Head	W ¼ S	13
Inisterhul Light	NW by W	49
Loch Ryan entrance	SE by S ½ S	31
Larne Loch do.	SW by S ½ S	25
Rathlin Island, N end	W by N ⅜ N	13
Sound of Isla, E. en.	N by E ¼ E	28

MULL OF CANTYRE TO THE NORTH END OF SCOTLAND.

The **Mull of Cantyre** is a high rocky promontory, running to the southward, and approaching within 11 miles of the coast of Ireland. On its southwestern extremity is a lighthouse, which exhibits a fixed bright light, visible 22 miles in clear weather, from N. N. E. ½ E. to S. by W. ¼ W. by W. Off Dunimore Head, which is about 5 miles to the northward of the lighthouse, is a rock, lying about a cable's length from the shore, which dries at half-ebb. A rocky shoal, with 3 or 4 feet on it at low water, lies further north, about a quarter of a mile off Usid Point, at the Saltpans: on this shoal the sea always swells, and breaks in the calmest weather.

West Loch Tarbit, on the main of Cantyre; the bay of which is well sheltered, and the depth of water for a mile up sufficient for the largest ships; but the ground, being of soft mud, does not hold well with hard gales, except there is a full cable out. The common places of anchorage are, for large ships, off Ardfarik, in the mouth of the loch; and for small vessels, on the east side of Ilanagalligan. On the S. side of Ilan Trayn are several rocks above ½ a cable's length from the island, or ⅓ from it, and ⅝ from the starboard side of the entry. There is also a sand bank extending from the E. Point of Corran, nearly ⅓ over to the N. side of the loch; to avoid which, keep nearest to the N. side,

or keep the easternmost extremity of Ilan Trayn in a line with the W. end of the highest hill in Gia Island. About 3 miles up the loch, off Duneturik, nearest to the N. shore, is a small blind rock, having 5 feet water over it. Keep the middle of the loch, and you will avoid it.

Loch Achastil is a fine harbour, and fit for ships of any size; the ground good, and only one rock, about midway, within it, covered only with spring-tides. Ships may anchor in any part of this loch above Castle Swein. The danger to be avoided in sailing toward Achastil is a small rock on the N. side of the two Mackcarmack Islands, which dries with spring-tides only

Jura Island.—To the westward is the Island of Jura; on the S.E. side of which is Loch Daguall, with good anchorage, well sheltered, and water enough for a merchant ship. This anchorage is very convenient for vessels bound to the southward. You will anchor near the middle of the bay, when Gia Island is just shut in by the N. point of the entry, and the northernmost Pap of Jura bears N.W. ½ W. In running either in or out, stand not too near the sides, for on the N.N.E. and N.W. sides of the bay it shoals nearly 2 cables' length from shore.

Sound of Islay is the common track for shipping to and from the N. A Lighthouse has been erected on Rudha Mhail Point showing a Fixed WHITE Light, visible 15 miles in clear weather. A tide or a night is the longest any vessel should stop here except in Macdougal's Bay, where one cable may be made fast to a ring or rock on the shore. In entering Islay Sound from the southward, you are to bring Glashilan Island to bear N., or keep within a cable's length or two from the Islay shore, and you will clear the Skerchray Rock, which lies on the starboard side, W. of the small Island of Frochilan.

Loch Tarbet is filled with small rocks, especially on its southern side, it is therefore hazardous to enter. The anchorage is ¼ of a mile above Guinmore, but the best and safest place is near the mouth of the Loch in Glenaberig Bay. This is easy of access, and has 3 and 4 fathoms water. Keep a cable's length from the point in passing, and anchor the same distance eastward of it. About a mile eastward of this anchorage is a cluster of small rocks above water; on the E. side of these a ship may ride safe in 5 fathoms water, keeping ¼ a cable's length from them in going up.

Loch Indaal.—Having rounded the Mull of Kinho, which is the south-western part of Islay, you will open Loch Indaal. This may be said to be the only place in Islay where vessels in winter time can ride in safety. Here small vessels drawing 9 and 10 feet water may ride, and be well sheltered; larger ships, drawing 15 feet, must ride with the mouth of the loch open, and will therefore not be so safe when the wind blows from the W. or S.W. But the best anchorage is at the further end of the loch called Kilirn Bay, when Bomore House bears S.S.E., lying somewhat nearer to the S. than to the N. side of the harbour, in 3 fathoms, sandy ground. Larger ships anchor more to the westward bringing Bomore House S.E. by E. in 4 fathoms. At the entrance to this harbour are 2 spits of sand; one on the S. side, which never dries, extending from Atturach Point northwards; the other running from the opposite side southward, which dries gradually. These two spits of sand almost enclose the harbour. In the channel between their two points are 2 and 2½ fathoms, low water, spring-tides.

Rhins of Islay Light, on the northern side of the entrance to Loch Indaal, upon the small island of Oversa, bearing by compass from the Mull of Kinho, N. by W. ¾ W., distant 10 miles; and from the STATIONARY LIGHT of the Mull of Cantyre, N. by W. ¾ W., 33 miles. From the north eastern extremity of the Island of Rachlin, N. ¼ E. distant 25 miles. From the REVOLVING LIGHT of Innistrahul, E., distant 28 miles. From the Revolving Light, producing a bright flash once in every minute, on the Rock of Skerryvore, distant from Hynish Point, in Tyree, W.S.W. ½ W., 10⅓ miles, it bears S. ¼ W., distant 44 miles. From the Rocks of Dunheertach, lying 11 miles S.W. from Icolmkill, it bears S.S.W., distant 28 miles; and from Tanvore Head S.W. by S., distant 6½ miles. It will be known to mariners as a STATIONARY and a FLASHING LIGHT. To a distant observer it appears like a star of the first magnitude, producing a bright flash of light every 5 seconds, without those intervals of total darkness which characterise other Revolving Lights upon the coast. In clear weather it will be visible at the distance of 6 leagues, and is open from N.N.E. to S.E. (westerly); half-a-mile off Cull Point it disappears.

Oronsa and Colinsa Islands.—Oronsa is much the smaller island, and is nearly 4 miles to the northward of Ruinanishag Point, in Islay. Off its southern sides are several rocks, one of which extends W.S.W. from Gudimel, a small island on the S.E. part of Oronsa. This rock dries at half-ebb. There is a shoal also about ¼ of a mile to the southward of the middle of the rock, on which are 6 feet at low water. At the S.W. point of

Oronsa is Ilana Roan; one mile S.W. of which are 2 or 3 rocks, which dry with spring-tides only, and some shoals, on which the sea always breaks. A leading mark to go to the southward of these dangers is Ruvaal Point in Isla, on with the S. end of Beninore Hill in Jura. Sail not nearer to Colinsa than till Ruvaal Point bears on the middle of the hill. To the W. of Colinsa are several rocks and shoals, lying a mile out from Ardskinish Point, some are above, some below, and others dry only at low water; you will avoid the whole of them by keeping about 2 miles from the shore, or one mile from those rocks you see above water. There is no anchorage on the W. side of Colinsa, and but indifferent on the E. side.

The **Gulf of Coryvreckan,** which is formed by the N. end of Jura, and the Island Scarba, is distinguished by a violent breaking sea with whirlpools, partly occasioned by an excessively rapid stream running over a steep rock, at the N. side of the Sound, near the W. Point of Scarba On the Jura side of the Gulf the sea rages, and forms whirlpools, both with ebb and flood: but the waves do not rise so high as on the Scarba side of the Gulf.

The Sound of Mull Lighthouse is situated on a small rock called Runa Gall, on the south shore of the Sound of Mull, Argyllshire, about one mile northwards from Tobermory. The tower is about fifty yards within the high water mark of spring tides, and is connected with the shore by a bridge of two spans. The Light is an azimuthal condensing Light, and shows a FIXED RED LIGHT northwards out to sea; a FIXED GREEN LIGHT towards the New Rocks, the Red Rocks, and the Stirks Rocks, in the Sound of Mull; a FIXED WHITE LIGHT southwards into the Sound of Mull. The Light is exhibited from a tower of masonry about 55 feet above high water of spring tides, and may be seen in clear weather at the distance of about twelve nautic miles.

Ardnamurchan Point.—A Lighthouse, exhibiting a Fixed Light of the natural appearance, has been erected on this point; and bears by compass from Caillach Head, N.E. ¾ E., distant 7 miles; from the Cairns of Coll, E.S.E., 8 miles; from Kana Head, S. ¼ E., 30 miles; from Scour of Eigg, S.W. by S. ¾ W., 11 miles; from Bo Askadil Rock, W.S.W., 7 miles. It is visible 18 miles in clear weather.

Ushenish Lighthouse is situated on the most easterly headland on the eastern side of the Island of South Uist, one of the Hebrides, in the county of Inverness. The Light is a dioptric first-class FIXED RED LIGHT, and is exhibited from a tower of masonry erected on the headland. The Light is about 176 feet above high water of spring tides, and may be seen in clear weather at the distance of about eighteen nautic miles.

Island Glass Light, situate on the eastern side of Glass, and on the western side of the channel between Skye and the Long Island. This light is STATIONARY, appearing like a star of the first magnitude, at the distance of 5 or 6 leagues, from W. by S. to E.N.E. ½ E. by the S.

Skergriatick Rock.—A Beacon, painted Black, has been erected on this rock, situate in the Minsh. It consists of a Frame-work of iron, surmounted by a cylindric cage, and rising to about 30 feet above high water spring tides. There are steps leading from the rock to the cage, in which shipwrecked mariners may find a temporary shelter. This beacon bears by compass from Skernamule beacon N.N.W., distant 3 miles; from Dunvegan Head, in Skye, N.E. ¾ E., 18 miles; from Island Glass Lighthouse, S.E. by S. ⅜ S., 7½ miles; from the Greater Galtimore (one of the Shiant Islands), S.W. ¾ S., 8 miles. There is foul ground nearly all the way from Skergriatick Rock to Fladdahuan Island, from which the beacon lies 2½ miles to the N. by E.

Loch Terriden.—In entering Loch Terriden avoid Runawhagh Point, its southern entrance, a little way off which point is a rock under water, which dries at spring tides. Excepting this rock, there is no danger in sailing into or up this Loch; for Skerintram Rock, which lies on the N. side, is always above water, with deep water all round. Here therefore the access is easy, the ground good, and so well sheltered, that several hundreds of the largest ships may ride with safety in all weathers. Its entry is 2½ miles wide, the Loch running in S. by E. ½ E. to abreast of Loch Shieldag, then S.E. by E. to the furthest end. The best place for anchorage is in Loch Shieldag, between the two narrows, on the S. side of the basin, or any where above the second Narrow, which is what may properly be called Loch Terriden.

Loch Gerloch.—About 4 miles further N. is Loch Gerloch, a large and well sheltered harbour, the ground in all parts clean, holding well, and capable of containing a fleet of the largest ships; its entrance is between Coupachar Point and Longa Island; distant from each other nearly two miles. There are no dangers either in or near it; and when it does not blow hard from the W. or S.W. ships may ride in any part, particularly on the E

side of Island Longa. In winter the best anchorages are between Flowerdale and the Island of Horisdale, in from 9 to 20 fathoms water. Small vessels may ride on the W. side of this island, S. E. of a rock above water.

Loch Yew.—From Longa Island to Ru Rhea the bearing and distance are N. E. ¼ N., 3½ leagues. Five miles to the eastward is Loch Yew, a place large and well sheltered, forming a bay of easy access, a moderate depth of water, and having good holding anchorage, where whole fleets may ride in the greatest safety at all times. The entrance to Loch Yew is a mile wide, and nearly off its western point lies the small Island of Fura, with 2 or 3 islets to the eastward of it; there is also a little rock off the northern point of Fura; keep therefore at a distance in passing it, and the channel in is free from danger. In the middle of the bay is Yew Island, at the northern point of which are some rocks above water. The best places to ride, are on the E. side of the Island Yew, or on the E. side of the bay off Tunag, and off Inveraspadale at the opposite side of the Loch.

Loch More or Great Loch Brim.—To the northward of Loch Beg, are several islands, lying before Loch More, or Great Loch Brim. Loch More is a great and safe branch of the sea, capable of accommodating the largest fleets, and having no rocks or dangers within it, except a small ledge on the E. side of Ullapool extending above a cable's length from that shore, which is avoided by keeping ¼ from the Ullapool side. You may anchor in this bay in 14 and 15 fathoms water, above a cable's length from the shore, or any where above Logie Point, in from 13 to 24 fathoms. Should you, in entering or sailing from this Loch, go between the larboard point, or Ru Handerrick, and the Carniskere Islands, remember to give the former a berth on account of a rock called Nuela, which lies nearly a cable's length from the shore, and dries about half ebb.

Loch Kylescough is nearly 7 miles E.S.E. ¼ E. from Ru Stoir, and 3½ miles in the same direction from Ouldenay Island. This is a large and well sheltered branch of the sea, the approach to which is safe, and the anchorage good; but for some miles within the Loch the water is too deep for ordinary vessels, being from 30 to 50 fathoms, unless you carry an anchor on shore. Above the Island Ranich, where the contracted channel commences again to widen, ships may anchor any where, the stream in the narrowest part running not more than 1 mile an hour.—The only rock necessary to notice, lies near the Island Calaway, off the larboard side of entrance; it bears W.S.W. from it and dries at low water; keep Runachusan Point in Ouldenay Island on with the extremity of Ru Stoir, and you will clear this rock to the southward. At the N. side of the entrance to Loch Kylescough is Loch Shark, and N. E. of Shark lies Loch Calaway.

Loch Inshard.—One league to the eastward of Lusford is Loch Inshard, the last bay before you round Cape Wrath. In sailing in great caution must be observed, as there is a rock lying right at the entrance, which appears at spring ebbs only. Within the loch you will be well sheltered, your depth moderate, and your ground good. Sail up until you are landlocked, and anchor near the north or east side. To the north west of Loch Ardicar are some Islands, close to the main, called Ilanarone; and nearly N.N.E. of these, 4 miles, is Balag Island, having a small rock above water, at both the N. and S. extremities. This Island lies about a mile from Ru Wochel. Near the latter is a rock above water, close to the land. From hence to Cape Wrath the coast is high and rocky. Off Cape Wrath are said to lie several rocks under water, called the Stags. Vessels in sailing round this headland should always give it a good berth, of 1½ or 2 miles, and steering eastward, they will reach the Pentland Frith.

Isle Oronsay Lighthouse is situated on a low point at the south-east end of the Island of Oronsay, Inverness-shire, in the Sound of Skye, also called Sound of Sleat. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT, from a tower of masonry about 58 feet above high water of spring tides. The Light may be seen in clear weather about twelve nautic miles.

Kyleakin Lighthouse is situated on a point of rock which covers at high water spring tides, and projects from the west end of Eilan Dool, or Gillean Island, in Ross-shire, at the western entrance of "The Narrows," leading to Loch Alsh. The tower is about fifty-three yards within the high water mark of spring tides, and is connected with the Island by a bridge of five spans. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT in the fairway of the Sound of Loch Alsh, and a FIXED WHITE LIGHT in the fairway leading to the Sound of Applecross, and which White Light extends southwards to Pabba Island. From thence it shows a FIXED RED LIGHT, extending eastwards along the shore of Skye to the south of the fairway of Loch Alsh. It also shows a FIXED RED LIGHT to the north-eastwards of the fairway to the Sound of Applecross. To the

north of the fairway of Loch Alsh the Light is not shown. It is exhibited from a tower of masonry about 53 feet above high water of spring tides, and may be seen in clear weather at the distance of about eleven nautic miles.

Rona Lighthouse is situated on the northern end of the Island of Rona, in Inverness-shire, between the west coast of Ross-shire and the Island of Skye. The Light is a catadioptric second-class holophotal FLASHING WHITE LIGHT, showing a flash EVERY TWELVE SECONDS. It is exhibited from a tower of masonry erected on a peak at the north-east point of the Island. It is elevated about 222 feet above high water of spring tides, and may be seen in clear weather at the distance of about twenty nautic miles.

Cape Wrath Lighthouse, erected on the Cape, forming the north-western extremity of the main land of Scotland, in lat. 58 deg. 37 min. N., and in lon. 5 deg. W., bears from Hoy Head in Orkney, W. ¾ N., distant 50 miles; from the Butt of the Lewis, E. by S. ½ S., 41 miles; from the rocks called the Stags off the Cape, S. W. by W. ¼ W., about 1 mile; from the sunken Rock called the Nun, S.S.W. ¾ W., distant 15 miles; and from the Islands of Stack and Skerry, W.S.W., the former 35¼ and the latter 38 miles distant. It is known to mariners as a REVOLVING LIGHT, of the natural appearance, changing with one tinged red, which attain their most luminous effect every two minutes, and become, to a distant observer, totally eclipsed for a short time. The light is visible from S. ½ E. to S. W. by W. by the N., at the distance of 23 miles.

Dunnethead Light, on the Northern extremity of the mainland of Scotland, in lat. 58 deg. 40 min. N., bears by compass from the N. end of the Island of Stroma, in Pentland Frith, W.N.W., distant 7½ miles; from Hoy Head, leading to Hoy Sound, S.S.W., distant 13 miles; from the Stack and Skerry, S. by E. ¾ E. distant thirty-three miles; and from Cape Wrath, in Sutherlandshire, S.E. by E. ¾ E., distant 54 miles. In reference to these bearings, the light will be visible to the mariner in a northerly direction from S.E. ½ E. to W. by northward. The Light is STATIONARY, and being elevated 346 feet above the medium level of the sea, will be seen like a star of the first magnitude, at the distance of from 7 to 8 leagues, and at lesser distances according to the weather.

Magnetic Bearings & Distances

FOR THE NORTH AND EAST COASTS OF SCOTLAND.

CAPE WRATH (Lat. 58 37 30 N., Long. 5 W.)		MILES.
To Ru Store	SW by W	26½
Loch Maddy entrance	W by S	93
Glass Island Light	W by S ¼ S	70
Chicken Head	W ⅜ S	47
Tolsta Head	W ¼ N	39
To Nun Rock	NNE ¾ E	15
Hoy Mouth, Stromness	E ¾ S	61
Holburn Head	SE by E ½ E	51
DUNNET HEAD (Lat. 58 40 16 N., Long. 3 22 20 W.)		
To Thurso Bar	SW by W ½ W	5
Holburn Head	W by S	5
Hoy Head	NNE	13
Swona, South end of	E by S	10
Pentland Skerries	ESE	14
SULE SKERRIE (Lat. 59 3 N., Long. 4 13 W.)		
To Dunnet Head	SSE	33
Strathy Head	S by W	28
Sumburgh Head, Shetland	E	100
Westra Frith	E by S	40
HOY MOUTH, STROMNESS (Lat. 59 3 N., Long. 3 23 W.)		
To Scrabster Roads	SW ½ S	17
Strathy Head	W by S ½ S	25
Lock Erobol	W	45
Cape Wrath	W ¾ N	59
DENNESNESS LIGHT, NORTH RONALDSHA (Lat. 59 23 N., Long. 2 23 W.)		
To Foul Island	NE	45
Pappa Island, Shetland	NE ½ E	60
Sumburgh Light, Shetland	E ¾ N	46
Fair Island	E by S	28
START POINT, IN SANDA ISLAND (Lat. 59 16 39 N., Long. 2 22 25 W.)		
To Foul Island	NE ¼ N	50
Fair Isle	E	30
Noss Head	SW ½ W	50
Copinsha Island	SW ½ W	22
SUMBURGH HEAD, SHETLAND (Lat. 59 51 N., Long. 1 16 W.)		
To Noss Island	NE by E	20
Bucanness Light	SW by S	140
Fair Isle	S W by W	21
Start Point, Sanda I.	W by S ¼ S	48
Foul Island	NW by N ¼ N	28
NOSS HEAD (Lat. 58 28 38 N., Long. 3 3 5 W.)		
To Duncansby	NE by N	10
Pentland Skerries Lights	NE	12½
Fair Isle	ENE	78
Sumburgh Head	NE by E ½ E	96
TARBERTNESS LIGHT (Lat. 57 51 N., Long. 3 48 W.)		
To Troup Head	SE ¼ E	48
Cowsey Point	SE by S ¼ S	18
Burgh Head	S ¾ W	13
Nairn	SW ¼ S	16
KINARD'S HEAD (Lat 57 42 N., Long. 2 1 W.)		
To Rattry Brigs	SE by S ⅜ S	8
Helmsdale	NW by N	60
Noss Head	N by W	61
Duncansby Head	N ½ W	67
Copinsha Island	N by E	77

BUCANNESS LIGHT (Lat. 57 28 15 N., Long. 1 46 11 W.)

		MILES.
To Peterhead, S.H.	NNE	2½
Rattry Brigs	NNE	9
Sumburgh Head	NE by N	140
Bell Rock	SW	66
St. Abb's Head	SW ⅝ S	95
Girdleness Light	SW ½ W	25

THE GIRDLENESS (Lat. 57 8 15 N., Long. 2 3 2 W.)

To Bucanness	NE ½ E	25
St. Abb's Head	SSW	72
Bell Rock	SW ¼ S	42
Flambrough Head	S ½ W	193

MONTROSE (Lat. 56 42 N., Long. 2 27 W.)

To St. Abb's Head	S by W ½ W	48
Bell Rock	SSW	11
May Island	SW by S	30
Flambrough Head	S	174
Longstone Light, Ferns	S ½ W	70

BELL ROCK (Lat. 56 26 3 N., Long. 2 23 6 W.)

To Montrose entrance	NNE	11
Girdleness Lights	NE ¼ N	42
Bucanness Light	NE	66
Flambrough Head	S ¼ E	158
Buttonness	NW ½ W	13
Arbroath	N by W ½ W	9

BELL ROCK, continued.

		MILES
Dunbar Harbour	SW ½ S	27
St. Abb's Head	S by W ½ W	32
Fifeness	SW by W ⅝ W	11½

MAY ISLAND (Lat. 56 11 8 N., Long. 2 33 20 W.)

To Fifeness	N ¾ E	5
Arbroath	NE by N ¾ N	21
Bell Rock	NE ¾ E	16
St. Abb's Head	S ¾ E	21
Inchkeith	W ½ N	22

INCHKEITH (Lat. 56 2 N., Long. 3 8 W.)

To Kirkaldy	N by E ⅛ E	6
Elieness	E by N ⅛ N	14
Fidra Island	E by S ¼ S	12½
Fisherow	S ¼ E	6
Colm Island	NNW	7
Garvy Island	W by N ¾ N	9
May Island	E ½ S	22

ST. ABB'S HEAD (Lat. 55 55 N., Long. 2 9 W.)

To Buttonness	N	37
Bell Rock Light	N by E ½ E	32
Aberdeen, Girdleness	NNE	72
Bucanness Light	NE ⅜ N	95
Bass Rock	NW by N	11
Elieness	NW by N ¾ N	25½
May Island	N by W	20

EAST COAST OF IRELAND.

POINT CARNSORE TO ST. JOHN'S POINT.

Point Carnsore is the S.E. point or extremity of Ireland, and lies about 42 leagues from Cape Cornwall, bearing N. by E. ½ E.; from the Small's Light N. by W. ½ W., distant 37 miles. Nearly E. by S. from Carnsore Point, distant 6 miles, lies the TUSKAR, a very remarkable rock, 20 feet above the level of the sea at high water, upon which stands a lighthouse similar to that on the Eddystone, elevated 81 feet from its base. The light revolves every two minutes, showing two faces bright, and one red. The red light is visible 10 miles, and the bright 15 miles. During foggy weather a bell is tolled every half minute. This rock bears from the Smalls Lighthouse N. ½ W., distant 33 miles. Ships coming from the westward and bound for St. George's Channel, should endeavour to see this rock before they shape their course to the northward.

Blackwater Bank, in front of Wexford Bay, is a narrow sandbank running nearly in the direction of the coast, at the distance of from 4 to 5 miles. A buoy is placed at each extremity of this bank. Moored off the north end, in 20 fathoms, at low water, spring tides, is a Light Vessel, which exhibits two White Lights—one Revolving, the other Fixed. The Revolving Light, which attains its greatest brilliancy once every minute, is shown from the mainmast, and the Fixed Light from the foremast of the vessel. The Revolving Light can be seen at a distance of about 10 miles. The vessel has three masts, and carries a Ball at the fore and main-mast-heads; is painted Black, with a White Band, having the word "*Blackwater,*" in white letters, on her sides; and lies about 1½ miles E. ¾ S. of the black buoy on the north end of the Blackwater Bank, with the following marks and compass bearings:—Arklow Light Vessel, N.E., 13 miles; Cahore Point, N. by W., 5 miles; Tuskar Lighthouse, S.W. ¾ S., 18 miles. A gong is sounded in foggy weather

Wexford Harbour is capacious and sufficiently sheltered, but is obstructed by a bar extending across it, over which there are at times but 7 feet water. Buoys are laid in the deepest water across the bar; but to enter this harbour a pilot is necessary.

Arklow Bank is a narrow sand-bank off Arklow Bay, about two leagues from the land, and nearly 10 miles long from N.E. by N. to S.W. by S., and from ½ to ¾ of a mile broad; the shallowest part is near the N. end, where the least water is 1 foot; the S. end has from 8 feet to 3 fathoms on it, and except at slack water, you will perceive its ripple; near to its East side are from 13 to 20 fathoms: approach it no nearer than 30 fms. The marks for its southern end are Arklow Rock N.W. ½ N. distant 7 miles, and in one with the northern declivity of the Copper Ore mountains; and the Great Sugar Loaf open to the eastward of the Ballynacarrig Hills, and also of Mizen Head, bearing about N. ½ E. The marks for its northern end are the top of Carrig Mc Rely just open to the northward of Maughry Point, bearing N.W. ¾ N., and the Great Sugar Loaf open to the eastward of Wicklow Head, N. ½ W. Wicklow Head bearing N.N.W. clears it. Off this end of the bank is a striped beacon buoy, moored in five fathoms, with Wicklow Head bearing N. ½ W., 5 miles, and Mizen Head W. ½ N., 5½ miles. A Light Vessel is moored, in 22 fathoms, one mile south-east of the southern end of it. It shows a steady bright light, visible 10 miles, and carries a ball; during foggy weather a gong is sounded.

On **Wicklow Head** are two light-houses, each showing a bright fixed light. The upper may be seen at 21, and the lower 16 miles off. The lights bear from each other N.W. by W. ¾ W., and S.E. by E. ¾ E., 180 yards, and, when in one, lead between the India and Arklow Banks.

Wicklow Harbour, fit for small craft only, there being only 9 feet in the entrance at high water, spring tides, and 6 at neap tides. To make its entrance better, a new channel has been opened; this is formed by 2 Piers about half a furlong to the westward of the Old Bar, and there the depth is 12 and 14 feet.

The **Wicklow Banks** are 2 narrow patches of sand, lying about 5 miles E. from Wicklow Head. The southern Patch, called the India Bank, is about one mile long, N.N.E. ½ E., and S.S.W. ½ W, and ⅓ of a mile broad. On its middle are 2 fathoms, on its N.E. part 3½ fathoms, and on its S.W. end 3¼ fathoms; at its S. W. extremity is a black buoy, from which Wicklow Head Lights bear W. ¾ S., 5 miles. The lights in one, bearing N.W. by W. ⅓ W., lead 2¾ miles to the southward of this buoy, in from 12 to 30 fathoms; and the buoy is a guide to pass between Wicklow Head and the Banks. To sail between this Bank and Wicklow Head, bring Wicklow Head lights in one; keep them so until the Sugar Loaf Hill bears N. ¾ W.; then steer by this course, and you go clear, and to the southward and westward, of the India Banks.

The **South Ridge** lies at the N. end of the India bank, separated by a narrow channel of 5 fms., about a cable's length in width: it is 1½ miles long, and ⅓ of a mile broad, with 3¼ to 5 fms. water on it. Its direction is N.N.E. ½ E., and S.S.W. ½ W., and its N.W. end is nearly 5½ miles S.E. by E. from Six Mile Point.

The **Codling Bank.**—The south end of this bank lies N.E. by E., 3 miles from the South Ridge; it then runs N. by E., 3 miles, and turns suddenly to W. by N. for 2 miles, then curving round to the S.E. till it joins the south point. In the middle of the bank, which is 2 miles broad, are from 3¼ to 5 fathoms. The Great Sugar Loaf open north of the Gap, N.W. ¾ N., leads between the Codling and the South Ridge. A Black Buoy is placed on each extremity of the Codling, and lying off the south-eastern end, in 8 fathoms, low water, spring tides, is a Black Spiral Buoy, surmounted by a Staff and Globe, and marked "*Codling Bank*," with the following marks and compass bearings:—Carrickgollogan Hill, in one with Bray Point, N.W. ¾ N.; Great Sugar Loaf, N.W. ¼ W.; Wicklow Head, W. by S. ¾ S.

The **Bray Bank** lies N.E. by E. and S.W. by W.; is 2 miles long and ½ a mile broad, with twelve feet on it. In the Channel, between the Codling and the Bray, which is nearly half a mile wide, there are 8 to 10 fathoms. Carrickgollogan Hill 2 degrees open north of Bray Head, N.W. ¼ N., clears the Codling to the northward. This mark will lead across the bay, in 3 fathoms at low water. The south hummock of the Little Sugar Loaf in one with Windgate Hill, W.N.W. ½ W., leads between the Bray and the Kish Banks in 3¼ fathoms. There is a white buoy at the N. end of the Bray Bank.

The **Kish** is a long, narrow sand, stretching N. by E. ½ E., and S. by W. ½ W., about 6½ miles, and is from ½ to ⅔ of a mile broad; on its southern extremity is a black buoy. From it Dublin Lighthouse bears N. by W. ½ W., 12½ miles; Howth Head Light N. 11½ miles; and Bray Head W.N.W. ½ W., 6 miles. On the Kish are from 9 feet to 3 fathoms, the latter depth being near its northern end; here a white buoy is placed, which lies from Howth Head Lighthouse S. S. E., distant 6 miles, and from Dalkey Island E. ¾ S. about the same distance. Three-quarters of a mile from the northern extremity of the Kish, a Floating Light Vessel is moored, with the

llowing mark and bearing:—Ireland's ye a little open of Howth Head, and ublin Lighthouse, N.W. ½ N., distant ¾ miles. This vessel bears 3 lights or nterns, on three separate masts equi-istant from each other, the centre lantern eing the highest. Three miles to the outhward of the white buoy is a bea-on buoy, lying in 1½ fathom water, nd points out the middle and most angerous part of the Kish; at this spot he Great Sugar Loaf Hill appears on the ddle of Bray Head, bearing W. ½ S., and reland's Eye just open, and shut with he Head of Howth, N. ¼ W.

Bennett's Bank.—The S.E. end of his bank lies about 2 miles N. E. ½ N. om the North Buoy of the Kish, and 5 iles S. E. from Howth Head Light-ouse; it is about 1¾ miles in length, and as 5 to 5½ fathoms on it; at ½ mile south-ard are 8 or 9 fathoms.

The **Burford Bank,** at the entrance Dublin Bay, is narrow, and runs in a N.E. ¼ E. and S.S.W. ¼ W. direction, eing about 1½ mile long, and one-third f a mile broad. Nelson's Pillar kept pen to the southward of the Pigeon-ouse on Dublin Quay, will lead clear of s southern extremity in 4½ and 5 fa-oms water; and the same pillar, or hallows Bath Light, open to the north-ard of Poolbeg Lighthouse, will clear s northern end, in 5½ and 6 fathoms ater. The mark to go clear to the east-ard of it, is Ireland's Eye open to the ose of Howth. Upon each end of this ank is a buoy; that on the southern end vertically striped red and white, and at on the northern chequered black and hite.

Sailing for Dublin Bay from he Southward. — From the Tuskar Wicklow Head the bearing and dis-nce are N.E. ¾ N. nearly 46½ miles, t to pass to the eastward of the Arklow ank the course is N.E., observing to ake due allowance thereon for the set of e tide, whether flood or ebb. When icklow Head Lights bear N. by W. you ill be clear of the Arklow Bank; then sail within the Wicklow or India Banks, ring the Great Sugar Loaf Hill well open Wicklow Head, bearing N. by W., or icklow Lights in one; either of these ill lead between the Arklow and India anks; and when within 2 and 2½ miles of e shore, a N. by E. ½ E. course will carry ou past Moulditch Bank and Dalkey Is-nd. If with a westerly or S.W. wind, ou may haul close round the Mugglins, nd proceed along shore, avoiding the ullock Rock, which lies about a mile om Dalkey. In working up between e banks and the shore with a flood tide and northerly wind, do not stand further from the land than four miles: for at about that distance the stream turns off to N.E. by E., and with little wind may drift you upon the banks; while near the shore the stream commonly makes to the southward 1¼ hours before high water.

Stopping Places. — In moderate weather vessels may stop almost any where within the banks between Wicklow and Dublin, except off the Giant's Bed, where lies the Moulditch Bank; the best part, with westerly winds, is between Bray Bank and the main, from ½ to 2 miles from the shore. Here is very little stream of tide, and the violence of the sea is considerably broken by the banks.

In **Killyneé Bay** vessels may anchor in 5 or 6 fathoms, sheltered from W.N.W. to N.N.E. winds, and also in 7 fathoms off Wicklow Church, sheltered from S.W. and westerly winds.

Dublin Bay.—There is good anchorage in the mouth of Dublin Bay when the wind does not blow hard from the E. and S.E.; with these winds a great sea sets in when it blows hard, so that vessels are obliged to run for some place of safety; with north-easterly winds, vessels run for Kingstown harbour, which lies on the S. side of Dublin Bay, and is enclosed by two large piers; on the head of the eastern of which is a lighthouse shewing a revolving light, presenting white and red faces alternately, and attaining their greatest brilliancy at intervals of thirty seconds. During foggy weather a bell is tolled. There is also a fixed red light on the west pier-head. The entrance to this harbour faces the N.E., and has 4 fathoms water; within, from 4 to 2½ fathoms at low water. When going in, leave the revolving light on the larboard hand, and round it close to. BAILEY LIGHT, exhibited from the S.E. point of Howth Peninsula, is stationary, and is visible at a distance of fifteen miles. About a mile to W.S.W. of the lighthouse lies the Rose-beg Bank, which is easily distinguished in blowing weather by the sea breaking over it; and on which are from 2¾ to 3 fathoms water. The Revenue Barrack on with the Poolbeg Lighthouse, bearing N.W. by W. ¾ W., leads clear to the southward of it.

Dublin Harbour lies between two banks, the North and South Bull, and is protected by two walls built on piles, the southern one of which is carried 2¾ miles into the bay, and has a lighthouse on its extremity, called the Poolbeg, exhibiting a fixed light all night, and a lower light, much fainter than the upper, from half-flood to half-ebb: in the day a ball is

hoisted during the same period. At the extremity of the north wall there is a beacon. There is also a small light further in the harbour, called the Shallows Bath, or City Light. A bar lies across the entrance, on which are 6 to 12 feet at low water. Between the bar and lighthouse are 14 to 27 feet. A red buoy is moored on the bar, in 12 feet at low water: it lies a mile E.S.E. ¼ E. from the lighthouse. Pass about a cable's length to the southward of this buoy, observing the beforementioned mark, and you will carry 12 feet over the bar at low water. On the north side of the channel, and bearing E., 3-10th's of a mile from the lighthouse, is a white buoy, moored in 9 feet at low water, between which and the lighthouse are from 14 to 27 feet. The south bar buoy (black) lies S. ¼ W. 2-5th's of a mile from the lighthouse, on the southern extremity of the south bar patches, which commence about ⅛ of a mile S.E. from the lighthouse, extending in that direction nearly ½ a mile; then turning to the westward about the same distance, when they terminate where the black buoy is placed. On these patches are only from 4 to 5 feet. At nearly three-quarters of a mile within the lighthouse, a white buoy is placed, which must be passed to the northward. The channel is regularly buoyed on the north side with black buoys, and on the south with red buoys, from the Pigeon House to Ringsend. Between Poolbeg and the Pigeon House there are several places where vessels may anchor, in from 16 to 20 feet at low water, the channel having been greatly improved by means of powerful steam dredges. Ships in general, with suitable draughts of water sail over the bar to the northward of the east buoy. This is called the East Channel, and the mark for it is the Church of Irishtown just open to the northward of the lighthouse. This mark will lead you about a cable's length to the northward of the east buoy in no less depth than 15 feet at half-flood. So soon as you are over the bar, the depth will increase to 18 and 20 feet. Keep about mid-channel between the Spit Buoy and the lighthouse, and when about ½ a mile within the latter you may anchor in 15 or 16 feet at low water. This is called Poolbeg, and although a tolerably good place in summer, it is not so good in winter time; it is then best to go a mile further up, so as to take the ground about half-ebb, or to lie along the wall or along the quay above Ringsend. To sail in through the West Channel, you must pass to the southward of the South Buoy; when the lighthouse bears N.E. ¼ N., and on with Baldoyle Chapel, or the ruins of Kilbarrack Church, steer for it in that direction, giving it a berth on your larboard hand, as you haul round to the westward. When coming from the southward, keep San Cove Tower on with the eastern extrem of the pier at Kingston, S. ¼ E., until yo bring the lighthouse on the above bea ing: this will lead you in the best wate and well to the westward of the south b buoy. In the channel are only 6 feet low water, spring tides. The tide flow at the lighthouse, on full and chan days, 10 hours 47 minutes, and rises feet on springs. Vessels coming from t northward, bound for Dublin, must gi the Hill of Howth a berth, to avoid t bank called Rosebeg. To avoid it the east side, bring the eastern extrem of Howth open of the Bailey, or t Bailey Light N.E. ¼ N.; and on the sou side, Poolbeg Lighthouse, N.W. by W. ¾ W

Ireland's Eye is a small island miles to the north of Howth Head; its eastern side is anchorage in 6 fathom on its north in 7; but the best is on t west side in about 4 fathoms, with t Stack open to the southward of t height, and from whence it is easy run for the pier of Howth in case necessity.

Howth Pier Harbour, to the of Ireland's Eye, is capable of receivi vessels of 11 or 12 feet draught. The are two piers, on the easternmost of whi stands a lighthouse exhibiting a fix light of a red colour, of essential use to clear the dangers off Ireland's Ey There are also two small lights upon t west pier, which are intended to lead ve sels going in from the northward, or fro between Ireland's Eye and Lambay Islan

Harbour of the Skerries.—Th Harbour may be easily known by Rock bill and St. Patrick's Islands; the form is a remarkable rock, always above wate and steep-to all round, having from 9 18 fathoms close to it; a Tower has bee erected on the top of this rock for an in tended Lighthouse. It lies 4 miles by S. of the Skerries, and about 2¼ mile from St. Patrick's Island. To sail in, afte you have rounded St. Patrick's Islan steer N.W. by W. until all the town Skerries appears open of the pier-head you will then be clear of the Cross, an may round into the road, where you wi have 4 or 5 fms. of water. Here the ridin is safe, unless it come to blow hard fro the E. or N.E.; but if you intend going u to the pier, stop about a cable's length from the pier-head, in 3 fathoms, unti the tide serves.

Balbriggan Harbour is sheltered from the east by a Pier, on the S. side o the Bay, which runs northward. Within the Pier Head, at high spring-tides, are 12 feet water, and with neap-tides, 9 or 10

he pier, S. side of entrance, is a
e lighthouse, exhibiting a fixed light,
le at the distance of 10 miles, be-
n W. S. W. and S.S.E. ½ E.

ogheda Bar lies 27½ miles N. of
in, about 10 miles N. of Skerries, and
les from Balbriggan, the river run-
due E. and W. Formerly the river
the Maiden Tower to the bar had a
ncy to run N.E., but an annual out-
f nearly £6000 a-year in its improve-
s has contributed to give the en-
e to the river an E. and W. direction,
by enabling vessels to take the bar
much more safety than heretofore.
arallel walls at the mouth of the river
ıg been extended within the last few
1800 lineal yards seaward, and now
y reaching the bar, has caused the
r in the river adjacent to the bar to
mparatively smooth in the severest
her. These walls have also had the
t of deepening the channel, and di-
ng its course in a more southerly
tion, thereby making the bar much
r of access in bad weather. The con-
l dredging of the river has removed
anks and shoals which previously
ed, leaving the navigable channel of
iform depth, not less than from 18 ft.
to 19 ft. at high water of ordinary
g tides. The water on the bar at
g tides is 22 ft., with 17 ft. 6 in. at
s, 4 ft. 6 in. at low water of spring
, and 6 ft. 6 in. at neaps. There is an
llent tug-boat in attendance on ves-
requiring her assistance, with a num-
f experienced licensed pilots always
ing out for vessels bound for this port.
e are fifty sailing vessels, with five
class paddle-steamers, having in the
le a registered tonnage of 7327 tons
ng to this port, exclusive of other
els which frequent this place with
sional cargoes. Four lighthouses
placed at the entrance of the river,
a number of stone towers built on
N. side, with wooden perches for
marks on the S. side; the centre
een them denoting the channel. The
ive bearings of the E. and W. Lights
be occasionally changed, as the
banks alter their places. The present
ance of the river, keeping these two
s in one, is W. by N., until you come
ast of the large Stone Pillar on the
h side, then steer N.W. ½ W. for the
h Red Light. There has lately been
ed at the East end of the North Wall
rge Wooden Perch, with Cage and
el placed on the top of it, and must
ept about 100 feet on the starboard
in coming in. Ships drawing 10½ feet
ld have at least 4 hours' flood tide
d weather before taking the bar.

undalk.—Sailing N. you will pass
her Head and reach Dunany Point, off which, about a mile E. of high water mark, lies a small rock, drying with low water spring tides. The first buoy is in 6 fathoms at low water, about 4 miles from Dunany, bearing from it N. by E., keeping Clogher Head well open, and bearing from Cooley Point W. by N., distant about 4 miles. The second and third buoys bear N.N.W. ½ N. from the first buoy. The second buoy is in 3½ fathoms at low water; and the third is on the bar, on which there are, at low water springs, 3, and at low water neaps, 6 feet. The depth on the bar at high water springs, varies from 24 to 18 feet; and neaps, from 16 to 13 feet. These depths continue up to Soldier's Point, whence, to the quays, the depth is at high water springs, 19 feet, and neaps 13 feet. From the bar to Soldier's Point, the W. side of the channel is marked by three hexagonal beacons constructed of timber piles, each having a ball on the top, and painted black; and on the E. side near to Soldier's Point, at a place called *The Rock*, there is a large hexagonal beacon constructed of timber piles and painted red; this beacon has a lantern on the top shewing a Red Light when Lighted at night. Between the Rock Beacon and Soldier's Point on the N. side of the Channel, there are two beacons painted red. Between Soldier's Point and the Quays there is also on the N. side of the Channel, at the entrance to the Ballymascanlon River, a similar beacon to the last, painted red: from thence to the Quays the N. side of the Channel is marked by perches. All the beacons are furnished with lanterns, which are lighted whenever the steamers arrive or depart at night, and, with the exception of that on the Rock, shew Bright Lights. A Lighthouse, on screw piles, has been erected at the entrance of the Harbour Channel. The Light is a Fixed Light, varied by Flashes, giving a flash once in every 15 seconds; its focal point 33 feet over the level of the sea, at high water; and in clear weather it is visible at the distance of about 9 miles. To seaward the Light appears of the natural colour, Bright, between the bearings of W. by N. and N. ¼ W.; it is masked in the direction of the Dunany Reefs, between the bearings of N. ½ W. and N. by E. ½ E.; it is coloured Red towards the west side of Dundalk Bay; and shows Bright towards the Harbour Channel, northerly. The Lighthouse is borne on screw piles of red colour, braced into an open framing below the dwelling, which is of octagonal form, and coloured white: over this the Lighthouse has a dome-formed top. It stands within the entrance of the Channel in lat. 53° 58′ 40″ N., and lon. 6° 18′ W.; and bears from Castle Rocks, off Cooley Point, N.W. ¾ W., distant 5¼ nautic miles; from Dundalk Patch (rocky shoal), N. by W. ¾ W., dis-

tant 6¼ nautic miles; from Dunany Reefs, eastward of Dunany Point, N. ¼ W., distant 6¼ nautic miles. All vessels entering the Port to keep the Lighthouse on the Starboard hand. Masters of vessels are cautioned to give the beacons and perches a sufficient berth. When vessels bound to Dundalk come between Cooley Point and Clogher Head, they are required to hoist a signal for a pilot. Vessels wanting the use of a Steam Tug are requested to hoist by day an Ensign to the Fore-top-gallant-mast-head; by night, Two Lights, one above the other. Masters of vessels necessitated to enter the Harbour, without being able to obtain a pilot, should observe, that after passing the Lighthouse, they are to keep the black beacons on the Port hand, and the red Beacons on the Starboard hand.—The Dundalk Harbour Commissioners have had built, at a cost of £3,000, a new and powerful Iron Steam Tug-boat for the accommodation of vessels trading to this port.

DUNANY AND IMOGENE ROCKS, DUNDALK BAY.—A *black conical buoy*, surmounted by a staff and ball, has been placed in 3¼ fathoms, at low water, spring tides, to mark the position of the Imogene Rocks, which lie about a mile and three quarters S.S.E. off Cooley Point, north side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Dundalk High Chimney, open of Rathcor Point, N.W. ½ W.; Cooley Point, N.N.W. ½ W.; Carlingford Lighthouse, N. E. ½ N.—A *red conical buoy*, surmounted by a staff and ball, has been placed in 4 fathoms, low water, spring tides, on the outside of the Dunany Reefs, which lie off Dunany Point, south side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Clogher Head, S. W. ¾ S.; Dunany Church, W. ½ S.; Dundalk High Chimney, N. by W. ½ W.; Tipping Mountain on with a saddle in the distance, N. ¼ W.

Loch Carlingford lies two leagues to the eastward of Dundalk Harbour entrance, and forms a large well-sheltered bay, the ground good, and water sufficient for the largest ships; but there are several rocks and dangers which must be attended to. Its entrance is between Ballaggan and Cranfield Points, which bear from each other nearly E. by N. and W. by S., distant 1½ miles. The following Iron Nun Buoys have been laid down at low water, spring tides:—*Black* Buoy on the Shoal N.E. of the lighthouse, in 7 feet water at low water, lighthouse S.W., distant about 40 fathoms; Blockhouse W.N.W. *Red* Buoy off the tail of the Scar, Cranfield Bay, in 8 feet water, lighthouse S.W.; Greencastle N. *Red* Buoy on the south end of the Earls Rock and Shoal, in 8 feet water, Greenore Point W. by S.; Greencastle E.; distant from Greenore Point ¾ mile. *Red* Buoy on the S.W. end of Ballyedmond Bank, in 9 feet water, Monument N.; Old Castle, Carlingford, W. S. W. *Black* Buoy on the eastern edge of Carlingford Bank, in 8 feet water, Greenore, S.S.E.; Old Castle of Carlingford, S. W. by S. When inward bound, masters of vessels will keep the red buoys on the starboard hand and black on the port. The Helly Hunter, upon which a large Red Buoy has been placed, is a rocky shoal lying to the eastward of the entrance of the Loch, and stretching about 1 mile S.W. and N.E.; its western end dries with extraordinary low tides only, and on the other parts the least water is 6 feet. To avoid the Helly Hunter, as you sail to Carlingford from the E. or S., do not bring Mount Culy to the westward of W. ½ N., until the Blockhouse comes on with the top of Foy Mountain, bearing N.W. ½ N. Then steer for the N. end of Blockhouse or Haulbowline Island, giving the Point of Cranfield and the Island a berth of a cable's length each from the high-water mark. Between the W. side of Blockhouse Island and Ballaggan Point are several rocks and shoals, and consequently this passage must not be attempted.

Carlingford Loch Light, situate on Greenore Point, on the larboard side in going up Carlingford Loch, revolves, is of the natural appearance, attains its greatest magnitude every 45 secs., and is visible at a distance of 9 miles.

To Sail into Loch Carlingford, take flood-tide, and with the Blockhouse bearing from N. by W. ½ W. to N.W. ½ N., sail in for the E. side of the Island, giving it a berth of a cable's length or two on the larboard. Steer thence for Greenore Point, keeping between ¼ a cable and 2 cables' length from it; then run N. by W. up the middle of the channel; and abreast of Killean Point, or above it, nearest the E. side, drop your anchor, in from 2 to 6 fathoms water. Small vessels may lie on the W. side, easy and safe, about 2 cables' length eastward of Carlingford Castle, on soft mud.

Carlingford Lights are shown from a tower erected on Haulbowline Rock, which lies upon the bar ½ a mile W. by N. from Cranfield Point, on the larboard side of the entrance to the Loch. The upper is a fixed light, and the lower revolving. The higher light is shown throughout the night, and may be seen like a star of the first magnitude, at the distance of fifteen miles. The lower light, having also a starlike appearance, is exhibited from half-flood to half-ebb. In the day, during the same period, a ball is hoisted; and in foggy weather, a bell is tolled every half minute.

NORTH-EAST AND NORTH-WEST COASTS OF IRELAND.

ST. JOHN'S POINT TO SLIGO BAY.

St. John's Point. — On this Point in lat. 54° 13′ 10″ N., and lon. 5° 39′ 50″ W., is erected a tower, shewing an intermitting light, appearing of its full brightness during 45 secs., and obscure 15 secs. The light bears from Newcastle pier, (Dundrum bay) E. by S. ½ S., 7½ miles, and from the Calf of Man revolving lights N.W. ½ W., 33 miles, and can be seen seaward from W. by N. ½ N. to E. ½ N. The light kept open will lead clear of Gun's Island and of the St. Patrick's rock, off the entrance of Strangford Lough.

Dundrum Harbour.—On making St. John's Point, the entrance to the inner bay lies 6 miles within the bight of it, about 2½ miles to the eastward of the town of Newcastle, at the mountain foot. In the middle of the entrance channel a black buoy is laid down in 14 feet, low water, spring tides. It may be picked up by keeping the old castle that stands above the town a sail's breadth in on the west point that forms the entrance. Steering north from this, you will arrive at a smaller buoy lying in the middle of the river; then by steering N.W. by W. you will come up with the first perch on the banks to the west, having on it a small barrel—give this a berth of half a cable's length on your larboard hand; after which, by changing your course N. by E., you reach the second perch, having a triangle on it: allow this the same berth as the first. The third perch has a round black top. From the second perch, from which you have the town and pier open, steer N.N.W. up the river until abreast of a red-topped perch, to which give a berth of half a cable's length on your starboard hand, and then keep for the pier-end. On the south part of Dundrum Bay is

Annalong Harbour, where there is excellent shelter for Coasters, though a narrow entrance. There is also good shelter in

Newcastle Harbour, where a considerable area is enclosed by a new Pier and Jetty, forming a safe dry harbour for vessels under 100 tons.

Killough, half a league East of St. John's Point, has a good roadstead in off-shore winds, and, within, offers to coasters a safe dry harbour, with a muddy bottom. Killough Pier is built from the West side, and, between it and a smaller Pier on the East side, called Coney Island, lies the entrance to the port. Outside the entrance of the bay an Iron Perch marks the Water Rock, which is covered only at high water: to avoid it, bring a remarkable two-storied house, with white front and roof, (called Cotter's House, and situated inside the harbour,) one-third inboard from the West Pier-head, until you have passed the Perch; then keep more to the Eastward till you bring the House over to the extreme end of the Pier. Two cables N.N.E. ½ E. from the Perch is the Little Plate Rock, and half a cable N. from this is the Big Plate, both covered except at spring ebbs; and, consequently, when there is water to enter the harbour, there is also water over these rocks. The Garter, on which is an Iron Perch, is a ledge of foul ground which runs off from the Western side of the bay, under the Old Mill Stump. There is also a spit of rough stones, called Crane's Point, extending S. W., a short distance from Coney Island; but by keeping Cotter's House midway between the two Pier-ends, when you come within two cables' length of them, you avoid this spit. The best anchorage in the Bay is within the Water and Plate Rocks, in from about five to seven fathom, with shelter from all but southerly winds.

Ardglass Harbour, 2½ miles E. of St. John's Point, is easily known by several old Castles and a rising town on the W. side of the bay. You can anchor at the mouth of the bay, between Ringfad and Fennick Points, in from 6 to 10 fathoms water; but if the wind blows on shore, a small vessel may shelter inside the pier under the middle castle in from 1½ to 2½ fathoms water, or run aground on the beach. A temporary red light is shown from the inner shore of harbour, 2 cables' length from entrance N. by W.

Loch Strangford lies N.E. at the distance of 60 miles from the Hill of Howth, and nearly E.N.E. ½ E. 28 miles from Loch Carlingford. The stream at the entrance is very rapid, and when the tide is ebbing and wind strong at S., S.E., or E., the sea is short and broken, which gives the bar across the river the appearance of a ridge

of sunken rocks; but there are not less than four fathoms at low water on any part of the bar, and it is quite free from rocks. Few places afford such safety to wind-bound vessels as this Loch, ships having at all times of tide abundance of water, not only on the bar, but also in the two principal roadsteads, *Ballyhenry* on the N.E., after passing Portaferry, and *Audley's Road* on the S. W. side of the river, after passing Strangford. An Iron Perch with a square head has been erected on Rock Patrick, which is covered at half-flood, and is about three quarters of a mile off Killard Point. Vessels from the southward can pass close to this Perch, on either hand, in making for the North Bar, the only safe entrance for strangers; and as there has been erected a round Tower of masonry on Rock Angus, and there are Perches on the Garter on the port hand, and Pladdylug rocks on the starboard hand, which lie near its mouth, no danger need be apprehended in daylight; but a good offing should be kept from the E. shore to avoid Pladdylug; and on the other hand do not stand too far towards the Garter, as the flood has somewhat of a westerly direction towards it. Having passed the Tower on Rock Angus a mile and a half, come to anchor, if you are late for the tide, opposite a White Beacon on the south shore, called Cross Roads, where you can stop a tide until you can get to Ballyhenry or Audley's Road, 2 miles further, and just beyond Strangford and Portaferry towns. The "Hole" of Strangford is a perfectly sheltered anchorage between the town and Swan Island, and there are 2 Quays opposite the Customhouse, with berths alongside them, and a little Bay with an even beach and smooth water for vessels desirous of taking the ground. There is also at PORTAFERRY (opposite) a good Quay, with berths and a smooth beach along the shore, under the town. A Horse Ferry plies between the two towns. There is a Red Pillar Beacon on the outer end of Swan Island, which marks the entrance into the "Hole" of Strangford. On hoisting a signal, experienced pilots can be had.

South Rock Light is erected on the South Rock, about 2 leagues northward from the entrance to Loch Strangford. The light revolves, attaining its greatest lustre every 1½ minutes, and is visible at a distance of 12 miles. A reef of rocks called the Ridge, extends 1½ miles to the N.E. of the lighthouse, on the extremity of which is a red buoy, which bears about S. by E. from the North Rock Beacon. The North Rock, about a mile N. by W. of the lighthouse, is marked by a solid Beacon, like a small church spire, erected in 1856. The Butter Pladdy, about 1½ miles S.W. of the lighthouse, is mark by a black buoy, to be left on their ou hand by vessels taking the "Sound of Light"—a channel much frequented coasters and now well marked, betw the lighthouse and the North Rock B con. Sailing along the Downshire sho from the Copeland to the North South Rock, the South Light should kept outside of Burr Isle, or the Bla head of the Gabbans, in Isle Mag a sail's breadth outside of Donagha shore, or the Copeland Light North, clear Scullmartin Rock that lies N. 3½ miles from Burr Isle, and S.E. 1 m from the town of Ballywater. To northward of Scullmartin, on which is Iron Perch, lie Ballywater Rocks, wh stretch out about ½ a mile, commenc at Ballyferris Point, and run S. miles. The S. end is seldom cove the middle is covered at ½-tide, the end seldom bare. Just inside the L Rock and Scullmartin a new Quay been built. Vessels of 60 and 70 t frequently go in to discharge; and th is good shelter from all but N.E. win though the space is small, because a building the Quay, the Board of Wo never cleared away the loose stones ins it. Six and a half miles N. of Ballywate

Donaghadee, the deepening of wh is at present being proceeded with, m be entered with great caution either day or night in order not to come foul the Dredger Barges, or their mooring which are stationed at the entrance in the harbour. The depth of water at entrance between the pier heads has be increased to 10 feet at low water; fr the Lighthouse to the easternmost Cra and extending to the centre of the h bour, there is a depth of 12 feet at l water, and at the western Crane the de is 10 feet at low water. From the S pier-head a Light is shown, red to s ward from N. by E. ½ E. to S. ½ E., a bright towards the harbour and the trance of Belfast Bay. Sailing in from southward keep above ½ a cable's leng from the shore until the harbour is op then run in and let go your anchor ins the pier-head. No buoys are allowed anchors on account of the steam packe Mariners must be on their guard not lose sight of the red part of the light sailing N. or S. of Donaghadee. Abou mile north of Donaghadee is Forela Point, from whence extends a ledge rocks to the E., with an iron Perch on and outside of that again is a large bla buoy, which should not be rounded close, particularly at low water. Dep Rock, on which is a red buoy, lies half between Donaghadee and Copeland, has about 8 ft. at low water. The pro course through the sound is between

and and Deputy buoys; but there is a
iel on the E. side of the latter, keep-
ne-third from the Copeland, as a
of foul ground runs out after passing
eputy. Cairn Point, at N.W. end of
and, must have a good berth on the
ard hand, to avoid a rock called
n's Bush, that lies a cable's length
it, and is seldom bare at low water.
are all to be feared in the Sound of
ghadee.

peland Island lies 2½ miles N.
. from Donaghadee, and one mile to
stward of Nout Head. E.N.E., one
from Copeland, are the Cross and
Islands, between which is a narrow
iel not navigable. On the Cross
l is the Copeland Light. Between
small islands and the Copeland is
ter sound. On the E. side of the
and, near the south point, is a ledge
ks extending above two cables'
to the eastward: there is also a
extending from the Mew Island to
estward; between these is the chan-
Half way between the sound of
and and Cross Island, is a small
called the Pladdins, over which are,
common spring tides, 3 or 4 feet of
; it bears S. ¾ W. off the light. To
this rock on the E. side, bring the
ouse N. by W.; on the S. side, bring
.W. house in Donaghadee in sight
the S. end of Copeland Island: in
ound the currents are strong, and,
ere are no buoys, is to be avoided
rangers.

lfast.—The entrance to Belfast
h is immediately to the N. of Cope-
Light, and lies between Said Light
Black Head; the latter bearing from
ormer N.N.W., distant about eight
. At the larboard side of the en-
e, about a mile to the W. of Orloch
, is a rocky ledge called the Briggs,
hing out three quarters of a mile,
pon which is a red buoy. About 6
to the W. of the Briggs is Grey
, and, in a sort of bight between
, is the town and harbour of Bangor,
small vessels only. Two miles fur-
W. from Grey Point, a small ridge of
runs out from the shore rather
than a quarter of a mile, on which is
y to be kept on the port-hand. On the
site side of the Lough, and bearing
y N. ¾ N. from Orloch Point, distant
les, is the town of Carrickfergus,
e there is a pier, having, with spring
, 10 feet water, and with neaps 7 feet.
guide to the entrance of this harbour
ght, a red light is shown two hours
e and two hours after high water:
light to be brought immediately over
eet lamp in Governor's-place—the
red light showing about 2 feet *above* the white light, and from a vessel coming in due north. Off this town, to the S. and W., is a bank running out 1½ miles from the shore, and extending N. 1¼ miles; the least water over it is 7 feet. Extending a mile from the shore on the S. side of the Lough, and opposite the village of Hollywood, is Hollywood bank, on which is a lighthouse built on screw piles, which shows a pale red light, visible 8 miles in clear weather. Between the Hollywood and middle bank is the commencement of the pool of Garmoyle, which extends from abreast the large red buoy on the starboard hand, having from 3 to 4 fathoms at low water. From Garmoyle, the channel up to Belfast is now nearly straight, having above 10 feet at low water, spring tides; it is well buoyed—red on the larboard and black on the starboard hand going up to the quays. There is also a green light on Hollywood Bank, with three more of the same colour towards Belfast, all of which are to be left on the port side when going up. There is also a red light S. W. of the stone Beacon, to be left on the starboard side. Large ships usually anchor off the town of Carrickfergus, near the middle of the Lough. Many vessels frequent this anchorage, which is marked on all the Admiralty Charts of the Lough, and Masters of ships pronounce it excellent. Vessels drawing not more than 16 feet water may anchor higher up in the Folly Roads—between the Carrick bank and abreast of White Abbey; smaller vessels in Whitehouse Roads. Large vessels drawing 18 feet water, intending to reach the quays, may anchor in Garmoyle. A large pilot cutter is constantly under way during the daytime, at night also (weather permitting), and generally boards vessels bound to Belfast below Grey Point. The Briggs of Kilroot, now a Perch on them, lie on the N. side of the Lough, and stretch almost from Kilroot Point to White Head, and about a quarter of a mile from the shore, to avoid which keep Black Head open with the White Head, and a vessel will be clear of all danger.

Loch Larn.—A lighthouse is erected on Farres Point, on the larboard hand going into this spacious Loch, opposite which are the Maiden or Hulin Rocks. Sailing into Larn from the S.E., pass Muck Island, Brown's Point and Bay; give Barr's Point a berth near half a mile, as a ridge of rocks runs off above a quarter of a mile; give Farres Point, on which is the Lighthouse, a berth of half a cable's length; run for Corran Point on Larn side, on which stand the ruins of an old castle, giving Isle Magee side a large berth, as a long shoal runs out from it

very near half way across to the steam-packets' wooden wharf opposite the salt pans, and continue to near the Point of Racknow, round which is Yellow Stone Roads, sheltered from all sea, and little tide. There is a long flat runs out from the N.W. side of the entrance which when covered, is so deceitful to strangers, that they should open the mouth of the Loch well; keep no more than two cables' length from the lighthouse, run up past the wooden wharf, giving it a berth on the starboard hand. Anchor ⅔ of a cable's length from Isle Magee shore. Small vessels from above the wharf should run up abreast of Corran Point in two fathoms, keeping one-third from Corran shore, and two-thirds from the Island. Large vessels should come to further out, about one-third from Corran side. There are no rocks in Larn Loch, and should a vessel run too far, she will only go on soft sand or mud. A stranger going in, in the night, should take his soundings from Isle Magee shore; but going to the Yellow Stone Roads should take a pilot. Vessels may run in without anchors or cables —there are no rocks nor shoals to interrupt them, coming from the southward, except Barr's Point, before mentioned, and Hunter's Rock. Four miles off the mouth of Larn Loch, and 4 miles N. ½ W. from Knee or Muck Island, the Sound of Muck appears open, and Corran Castle on with Larn Lighthouse.

Maiden, or Hulin Rocks Light. Two lighthouses, marked with broad red and white belts, are erected on the Maiden or Hulin Rocks. These Rocks bear by compass from the Mull of Cantyre Light, S.S.W., distant 24 miles; from Sanda Island, S.S.W. ½ W., 18¾ miles; from Ailsa, W.S.W., 23 miles; from Copeland Island Light, N. ½ E., 16½ miles, and from the eastern extremity of Rachlin Island, S. by E. distant 29 and a half miles. The lights are distant from each other 320 fathoms, and bear N.W. by W. and S.E. by E. The mariner in passing should give them a wide berth, there being a number of sunken rocks extending upwards of 3 miles N. and 1½ miles S. of them.

Ballicastle Harbour.—Opposite Church Bay, on the Irish Coast, is Ballicastle Harbour, formed at the mouth of a small rivulet near the town, affording shelter for small vessels drawing 7 feet water, for at high water there are 9 or 10 feet between the pier heads, with spring-tides, and 8 feet with neap. In summer ships may ride near the W. side of the bay in 9 or 10 fathoms water, the glass-house bearing S.S.W., Sheep Island being shut in with Kinbane Head, and Clare House bearing on the top of the cliff near it; but it will not be prudent to lie long here. Should the wind blow from the or N.W., and a swell begin to set i weigh anchor, and rounding Tor Poi make for Cushinden, Cushindaal, or Lar

The **Skerries** lie W. by N. 5 mil from Bengore head, and about a mi from the shore: on the south side of th largest of these islands, where it appea lowest, a vessel may anchor in 6 or 7 f thoms water, a little more than a cable length from shore. In sailing into th anchorage be careful of the Stirks on th east side, and of the Kers on the we side: they lie a little to the southwar of a cluster of rocks about half a mil westward of the Skerries, and dry at fou hours' ebb.

Port Rush is much improved by pier and quay; there are from 8 to 2 feet within the harbour, while off the mouth of the port a vessel may anchor in 6 to 8 fathoms, on a bottom of sand. On entering the harbour you must give the North Pier a berth of at least fifteen yards, to clear the stones which have been placed to break off the swell, and which are covered at ¾ flood.

Loch Foyle is a capacious harbour, where the largest ships may ride in safety in all weathers; but the best place for large ships is on the N. side, 3 or 4 miles within the entrance, in from 5 to 8 fathoms water: but vessels of 11 or 12 feet draught will ride easiest between Quigley's Point and Ture, in from 2½ to 3 fathoms. The danger to be avoided is the Tuns Bank, which lies on the S. side of the entrance, having a channel between it and the land, on the N. side, ¾ of a mile wide. To sail into Loch Foyle, wait for flood tide, or a brisk leading wind to stem the ebb, which runs at the rate of 3½ knots in the entrance: keep Glenegad Head 2 or 3 ships' length open off Inishoan Head, until the mouth of Derry River at Kilmore Point is a little open of Magilligan's Point; then steer for the entrance, keeping ½ of a mile from the N. shore, and you will pass between it and the Tuns Bank: when you are within Magilligan's Point, you may keep at a greater distance from shore, and run up to the anchorage. On Donagree Point, a little to the S. of Inishoan Head, are two lighthouses, bearing from each other E. and W., distant 153 yards. The lights are fixed, visible 13 miles, and when in one lead clear of the Tuns Bank.

Inistrahul Island, on the N.E. part of which a lighthouse stands, is 6 miles N. ½ E. from Glenegad Head, and 4 miles from the nearest shore. The light makes a revolution every two minutes.

Loch Swilly.—The entrance of this Loch lies 7 miles W. by S. from Malin Head, and is about 3½ miles wide, from shore to shore. Fannet Point is a low point at the W. side of the entrance: it is distinguished by a lighthouse which displays a steady light, which, when seen from sea, appears of a deep red colour, but from within the Loch, bright. This is a safe harbour for vessels of any size; but the best anchorages are off Burncranah House, 2 or 3 cables' length from shore, in from 4 to 8 fathoms, or between the Island Inch and Rathmullin, rather nearer to the latter, in from 5 to 8 fathoms.

Mulroy Harbour is known at a distance by Tory Island, Horn Head, and Rosgull Hill; it has water sufficient for the largest ships; but a part of the channel is narrow and difficult. Strangers should always take a pilot.

Sheephaven & Downing Bays.—Few vessels like to run for Sheephaven as many get on shore, yet some are compelled, not being aware of the excellent anchorage in Downing Bay, which lies on the E. side, at the bottom of Sheephaven. The bay is formed by points called Downing and Morlach. Close under Morlach Point is the anchorage, in from 4 to 6 fathoms. In running for it from Hornhead, the course will be S.E. by S., distant six miles, care being taken to give a berth to two half-tide rocks about a cable's length N.N.W. from Downing; when the sea breaks on them, which it generally does, they may be approached as most convenient: there are no other dangers.

Tory Island, the east end of which lies 7¼ miles N.W. from Horn Head, has no good anchorage on its S. side; but in the summer season, with S. winds, a vessel may stop on the north side in 18 or 20 fathoms, within half a mile of the shore. On its N.W. end is a lighthouse, exhibiting a steady bright light, visible from seaward 16 miles all round; but when passing to the S.E. of the island, is shut in behind the heights between N.W. by N. and N.W. ½ W.

Rathlin-O-Birne.—This island lies 2 miles S.W. ¼ W. from Malin More Head, and is about ⅓ a mile long and ⅓ of a mile wide. A lighthouse has been erected upon it, in N. lat. 54° 40′ and W. long. 8° 50′, exhibiting a flashing light, at an interval of 20 seconds, visible at a distance of 16 miles, but red towards the mainland and sound, eastward of the island.

Donegal Harbour is on the E. side of the peninsula, called the Hassens, or Green Islands, 2 miles below the Town of Donegal, where small vessels may ride in 2 or 3 fathoms water at about a cable's length from shore. To sail in, take half-flood, and keep about ⅓ a mile from the shore on the larboard or N. side, until you are near the Black Rock; then steer E. ½ N. until you are a cable's length past it; you may then steer directly for the Green Islands, giving the north shore a berth of about two cables' length.

Sligo Bay is to the southward of the point of Raugly, and at the N.E. side of the bay is the entrance to Sligo Harbour: S. by E. ½ E. from Raugly point is Black Rock, covered at high water, on which is a fixed bright light, shewing from S. W. seaward to S. E. by S. and seen at a distance of 13 miles. To sail in keep about 2 cables' length to the northward of the lighthouse, in order to avoid the shoal water on the N. side of the rock. The only place where a vessel will lie afloat at all times of the tide, is Oyster Island Harbour, but the bottom is rocky, and does not hold well. On this island are two fixed lights, bearing N.N.W. ¾ W. and S.S.E. ¾ E., 165 yards from each other. After passing the bar, the lights in one clear the Bun Gar Bank, and lead to the entrance of the harbour, or up to the Metal Man Beacon.

SOUTH-EAST COAST OF IRELAND.

WATERFORD TO BALTIMORE.

Waterford Harbour.—From Great Saltee Island to Hook Point, on which Waterford Lighthouse is erected, the bearing and distance are, W. N. W. 13 miles; and from the Longship Lighthouse off the Land's End, N. ½ E. 43 leagues. When coming from the S. or the E. for Waterford, bring Sleanaman Mount, a remarkable mountain inland, to bear N .E. until you see Hook Lighthouse on the E. side of the entrance of Waterford Harbour, from which a bright and steady light is exhibited. Go not nearer Hook Point than about 2 cables' length, to avoid falling into irregular streams of tide that run near it. Having passed the Hook, and intending to proceed for the anchorage at Passage, take a flood tide or a leading wind, and steer for Credan Head, giving it a berth of at least ½ a cable's length.

From Credan Head steer N. E. by N. for Duncannon Fort, carefully avoiding the sand banks which extend from both shores. That on the starboard side begins at Bluff Head, extends more than half a mile from shore, and terminates at Duncannon Fort. Between Bluff Head and Duncannon Fort is Ballistraw Bay. The sand on the other side, called Drumroe Bank, extends more than a mile from shore, and narrows the passage abreast Duncannon Fort to about a quarter of a mile. Two lights in Duncannon Fort, one above the other, are exhibited to direct vessels to that point. On the flat, or what is known as "the bar," 14 feet of water can be had on the lowest spring tides. This shallow lies nearly midway between Credan Head and Duncannon, extends for about a mile in length, and is composed of hard sand; the course by compass over it is from N. N. E. ½ E. to N. N. E. ¼ E. Another lighthouse, having a fixed bright light, is erected N.N.E. ¼ E. from Duncannon Fort lighthouse, distant ½ a mile. These two lights kept in a line, will lead in the best channel across the bar between the eastern and middle buoys. The lower light from the Fort is exhibited only from half-flood to half-ebb. When above the lights keep near the eastern side, steering about N. ½ W. for the church of Ballihak, until the perch, which is fixed in the upper end of Drumroe Bank, comes on with the town of Passage; you may then steer upward N. W. by N. in mid-channel. Abreast of this perch are 10 or 11 fathoms. The usual anchorage is about a mile above Passage Town, in 5 or 6 fathoms. Two or three miles above Passage is very good anchorage, and there the stream is much weaker than at Passage. In proceeding for this place, avoid a spit of sand called the Seedes Bank, which stretches off about W. S. W. from Buttermilk Castle, extending about half-way over to the opposite side; the least water on it is 9 feet. Avoid also a small rock of 9 feet at low water, and 14 feet at half-tide, which lies about 2 cables' length from shore, on the S. side of Cheek Point. In proceeding about low water, keep in the middle between the two points, or rather nearest to Buttermilk Point; if the flood-tide be running, keep in the rough part of the stream, and you will clear the shoal. Vessels drawing 20 or 22 ft. water may go up to Waterford, where there are 2 fathoms at low water, a ship's length from the quay. The safest channel to Waterford is on the north side of Little Island: the channel on the other side is deeper, but it is narrower, and subject to eddy-tides, which make it dangerous. Pilots may always be had at the entrance of the harbour.

Dungarvan Bay.—A lighthouse has been erected on Ballinacourty Point, on the northern side of Dungarvan Bay, with the following marks and compass bearings:—Helvick Head, S. ½ W., 1¾ miles; Carrickapane Rock, S. S. E., 9 cables' length; and Whitehouse Spit, W. by N., 3½ cables' length. It shows a fixed bright light, visible between the bearings of W. and S. E. ¾ S.; green, bearing from W. to N. W. by W.; and red in the direction of Carrickapane Rock. Its white appearance can be seen at the distance of about 10 miles in clear weather.—The intermittent light on Mine Head, S. W. by W., 4 miles from Helvick Head, marks the approach from the westward to Dungarvan Bay, and can be seen further eastward than the range of Dungarvan light. A vessel in the entrance of Dungarvan Bay must keep clear of the red colour of the light to avoid Carrickapane Rock; and on the northern side of the bay keep to the southward of the green light to avoid Carricknagaddy, and the rocks which extend half a mile eastward of Ballinacourty Point.

Youghall Harbour lies about 13 miles W.S.W. from the entrance to Dungarvon. During high water, spring tides, ships drawing fully 17 feet may go in, and ride off the middle of the town. Across the mouth of the harbour is a bar, which extends above a mile south from the entrance, and has 6 to 9 feet on it at low water. Except when the wind blows from the south, south-east or south-west, there is always smooth water on this bar; 14 to 15 feet water are on it at high water, neap tides. When Cable Island bears W.S.W. you are on the outer edge of the bar. When sailing for Youghall Bay from the southward, keep Knockmeldown Mountain N. by E. To anchor when waiting to go over the bar, the best places are on the S. side of the bar, the harbour mouth bearing N.N.E., in 3 or 4 fathoms; or on the north side of Cable Island, in 3 to 6 fathoms, about 2 cables' length from the shore. From a tower on the west side and within the entrance, is shown a fixed bright light, open to the harbour, and seaward to S. W. by S., and may be seen at a distance of 6 miles.

Cork Harbour.—From a tower on Roche Point, at the east side of the entrance, is shown a fixed light, red towards the sea, to the harbour bright, and visible at the distance of 14 miles. From it Cork Head bears S. W. by W. about 4 miles. From the Longship Lighthouse off the Land's End, to the entrance of Cork Harbour, is 46 leagues N. by W. ½ W. Coming from the southward, and bound to this harbour, keep Knockmeldown Hill about N.E. by E. until you see the Old Head of Kinsale, a bluff point of land with a lighthouse on it. From this Head the entrance of Cork Harbour lies E. ¾ N., dis-

ant about 5 leagues. When off the harbour, Roche Tower with its lighthouse is remarkable. A little without the point, on E. side of the entrance, lie the Stag Rocks. There is clean ground in a moderate depth without the harbour's mouth, where ships may, with a northerly wind, wait the flood or daylight. A white buoy is placed on the edge of the bank off Fort Camden; another white buoy about a mile further in, to the northward of the entrance to Cross Haven; a third, of the same colour, off the east side of Spike Island; and a white buoy on the eastern extremity of East Haulbowline Bank. Each of these buoys is numbered. There are also several black buoys on the side opposite, on the edge of the mud flat: they lie in 4 fathoms, and are likewise numbered. Above these, at the entrance of the E. passage, are also the keg buoys of the quarantine ground. Having passed the narrows, which is about 450 fathoms over, the channel continues that width in a N. by E. and N.E. direction, between the white buoys on the W., and black buoys on the E. side, to the anchorage of Spike Island, on sandy ground: thence it leads upwards, narrowing round the beacons on the northern side of the Spit extending E.S.E. from Haulbowline Island, close in to Queenstown on the north shore. At the entrance of the passage to Queenstown is a white buoy; and at about 160 fathoms to the S.W. of this, in 2½ fathoms, is the Lower Spit Buoy, quartered black and white on the top, with alternate black and white rings on the side. The Upper Spit buoy, white, lies in 9 feet, N.W. by W. ½ a mile from the Lower Spit Buoy. Here the tide runs 2 or 3 knots; it is high water on the full and change at half-past 4, and the tide rises from 9 to 13 feet. Large ships going in at or near low water, must be careful to avod the Harbour Rock, which lies a little within the Stag Rocks, on the east side. On it are two buoys, about 1½ cables' length apart: one on the eastern, white with red rim; the other on the western edge, red with black rim. It has 5 feet on it at low water spring tides. About ½ of a mile N. by E. ½ E. from the Harbour Rock lies the S. end of Turbot Bank, extending thence N.W., and which has on its shoalest part, the N. end, 18 feet low water, average springs. The middle of this bank lies with a remarkable dark stone building, on the precipitous part of Kenly Cove, bearing W.S.W., and touching the projecting part of the land south-eastward of Temple Breedy Church. It has on it two buoys, about a cable's length apart: one on the east, white with a black rim; the other on the west side, red with a white rim. In order to avoid the shoals on the E. side, keep within 2 cables' length of the eastern shore; or bring the lower part of the white wall, which stands to the southward of the fort upon Dog's Nose, on, or under the west bastion of that fort. To go to the westward of the Harbour Rock and Turbot Bank, keep the fort on Dog's Nose open to the westward of the lower part of the white wall above-mentioned: or when without the harbour, bring and keep a village, which appears upon a hill upon Great Island, over some pine trees, touching the point of Dog's Nose, bearing N. 21 degrees E. which will lead clear of all dangers on that side. To go between the shoals, keep the flag-staff in the fort of Dog's Nose, on, or over, the lower part of the white wall. To avoid the Harbour Rock on the S. side, keep the Crow Rock on with Foor Head. The Turbot Bank may be avoided by keeping nearer to the E than to the W. side of the entrance. Between the Harbour Rock and the E. point are 5 or 6 fathoms; between the Harbour Rock and Turbot Bank are 6 and 7 fathoms; and between the bank and the western shore are 5 and 6 fathoms at low water. About a mile E. by N. from Haulbowline Island, extends the Spike Sand, which begins to dry on the north side at half ebb, and shelters the anchorage at Queenstown. On the east elbow of this bank a lighthouse has been erected on screw piles, in 9 feet: it exhibits a fixed red light, visible from N.N.E. ½ E. to S.E. by E. ½ E., round by eastward, and at a distance of 8 miles. Masters of vessels are cautioned not to cross the bank between the lighthouse and Haulbowline Island, and to give the lighthouse and detached beacon-pillar sufficient berth in passing. In going from Dog's Nose for the anchorage off Queenstown, keep Dog's Nose Point S. by W. ¾ W.; or steer for the eastmost part of the fort on the N. shore, between the black and white buoys, to avoid a flat which extends in some parts a mile from the E. shore, and also a rock that lies to the westward of Cork Beg, which appears at half-ebb. The best place for large ships to anchor is off the garrison, in from 8 to 5 fathoms. Merchant ships may ride off the town of Queenstown in smoother water and less tide, they may go also further up the harbour of Passage, and ride any where between the first houses and Ronan's Point. In proceeding from Queenstown to Passage, do not approach nearer than ½ a cable's length to the S. side of Black Point; and give the W. side of it a berth of about a cable's length, to avoid a sand which extends from that shore, and dries at low water. You may go westward from Haulbowline Island, until you see Ronan's Point in the channel of Passage; then steer N'ward along the W. side of the channel, for the anchorage. Vessels drawing 16 feet may, with spring tides

go up to Black Rock or to the town of Cork, and lie at the quays with 9 feet at low water, average tides. Between Passage and Horse Head is a spit of sand, of 6 feet water, extending above a cable's length eastward from the Clay Cliff: you will avoid the extremity of this spit by keeping Dunkettle House on with a grove of trees which stand on the top of a hill above the House. The point of this spit lies with Belveley Castle and Ronan's Point in one; and vessels which anchor near it, should have the castle fairly without Ronan's Point, or wholly shut in with it. In a small creek called Cross Haven, within the entrance of Cork Harbour, and on the west side, opposite Dog's Nose, vessels may ride in 10 or 12 feet.

Kinsale Harbour.—A new lighthouse has been erected on the Rocky Point at the S. end of the Old Head, distant half a mile S.S.W. ¼ W. from the old lighthouse, bearing from Bulman's Rock S.W. ¼ W. 4¼ miles. This light is a fixed bright light, similar to that heretofore shown from the old lighthouse, and is visible from N.E. ½ N. seaward to W. by N., and at the distance of 21 miles. In sailing towards the harbour from the southward, keep Knockmeldown Hill N. E. by E. until you see the Old Head of Kinsale: after making that, which is about 3½ miles S.W. by S. from the entrance of the harbour, run in until the old lighthouse on it bears W.N.W. about 3 miles; then run in N.W. by W. until the old lighthouse bears S.W. by S.; and then steer N.E. by N. until you are abreast of the lower cove, where you may anchor in 6 fathoms. The only danger near Kinsale Harbour is Bulman Rock, which lies about a cable's length S.S.W. ½ W. from Hangman's Point on the E. side of the entrance, and has 4 feet on it at low water. This rock is buoyed, and may be passed on either side, but the channel on its W. side is the safest for ships coming in or going out.

Baltimore Harbour lies about 5½ miles to the north eastward of Cape Clear, and is very convenient for ships bound either eastward or westward. Small vessels may ride 2 or 3 cable-lengths N.N.W. of Baltimore Town, in 10 or 11 feet at low water, sheltered from all winds.

BRISTOL CHANNEL.

LIGHT VESSELS AND BUOYS.

Light Vessels are moored, and Buoys laid in this Channel as follows:—

Light Vessels.

A Light Vessel, exhibiting a bright light, which revolves every minute, and is visible 10 miles, lies near the English and Welsh Grounds, on the south side of the Bristol Channel, and in lat. 51 deg. 26 min. N., and long. 2 deg. 58 min. W. This vessel is painted red, carries a ball during the day, has the words *English and Welsh Grounds* upon her sides, and is moored in 5½ fathoms low water, spring tides, with the high land at Minehead on with Flatholm Light Tower, W. by S.; the Usk Light Tower, N. by E. ½ E.; a remarkable Peak on the distant Land (See-mee or See-me-not), on with St. Thomas' Head, S. ½ W. A gong is sounded in foggy weather.

A Light Vessel, bearing a bright light, which revolves every minute, and is visible 10 miles, lies off the western end of the Helwick Shoals, and in lat. 51 deg. 31 min. N., and long. 4 deg. 24 min. W. This vessel is painted red, shows a ball in the daytime, has the word *Helwicks* upon her sides, and is moored in 17 fathoms, low water, with Oxwich Point, E. by S.; Worm's Head, N. E. by E. ½ E.; Caldy Lighthouse, N.W. by N. N'ly.; Lundy Island, S.W. ¼ W., 23 miles. During foggy weather a gong is sounded.

Cardigan Bay Light Vessel, lies in 20 fathoms, low water, spring tides, 1 Red revolving light, shewing a flash every 30 seconds, 25 feet above the level of the sea, South Bishop Lighthouse, S. W. by W., 36½ miles; Strumble Head, S.W. ¼ S., 21½ miles; Kenmaes Head, S. ¾ W., 16½ miles; Causeway Buoy, E. by N. ¾ N., 25 miles; Bardsey, Lighthouse, N.E. by N. 23 miles.

Buoys.

Sand Ridge, White, lies in 4 fathoms low water spring tides, with the Valley of Rocks Hotel, midway between Linton church and a conspicuous house on a hill westward, bearing S.W.; Hurlstone, apparently a cable's length outside the Foreland, E. S. E.; Rillage bearing W. by N. ¾ N., 9¾ miles.

Gore, Black, lies in 18 feet, Burnham High Light its length open northward of Low Light, bearing E. by S. ¾ S.; Flat-

holms Island, its apparent length open west of Steepholms; the Lighthouse, N. E. by N., 9 miles; Sand Point appearing open of Brean Down Point, N. E. by E. ¼ E.

WEST CULVER, Red and White striped, with Beacon, lies in 4 fathoms, with Swallow Cliff, a little open of the South of Steepholme Island, E. ¼ N.; Willet's Tower, well open to the Westward of West Quantocks Wood, S.S.W. ¼ W. Westerly; East Culver Buoy, E. ½ S., 5 miles.

EAST CULVER, Red, lies in 6½ fathoms, with Penarth Head, on with Lavernock Point, N.N.E. ¼ E.; Black Nose Point, just open Southward of Steepholm Island, E. by N. ¼ N.; Flatholm Lighthouse, N. E. ¼ E.; Burnham Church Tower, S.E. by S.

NE FATHOM, Black, lies in 4½ fathoms, with Barry Church (with Belfry) twice its apparent breadth on the West end of Barry Island, N. by W.; Lavernock Point, N.E. ½ E. N'ly.; Flatholm Lighthouse, E. ¾ N., 4½ miles; Steepholm Flagstaff, E. by S. ½ S.; Brean Down, S.E. by E. ½ E.

ONEYCOMB, Black, lies in 5 fathoms, about 35 fathoms N.W. of the Rock, with Weston-super-mare Church on with W. end of Piggot's Summer House, S.E. ¾ E.; Kewstock Church about a ship's length open N. of Breanbeck Island, E. by S. ¼ S.; Brean Down Point, S. W.; Swallow Cliff Point, N.E. by E. ½ E.; Flatholm Lighthouse, N.W. ¼ W., 4 miles

W PATCH, White, lies in 9 feet, with the high land of Minehead just open Southward of the South end of Flatholm Island, W. ¾ S.; Flatholm Light, W. ½ S. S'ly., ½ mile; Grounds Light E. by N N'ly. 6 5-10 miles; Cardiff Church Tower, and the two Glass House Chimnies at Cardiff, apparently at equal distances, the Church Tower being the Eastern object, N. ¼ E.; Hayes' Windmill over the East end of Sully Island, N.W. ¼ W.; Penarth Church, N. ¾ W.

OLVES, Red and White chequered, lies in 5 fathoms, half a cable's length westward of the rocks, with Hayes' Windmill on with the West end of Sully Island, N.W.; Breaksea Buoy bears W. N.W. W'ly., 10 miles; Penarth Head, N. by E. ½ E.; Flatholm Lighthouse, S.E. ½ S.

UTH WEST PATCH, Red, with Beacon, lies in 4 fathoms, with Worle Mill in a line with the western side of Middlehope Beach, S. ¼ E.; Monkstone Beacon W. ¼ S., 4 miles; Flatholm Lighthouse, W. by S. ¾ S.; Usk Lighthouse, N.N.E. ½ E.N'ly.; Grounds Light Vessel, S.E. ½ E.

WELSH HOOK, Black, lies in 5 fathoms, low water spring tides, with Aust Head a ship's length open southward of Denny Island, E. by N. ½ N.; Usk Lighthouse, N.N.W., 6 miles; See-me and See-me-not on with Clevedon Old Church, S.S.W. ¼ W.; Grounds Light-Vessel, W.S'ly., 3¾ miles.

RANNEY FLOATING BEACON, placed on the S.S.W. part of Ranie Spit, lies in 3½ fathoms low water spring tides. Sailors' Home at Cardiff, just open off Penarth Head, N. by E. ½ E.; the Western part of Brean Down on with Flatholms Island at low water; the Lighthouse, S. by E.; Ball Point, W. ¼ N.; the highest part of Sully Island, W. ¼ S.

WEST CARDIFF, Black, with Beacon, lies in 4¼ fathoms, with the Monkstone Beacon in line with Clevedon New Church, E. by S. ½ S.; Grounds Light, E. ¾ S., 6¾ miles; Usk Lighthonse, N.E. by E. ¼ E.E'ly., 9¾ miles; the Eastern side of Steepholm, just open West of Flatholm, at high water, the Lighthouse S.E'ly.; Sully Island open a ship's length Southward of Ball Point, W. ¼ S.; Penarth Church, N.

EAST CARDIFF, Red, lies in 6 fathoms, lowwater, spring tides; Hook Buoy, S. W. by W. ½ W., 1 mile; Monkstone Beacon on with S.E. end of Steepholm, S.S.W. ½ W.; Penarth Church, W. ¼ S.; Usk Lighthouse, E.N.E.

CARDIFF HOOK, Black and White chequered, lies in 2 fathoms, with Cardiff Church Tower its apparent length open Eastward of a conspicuous Clump of Trees, N. N. W. ¼ W.; Grounds Light, S. E. by E. ½ E., 5½ miles; Peterstone Church Tower apparently midway between the Spire of Newport New Church and the Tower of the Old Church, N.E. ¾ E.; the Usk Light Tower, N. E. by E. ¾ E.

NORTH WEST SPIT, Black and White, Vertical Stripes, lies in 2 fathoms low water spring tides; Cardiff Hook, N.E. ¾ E., 2½ miles; West Cardiff Buoy 2 cables distant, S. S. E. Easterly; the eastern part of Steepholms on with the western high water mark of Flatholms, S. ¼ E.; Penarth Church, N. ¼ E.

BREAKSEA, Black and White striped horizontally, with Beacon, lies in 5 fathoms, about one cable's length from low water mark, and ½ a cable's length without the Rocks, with the Nash Low Light Tower apparently midway between the High Light Tower and the White Beacon upon St. Donant's Cliff, N.W. ½ W.; One Fathom Bank Buoy, S.E. 7½ miles; Evans' Farm House, apparently midway between a large Yellow Dwelling House and Limpert House, the latter being the Eastern

object, N. N. E. ½ E.; Brereton Windmill, N. N. W. ½ W.

EAST NASH, Black and White chequered, lies in 4½ fathoms, with Groes' House, (yellow) twice its apparent width open Westward of the Tower upon Dunraven Promontory, N.; the North side of the Nash High Light Tower on with the South side of the Low Light Tower, S. E. by E. ¼ E.; Nash Swatchway Buoy, N.W. ¼ W., 4½ miles; Tusker Beacon, N.N.W. ½ W. 4¾ miles; the fair channel course from the Mumbles to this buoy inside the sands, with the Mumbles Light Tower N. N. W. ¾ W., and the Nash Low Light Tower S. S. E. ¾ E.

NASH SWATCHWAY, Black, lies in 2½ fathoms, with Sker House on with Rhwychwyn Point, N. ¼ E.; Newton Down Windmill, its apparent length open Northward to Newton Nottage Church Tower, N.N.E. ¾ E.; the Nash High Light Tower, its apparent length open Northward of the Low Light Tower, S.E.½E.; Tusker Beacon, N. E. ¼ N; East Nash Buoy, S. E. ¼ E., 4½ miles; West Nash Buoy, N. W. by W. N'ly., 2¼ miles.

WEST NASH, Black and White chequered, with Beacon, lies in 6 fathoms, with Newton Down Windmill on with the centre of the Breakwater at Porth Cawl, N. E. by E. ½ E.; Nash High Light Tower, S. E. ½ E., 7¼ miles; the Nash Low Light Tower, S. E. ¼ E.; East Skerweather Buoy, N., 2 6-10 miles; West Skerweather, N.W.¼N., 6½ miles; Mumbles Light Tower, N.N.W.; Nash Swatchway Buoy, right between the Lighthouses, S. E. ¼ E., 2¼ miles; Tusker Beacon, E., 2¾ miles.

EAST SKERWEATHER, Red and White striped, lies in 6 fathoms, with a conspicuous Shaft on the summit of the highest Hill, open Eastward of Constantinople Cottages, the apparent length of them, N.N.E. ½ E.; Margam Trees, on with the West end of a long stone wall terminating near the Beach E. ½ N.; the Windmill inland of Cwm Mawr on with Dunraven Point, S. E. ¼ E.; Kemfig Church 2½ points open Westward of the Scar House, N. E. by E. ¼ E.; Nash Low Light Tower, S. E. ¼ S., 9 miles; Mumbles Light Tower, N. N. W. ½ W.; West Nash Buoy, S., 2 4-10 miles; West Skerweather Buoy, N. W. by W. ½ W., 5 miles; Mixon Buoy, N. N. W. ½ W., 9 miles; Tusker Beacon, S. E. ¼ E., 4 miles.

WEST SKERWEATHER, Red, with a Beacon, lies in 4½ fathoms, with Constantinople Cottages on with the mouth of Aberafon Harbour, E.N.E. Northerly; Margam Trees open Southward of Sker House three times their apparent width E. by S.; Nash High Light Tower, S.E., Easterly, 14 miles; Mumbles Light Tower, N., Easterly, 6 miles; East Skerweather Buoy, S E. by E. ½ E., 5 miles.

HUGO, Black, lies about a cable's length from the dry sand on the N.E. side of the Bank, in 3 fathoms low water, with a large square House on with the South end of the large Store House at Porth Cawl, S. E. ¼ E.; Kemfig Church its apparent breadth open South of a White Cottage (the Northernmost in the Village), E. ½ N.; Nash Low Light Tower, S. E. by S.; Mumbles Light, N. N. W. ¾ W.; Constantinople Cottages N. E. ½ N.; East Skerweather Buoy, S. by E.

INNER GREEN GROUNDS, Red Nun, lies in 3½ fathoms, about one and a half cable's length from 5 feet on the S.E. end of the Shoal, with Kilvey Old Mill, ⅛ distant from the Inn (a large brick house), towards Tennant's Look-out House, N.N.E. ½ E.; Swansea East Pier Head, N. by E. ¾ E., 2 3-10 miles; Mumbles Lighthouse, W.½N.; Woodland Castle, N.W. N'rly.

OUTER GREEN GROUNDS, Black and White chequered, lies in 2½ fathoms, with the Tut between the two Houses on the Mumbles Point, W. ½ N.; Woodland Castle, N. N. W. ¾ W.; Swansea Pier and Lighthouse, N.E. by N.; Kilvey Old Mill, N.E. ¼ N.; Green Grounds Buoy, E.

MIXON, Black, with Bell, lies in 10 fathoms, with Porth Einion Point on with Oxwich Point, W. by N. ½ N.; Kilvey Old Mill Tower on with Swansea East Pier Head, N. E. ½ E.; Mumbles Light Tower, N. E. ½ N.; West Skerweather Buoy, S½E., 5½ miles.

WEST HELWICK, Black, lies in 13 fathoms, with Rhossily Parsonage on with East Crow of Tableland of Worms Island; Porth Einion Point, E. by S. ½ S.; Worms Head, E. N. E. Easterly; Helwick Light Vessel, S. W.; Caldy Lighthouse, N.W. by N.

HELWICK SWATCHWAY, Black and White striped, lies in 4½ fathoms, with Burry Holmes appearing in the centre of Worms Sound, N.N.E. N'ly; Oxwich Point on with Porth Einion Point, E. by S.½S., Easterly; East Helwick Buoy, E. by S. ¾ S., 3½ miles; Worms Head, N., 2 4-10 miles; West Helwick Buoy, W. by N. ¾ N., 2½ miles.

EAST HELWICK Black, lies in 2½ fathoms, with Rhossily Point open westward of Tears Point the supposed breadth of a ship, N. W. ¾ N.; a White Building upon the high land, apparently midway between two White Cottages below that building, N.N.E. ½ E.; Helwick Swatchway Buoy, W. by N.¾N., 3½

miles: West Skerweather Buoy, S. E. ½ E. S'ly., 12¾ miles; Mixon Buoy, E. by S. ¼ S., 9¾ miles; Worms Head, N. W. ¼ N., 5 miles.

OCKBURN SHOAL, Black, lies in 4 fathoms, about 20 fathoms S.E. from the shoal, with the Avon Lighthouse one-third between Penpole House and Miles' House, S. E.; High water mark of Black Nose Point on with Portishead Point, W. ½ S.

ORTE STOWE, Black, Staff and Globe, lies in 9 fathoms low water, spring tides, 1½ cable's length to the N.W. of the Ledge; Bull Point, E. ¼ S., 1½ miles; Morte Point, S.E. ¼ S., ½ mile; Baggy Point S.W.by S., 2 7-10 miles, Hartland Point, W. by S. ¾ S., 14 4-10 miles; Lundy Lighthouse, W. by N. ¾ N. 16 miles.

EST USK, Black, dries at low water; a farm house at St. Brides in line with a bluff tree on the western land, N.W. by W. ½ W.; Usk Lighthouse, N. by W. ½ W.; Windbound Point, N. by E. ¼ E.

AST USK, White, dries at low water; a clump of tiles on Stone Hill just open westward of Windbound Point, N.N.W. ½ W.; West Usk Buoy in line with Peterstone Church W. ½ N.

USKER AND MONKSTONE.—A mast with a large red ball attached is erected as a beacon upon each of these rocks. From the Tusker Beacon, Porth Cawl Point, N. ½ W., is 1½ miles; Mumbles Lighthouse, N. W. by N. 13 miles; Nash Low Light Tower, S. S. E. ½ E., 5¼ miles; East Skerweather Buoy, N. W. ¼ W., 4 miles; East Nash Buoy, S.S.E. ¾ E., 5 miles; West Nash Buoy, W., 2½ miles.

BEACON ON THE WOLF ROCK.—This Beacon consists of an artificial cone, bearing a mast having a large ball upon its summit at an elevation of 36 feet above the level of the sea at high water; the mariners are to observe that spring tides rise at this station 19 feet, and that at low water of those tides, the rock is uncovered to the height of 15 feet. St. Michael's Mount open of Lemorn Cove leads 2½ miles to the Eastward of it; Longships Lighthouse touching Cape Cornwall leads 1¼ miles Westward of it. The Bearings and Distances of the undermentioned objects from this Beacon, are as follows, viz.:—Longships Lighthouse, N. E. ¼ N., 7¾ miles; Scilly Lighthouse, W. by N. ½ N., 21 miles; Rundlestone Rock, which covers at half-flood, E. by N. ½ N., 7 miles; Seven Stones Light-vessel, N.N.W.¼W., Westerly, 12½ miles; Lizard Lighthouses, E. S. E., 23 miles.

WEST COASTS OF ENGLAND AND WALES.

SMALLS LIGHT TO THE PORT OF LIVERPOOL.

Smalls Light is placed on Smalls Rocks, lying off St. David's Head in Pembrokeshire, and bearing from St. Ann's Point, N.W. by W., distant 18 miles. This light is stationary, appearing like a star of the first magnitude, at the distance of 13 miles. To avoid these rocks, keep above a mile from the highest on all sides, and do not attempt to pass inside of them without a good chart and ample directions, or a pilot; with these there is excellent anchorage to be found in St. Bride's Bay in 8 or 9 fathoms.

South Bishop Light.—The Bishop and Clerks are a number of dangerous rocks, with great overfalls, lying northwest of Ramsey Island, at the distance of 2½ miles. On the southernmost, called the South Bishop, is a lighthouse, exhibiting a revolving light, visible in all directions, and appearing with great brilliancy at intervals of 20 seconds, whereby it will be readily distinguished from the Smalls and other lights in its vicinity; it can be seen at the distance of 18 miles. This light is the principal guide the mariner has to enable him to know his exact situation, when sailing near this dangerous part of the coast of Wales. The light must be always passed to the westward, and when to the northward of it never bring it to the westward of south, until you are 3½ or 4 miles from it, particularly on a flood-tide, in moderate weather, for then you have the tide nearly on the beam, which runs rapidly through amongst the islands; at spring tides nearly 5 knots, and causes several overfalls. The passages between the rocks must not be attempted by strangers.

From St. David's Head to Strum-

ble Head the course is E. N. E. ½ E., distance 10½ miles; between them at the distance of 5½ miles from the former, is Abercastle Island, lying close to the land. In sailing from St. David's Head to Cardigan Bay you must give the shore a good berth, for several rocks under water lie scattered about, some of which are nearly a mile from shore; they are called the Sledges, and are 2 miles eastward of St. David's Head.

Fishgard Bay.—Three miles to the eastward of Strumble Head you open Fishgard Bay, having good anchorage with any wind, except from the N. to the E., the ground holding well. The best anchorage will be to the southward of the Crow Rock, which is always above water, in 4 or 5 fathoms, the rock bearing N. by E. ½ E., distant a ¼ to ½ a mile. This bay is more desirable for vessels seeking shelter in gales from S. and W. than Studwall's Road, which is 51½ miles to the leeward, as it is well sheltered from these gales, which Studwall's Road is not, and the bay affords a more ready outlet to the S. or N. than any place in the neighbourhood.

Newport Bay opens when you are 6 or 7 miles distant from Strumble Head.—The bar and channel to Newport lie about ½ a cable's length from the shore, directly below the village of Newport. On the bar are 13 feet water with spring tides, and 7 or 8 at neaps. When a vessel is over the bar, she will be sheltered from all winds.

Cardigan Bay.—The Buoy on the Causeway in Cardigan Bay has been moved, and now lies near the extremity of the Causeway Reef, in five fathoms at low water springs, with the following marks and compass bearings; Slandebrog Mill in line with the east side of West Island at St. Studwall, N. by E.; Penkilan Head, N. by W.; Bardsey Lighthouse, N. W. ½ W.

Cardigan Harbour is adapted for vessels drawing about 15 feet. In the channel over the bar, which is liable to shift, are 14 feet water with spring-tides, and 8 or 9 with neap; but in Cardigan Road a ship may stop, in moderate weather, almost any part without the bar, about two cables' length from the shore, in 6 fathoms water.

Aberystwith Harbour is fit for vessels which draw 15 feet. There are land-marks to lead you over the bar, one of which is moored on wheels, as the bar shifts. When any vessel is seen off the place in the evening, there are lights put upon the marks, which must be brought in one, to direct you over the bar.

Aberdovey is about 3 leagues to northward and eastward of Aberystw and 6 miles to the south of the Diam Beacon on Beach Head. This har has a shifting bar about a cable's le broad, and about half that in and The Trinity Board have placed a Black Buoy at the entrance, out and a Red one inside the bar. A look-out should be kept for a small between the Black and Red Buoys, w makes the angle of the passage if These Buoys are all placed in the fair Vessels may come to anchor half a above the Red Buoy, and which is a the same distance below the town, w from 12 to 15 sail, drawing from 12 feet water may ride in safety and in holding ground.

Barmouth Bay may be known distance by the highest mountain on coast: it has two tops—the southm highest; and when seen from the ward, is in a line with the N. side o entrance of Barmouth. From the N. of the Bay, and about 1 mile from main, a shoal called the Causeway, tends W. by S. 3 leagues: at low there is not more than 2 or 3 feet all along the edge of it, where at a ca length the compass is so affected by netism, as to vary 90 degrees, and you approach nearer, quite reverse points.

Studwall's Road affords excel anchorage for the largest ships, shel from all winds except from E. to S. E. It is easily known by two Islands lie off the point, and there is no da except a small rock about ¼ of a mile ward of the Islands, between which is a good passage, as well as between westernmost and the main, at a cable a half's length from them.

Bardsey Island is separated the mainland by a channel more th mile and a half wide, having from 25 fathoms in it. On the S.W. part o Island is a Lighthouse exhibiting a h fixed light, visible seaward from E. to N.E.¼E., and at a distance of 17 mi but masked between the bearings o 50 deg. E. to S. 70 deg. E. If in a ga wind from the W.N.W. vessels shou unable to weather Bardsey Island, light will point out a secure asylum Studwall's Road, enabling them to serve a proper position until dayli when they can proceed to the ancho therein. Vessels bound to Stud Road, or laying-to for daylight, must bring the light to bear to the west of W.N.W.; and if they lose sight of light when it bears from them nearly that direction, they will be too far to

orthward, and in danger of getting em-ayed in Hell's Mouth.

Carnarvon. — From Brauchypool Head the shore lies nearly E. N. E. to Carnarvon Bar, and from thence nearly E. by W. ½ W. to Holyhead Island, forming Carnarvon bay. Vessels going in are to leave the outer or Black Buoy on the port hand, the Red Buoys on the starboard hand, and the Perch beacon on the port hand. The black and white chequer Buoy is placed in mid-channel. Nun Buoys, painted green, denoting sunken rocks, are placed off Llanddwyn Point. This Point may be distinguished, in the day time, by two white towers, (a large and a small one) and during the night, by a fixed red light, visible, in clear weather, about five miles to seaward, between the bearings (from Llanddwyn by compass) of N.W. by N., and S.W. by W.; and which is intended solely as a leading light for the entrance to the Menai Straits. The bar should not be attempted until daylight, nor by vessels drawing more than 10 feet before half flood. During gales from W. to N., vessels may find shelter on the S.E. side of Llanddwyn Point. The proper anchorage is about a quarter of a mile from the shore, with the small tower a little open to the northward of the large tower. In running in give a good berth to the sunken rocks (the green Buoys indicating which are placed to seaward); but it is much preferable for strangers to heave-to outside sufficiently to windward, and make signal for pilot, four of whom are stationed at Llanddwyn, with a life-boat and Marryat's code of signals. Vessels wishing to communicate will be answered from the large tower.

South Stack Light.—Off the N.W. point of Holyhead Island is the South Stack Rock, upon which is a lighthouse, bearing a brilliant light, which revolves every minute, whereby it will be readily distinguishable from the light on the Skerries, which is a stationary light, and bears from the light on the South Stack N.E. ½ E., distant 8 miles, and may be seen through a great part of Carnarvon Bay. During foggy weather, a smaller bright light, revolving in 1½ min., is occasionally shown, about 40 ft. above the sea, and 30 yards north of the main lighthouse. Any vessel making either of these two great lights, can find no difficulty in navigating round the head, or into the harbour of Holyhead, if the wind permits: and no directions that could be given would serve equal to that of having the two lights in sight, as will be the case in the situation above mentioned.

Holyhead Refuge Harbour is chiefly formed by an immense breakwater, the heel resting on Soldier's Point, from whence it projects N.E. by E. nearly one and a half cables' length, then E.S.E. about five cables' length, and then E.N.E. to its end, which is marked by a red light, visible at a distance of 3 or 4 miles. The end of the breakwater is N.N.E., one mile from the Old Harbour Light.—To sail into Holyhead Refuge Harbour, give the end of the breakwater a good berth, as a strong tide sets to the westward nine hours out of the twelve, and strikes hard upon it. Having rounded the breakwater, steer to the W.S.W., between it and the outer Platters, leaving all the black buoys on the port hand, and anchor well in, close to the beach. There are passages between the Platters and Salt Island; but these should never be attempted by strangers. Vessels should have both anchors ready for letting go, with 50 or 60 fathoms of chain ranged according to the weather, and should be careful to anchor well up, or they will have to shift berth. Vessels disabled or without ground-tackle may be laid on a beaching slope at the head of the harbour, which has been prepared for the purpose.

Old Harbour of Holyhead.—A wooden pier has been recently built, extending from the Old Harbour Lighthouse in a direction E. by S.: two red lights of equal height mark its end.—All vessels bearing up for Holyhead Harbour should be prepared with both bower anchors ready to let go, and the end of a good warp for a boat to take to one of the dolphins, moored along the passage for that purpose. The course round the pier, up the harbour, is W. by N., then W.N.W.; therefore, with the wind at N., and to the westward of that point, a press of sail should be carried, especially after-sail; run the jetty close on board, and neither start tack nor sheet till the vessel is well inside the lighthouse and the packets' moorings, then act as circumstances may require. Rise of water at spring tides, 17 feet; depth of water at the entrance, at low water, spring tides, about 12 feet. Holyhead harbour being a tide harbour, and frequently with many anchors down in the way, vessels drawing 12 feet should not run in until about two hours' flood, and those of a heavy draught should, if possible, keep off till four hours' flood. In tempestuous weather no vessel should run for the harbour at night time. There is no occasion to use this as a harbour of shelter now the new harbour is established. All vessels anchoring outside must keep a light up during the night.

Holyhead Harbour Lights, situate on the starboard hand in entering the harbour, are stationary. The higher,

tance of 11 miles; and the lower, red, is visible from S.S.W. to S.W. only, serving as a mark to clear the Platters, and rocks on both sides. Vessels entering the harbour are in the fairway when they see the RED light and steer for it. A red light is shown from the eastern extremity of the new breakwater; and two red lights, of equal height, are exhibited from the end of the temporary wooden jetty which has been recently built out from the Old Harbour Lighthouse in a direction E. by S.

The Skerries is a cluster of islets and rocks 13-5ths mile to the northward of Carmel Point, occupying a space of about half a-mile. Upon the centre and highest islet of the group is a lighthouse 54 feet high, showing a fixed bright light at 117 feet above the level of high water, visible 16 miles. The position of this lighthouse is lat. 53° 25′ 18″ N., and long. 4° 36′ 24″ W. A short distance all round the islands is deep water, except on the northern side of the group, where is a dangerous rock of 2¾ fathoms, called the African, lying with the lighthouse in one with Pengarn Hill bearing S.S.E. Upon this rock there is a great overfall when the tide is running either way. Between the Skerries Islets and Carmel Point is a dangerous ledge of rocks, drying with spring tides only, called the East Platters. Close-to all round are 8 to 16 fathoms, aud there is a strong rippling when the sea is heavy. You may sail between the rocks and the Skerries by bringing the South Stack Bridge over the North Stack and between them and Carmel Point, by bringing the South Stack and North Stack in one. The Beacon on the West Mouse Rock in one with the Middle Mouse, also clears it on the south side.

Point Lynas lies S. E. by E. ¼ E. of the eastern point of Amlwch Bay, distant 1¼ mile, and is situate in lat. 53° 25′ N., and long. 4° 17′ W. It is a bold conspicuous point of land both from the eastward and westward. A lighthouse is erected on the high pitch of the point, and is a castellated building, with a white basement. It exhibits a flashing light, which becomes instantaneously obscured at intervals of 10 seconds, and remains obscured 2 seconds only, so that it is readily distinguishable from the Skerries and other lights in the vicinity. From Lynas Lighthouse to Great Orms Head, S.E., 16 miles; N.W.Lightship, Liverpool, E.S.E., 37 miles; Calf of Man, N.¼ W., 42 miles; Buoy Nelson, off Preston, E., 41 miles; St. Bee's Head, N.E., 70 miles.

Port of Amlwch, Anglesea.—In the day time, when the Breakwater Balks are down, a Ball is fixed on a pole at the easternmost point of the harbour. When too many vessels lie at the entrance of the harbour, a Red Light will be shown, and when the entrance is clear a White Light.

To Sail into Beaumaris Harbour, THROUGH THE SOUND IN LOW WATER.—Steer in for Table Land, till the W. end of Puffin Island comes open with the E. end of Penmaenmawr Hill. These marks will clear the Dinmora Bank on your starboard hand. You then have the Sound fairly open; but to avoid the rocks off Trwyndu Point, keep more to the Perch on your left; and when Beaumaris comes open off Trwyndu Point, haul up for the red buoy off Penman, keeping it on your starboard hand, and off the red buoy of the Causeway on your left. Anchor in 4 fathoms off Penman red buoy, clean and good holding ground, well sheltered from a north-westerly wind; but if one hour's flood, you will carry 16 feet over the Flats off Penryn Point. Steer for the black buoy on the Spit of the Levan Sand, abreast of Friar's House, where anchor in 5 fathoms low water spring tides, or at half flood steer for the town, keeping the red buoy on Watch House Point on your starboard hand, in 6 and 7 fathoms. Keep that depth of water until the Church at Beaumaris bears N.N.E. by compass, when you may anchor in 9 fathoms at that time of tide. Thence you will see Bangor Pool, which is above Ferry Point. But if any of the buoys should be missing, as you steer up, keep the Church Tower and Lodge Hill in one.—Opposite the Friar's House, in mid-channel, is a sand-bank, marked by a red and white chequered buoy: in sailing up to Beaumaris, keep this buoy on the starboard hand.

To Sail out of Beaumaris Harbour, FROM THE ANCHORAGE OFF THE TOWN.—Weigh at high water, and drop down to Friar's Road. Give the black buoy off the Spit a berth on your starboard hand, and the red buoy off Penman on your larboard. At half ebb, take the eastern passage, heeping off the red buoy of the Causeway on your larboard hand. From the latter, steer for the east end of Puffin Island, on your larboard hand, keeping off it half a cable's length, and the black buoy off the Dutchman's Spit the same distance on your starboard hand.

Menai Lighthouse is erected at the north-eastern entrance of the Menai Straits. The light is STATIONARY and of a RED colour, visible from N.W. ¾ W. seaward, to S.W. ¼ W. excepting that by the intervention of Puffin Island the light will be eclipsed to vessels upon the bearings from it of E. by N. ½ N. to E. ½ S. A ledge of rocks extending under water from the base of the lighthouse nearly 50 a bright fixed light, is visible at the dis

ards, it is advisable not to approach the uilding within that distance.

Conway Harbour.—There are two hannels leading into this harbour—the rest and north. For the west channel, teer from the N.W. black buoy to the econd black buoy, leaving them on your arboard hand; keep the red buoy off enmaenbach, the chequered red and hite buoy, the two red buoys, and the erch, on your starboard hand; haul up, nd steer for the quay, keeping close to eganwy Point on the larboard hand. he entrance to the north channel is arked with a black perched buoy: the econd, third, and fourth are all black, nd moored in the best of the channel. essels drawing from 10 to 12 feet may ish alongside the quay, on mud and and, dry at low water.

To Sail from Point Lynas to he Great Ormshead.—The course om Point Lynas to the Great Ormshead S.E. per compass; from whence keep he Ormshead as the line is drawn on the hart, till Rhyland Castle and St. Asaph hurch are in one; then haul in till the outh mark on Helbre and Bidstone Light-ouse come in one. Steer forward on hat line which is the deepest water along he shore. It will also clear the Middle atch on the left, which is dry at low ater, spring tides. Buoys are placed ere; red on the starboard. and black on he larboard hand, coming in. Give the oint of Ayr Lighthouse a berth of a mile n the starboard hand: and when it bears V. haul up S.S.E. for mid-channel. At hat time the rippling of the tide on the dge of the Salisbury Bank will be very erceptible, as well as on the Welsh side. ontinue that course, in mid-channel, till he Grange Mill bears N.E. by E. by com-ass, then haul quick for Dawpool, and eep that bearing till Burton Mill comes ver the town of Parkgate. That course lears the south end of Salisbury Bank, nd the Bagilt Flats on your right. As ou advance, keep the lead going, and orrow on the Haswell Church side of the hore. It will carry you clear to Bear-ouse Pool, where anchor till you obtain pilot. The leading mark for passing t high water across the Salisbury Bank o Hoylake is Helbre Eye on with the range Mill.

Chester Bar is a narrow sandbank etween 3 and 4 miles in length, stretch-ng rather circularly from S.E. to N.W.; s south end is near to Nant House, and called the Middle Patch, sometimes rying, the middle of it is called Earwick, nd dry at low water; but much the reater part of it never dries, having from to 6 feet water over it at all times. To clear the Earwick to the eastward, bring Nant House and the barn above it in one. To SAIL OVER CHESTER BAR in a ship drawing 12 feet, take half-flood; and when Craig Disart Hill bears S. S. E., which with Middle Hill and Comb Hill form an equilateral triangle, keep the two Ormsheads shut below, and a little open above; by this you will avoid all danger on the southward. To avoid the banks and shallows on the north side, open the Ormsheads below near a ship's length, but not more. If a vessel comes to Chester Bar before half-flood, and is apprehensive of not having sufficient water to cross it, she may sail between the Middle Patch and the Earwick, keeping the Ormsheads a little open below; and when Craig Disart Hill and Middle Hill are in a line, steer N.E. by E. until you deepen your water to 4 or 5 fathoms, and sail along Hoyle Sand for the Point of Air, giving that point a berth of half-a-mile. To avoid that part of Hoyle which is opposite to Air, keep Bidston Windmill to the south of Helbre Summerhouse; this will carry you through the Swashway toward Hoyle Lake. But the mark which leads clear of the north part of the Hoyle Sand, and directly into Hoyle Lake, is the Point of Air Lighthouse open to the northward of Hilbre Island.

The River Dee.—Vessels may stop a tide about a mile to the eastward of the Point of Air, upon which a lighthouse is erected. The tide runs, when strongest, 3½ miles an hour; and when the tide and wind are contrary to each other, make a rough sea here. At this place, which is called Wild Road, you can anchor in 5 or 6 fathoms; or you may proceed higher up to the anchorage off Linacre Creek, where, in 6 or 7 fathoms, you will be much better sheltered than in Wild Road from north-westerly winds, and ride on ground that holds well. To sail from Wild Road to Dawpool, a distance of near 6 miles, bring the southernmost house of Dawpool, which stands below a clay cliff, exactly in a line with the barn having a white end, standing on the top of the cliff, but the barn must not be brought on either side of the house, anchor about 2 cables' length from high water mark in 3½ or 4 fathoms at low water. Here the stream runs 5 miles an hour when strongest. At Parkgate, which is more than 4 miles up the river, vessels must lie aground on the beach; for though there are 2½ fathoms in the channel off the town, and 3 fathoms above it, yet the stream is so strong, and the ground so indifferent, that a vessel would drag its anchor. Take the ground about 2 hours before high water, below the houses of Parkgate. Vessels in making their pas-

sage to Parkgate must use the utmost caution to avoid the Salisbury Bank, a dangerous shoal, and lying in the direction of the river. The channel now to Parkgate is opened into a swashway by Bagilt and Flint; four red buoys are placed on the edge of the Mostyn and Bagilt Banks, and two black ones on the Salisbury Bank, the former of these are to be left on the starboard side, the latter on the larboard. A black buoy lies on the SELDOM SEEN ROCKS in the channel between the Salisbury bank and the Lime Wharf. There are three small islands or rocks, called the Helbre Islands, lying to the southward of the Hoyle Sands: on the northernmost, which is called Great Helbre, are two wooden beacons or marks, distant from each other 653 yards.

BAY AND HARBOUR OF LIVERPOOL.

In the vicinity, and to the northward and westward of the Rivers Dee and Mersey, lie the banks which form the several channels to Liverpool, viz., the Hoyle Banks, the Burbo Sands and Flats, the Jordan Banks, Formby Point Flats, &c. The principal channels are, the Horse and Rock Channels, the Victoria Channel, the Queen's Channel, the Old Formby Channel, and the Crosby or Main Channel.

The principal lights and sea-marks of Liverpool Bay are as follow:—

The NORTH-WEST LIGHT VESSEL, off the Horse and Helbre Channels, in 7¼ fathoms, low water, has three masts, each bearing a lantern, so disposed as to form a triangle, and showing brilliant fixed lights of the natural colour, which may be seen at the distance of 10 miles; in the day she carries a black ball. Her hull is painted black, with a broad white streak. In thick or foggy weather, either by day or night, a bell and gong is sounded alternately. This Light Vessel is now more particularly distinguished by the burning of a blue ligh, of 2 or 3 minutes' duration, at the following periods, namely, during the months of November, December, January, and February, at 6, 8, 10, and 12 o'clock, p.m., and 2, 4, and 6 o'clock, a.m. During the months of March, April, September, and October, at 8, 10, and 12 o'clock, p.m., and at 2 and 4 o'clock, a.m. During the months of May, June, July, and August, at 10 and 12 o'clock, p.m., and 2 o'clock, a.m. The instant of ignition is as near Greenwich mean time as possible; but those approaching under difference of time at ship should look out around the anticipated bearing five minutes before the respective hours.

The FORMBY LIGHT VESSEL, at the elbow of the Crosby and Queen's Channels, moored in 25 feet at low water, shows two yellow fixed lights upon separate masts, visible 8 miles; a red ball is exhibited during the day. Her hull is painted red. In foggy weather a bell is tolled. Crosby Lightship, S.E. ½ S., 2½ miles; N.W. Mark, E. by N. ¼ N., 3⅞ miles; Buoy Q. Fy. (bell beacon), N W. by W. ½ W., 2⅜ miles.

The CROSBY LIGHTHOUSE, situated to the north-eastward of Crosby Point, shows a fixed red light, elevated 96 feet above the level of the sea at half-tide, and visible between the bearings of S.S. E. ¼ E. and E., which limits indicate respectively when a ship is westward of Formby Spit, or to the southward of Crosby Lightship.

About a mile and a quarter to the north-eastward of Crosby Lighthouse is the FORMBY OLD LIGHTHOUSE, the light from which has been discontinued. Near the latter, on the strand, is a beacon, which formerly formed a leading mark for Victoria Channel; further to the northward is the Life Boat House; and near it just round Formby Point, is the North-west Mark. This mark in one with another on Mad Wharf, bearing S.E. by E. ¼ E., is the leading direction for entering the Old Formby Channel.

The CROSBY LIGHT VESSEL, at the north-east elbow of the Great Burbo Bank, moored in 44 feet at low water, shows a yellow fixed light, visible 8 miles, and carries a red ball at the mast-head in the daytime. Her hull is painted red. From hence the fairway course up the Mersey is S. by E. ½ E. In sailing through Crosby Channel during ebb-tide, to avoid the indraught through the gullies in Great Burbo Bank, vessels should be kept well to the eastward of a line drawn between the Rock Lighthouse and Crosby Lightship.

At Bootle, near Liverpool, are two obelisks on the shore, and behind Bootle, near Walton Church is a beacon, called Bootle Inner or Walton Mark.

On the south side of Liverpool Bay, on the peninsula separating the Mersey from the Dee, are many objects used as sea-marks, several of which will have been seen before arriving at the North-west Light Vessel. Off the west end of the peninsula are the islets, called the Great and Little Helbre, upon which are placed two beacons. On the mainland, within two miles S.E. by S. of the Helbre Islets,

are the village and church of Kirby, to the east of which is Grange Hill, surmounted by a beacon, in the form of a pillar, at 173 feet above half-flood. Within two miles S.S.E. from Kirby, is Irby Hill, with its mill and wood.

About a mile and a quarter north of Kirby, near the shore, is the Hoylake Hotel, and within half-a-mile E.N.E. from this are the HOYLAKE LIGHTHOUSES, showing fixed lights, which mark the eastern entrance to the roadstead of that name. The upper one exhibits a brilliant light at 71 feet above half-flood, which may be seen at the distance of 13 miles. This light is decidedly and strongly lighted on a north aspect, and so masked as suddenly to appear when coming in, or disappear when going out, immediately it bears south by compass, thereby indicating when Bidston and Leasowe Lights must be crossed to clear the Six Feet Flats, when inward-bound, or the Spit-Elbow of East Hoyle, when outward-bound. It is masked so as not to show further to the westward than the bearing of south, or midway between the buoy of the flats (H 1, Black with perch and ball) and the buoy on the S.E. shoulder of East Hoyle Bank (H 3, Red Can). The lower light is 47 feet above the same level, and may be seen at the distance of 11 miles. This light is so lighted as to open abruptly when coming from the westward, or shut when going westward, directly it bears S. by E. ¾ E. by compass, thereby indicating when you are approaching the line of S.W. Spit Buoy of East Hoyle (H 1, Red, with Perch), and that you may haul into the Horse Channel (when Bidston and Leasowe Lights open there breadth eastward) when the said Hoylake light bursts forth to view; or haul from the Horse Channel to the westward when it disappears. It will thus serve as a guide round the Spit of Hoyle (even should the S.W. Light Ship be missing), with the like effect as the Upper Hoylake Light at present indicates when to cross the line of Bidston and Leasowe Lights, to clear the Six Feet Flats. The two Hoylake Lights in a line indicate the turning point from the Horse into the Rock Channel, or the contrary. At a mile to the eastward of the lower Light are the Dove Beacons, erected as a mark for the eastern passage into Hoylake, the interior channel of communication between Helbre Swatch and the Horse Channel, which is, at times, a very desirable harbour.

The Old Bell Beacon lies at the entrance of the Rock Channel. It bears a self-acting bell, and is marked, "R. 1, Spencer's Spit."

The next conspicuous object is the LEASOWE LIGHTHOUSE, which is white; its light brilliant and fixed, 110 feet above the level of half-tide, is seen 5 leagues off, and is so masked as to give a defined light in the Rock Channel, within certain limits, and suddenly disappears, bearing S.W. ½ S. to vessels inward-bound, when off West Wharf Buoy, R. 3, Red, and suddenly appears when outward-bound. This is succeeded inland by the BIDSTON LIGHTHOUSE, upon the summit of Bidston Hill, with its church and mill.. This lighthouse is of stone, but appears of a dark colour, and shows a brillant fixed light at 244 feet above the level of half-tide. Its light can be seen 23 miles off. This light is so masked as to give a defined light in the Rock Channel, within certain limits, and to vessels inward-bound it suddenly disappears on the bearing of S. by W. ½ W. when abreast of East Wharf Buoy, R. 4, Red, and suddenly appears when outward-bound. The lights of Leasowe and Bidston are called the Sea Lights. At three-quarters of a mile eastward from the Leasowe Light is Mockbeggar Hall, and 2¼ miles further east is the Black Rock Lighthouse, standing upon the reef, so called, at the entrance of the Mersey.

THE BLACK ROCK LIGHTHOUSE is built on the rocks off New Brighton, on the west side of the entrance of the River Mersey, and is a handsome round tower of Anglesea limestone. It is surrounded by water at nearly half-tide. The height of the building, from the lantern to the base, is 75 feet, and the whole height above the level of the sea is 88 feet. The light revolves exhibiting alternately from the same light room, two bright lights, and one of a red colour, each at intervals of a minute, the whole revolution being completed in 3 minutes. Having acquired their brightest state, they gradually become less luminous, and are eclipsed. The light in clear weather can be seen about 5 leagues off. A bright fixed light from a lower chamber is also shown down the Rock Channel and up the River while 11 feet water remain in the Gut, and a black ball denotes the same by day. Three bells toll in succession during foggy weather; and a blue flag summons the Magazine life-boat when distress appears.

Garston Dock.—This Dock, which is 4 miles south of the Liverpool Docks, and on the same side of the river, is free from the Liverpool dock rates, vessels entering it being only liable for the harbour and light dues. The channel from Liverpool is buoyed with red and black buoys.

Fair and Foul Weather Prognosticator

The following Table and the accompanying remarks, are the results of many years actual observation; and will show the observer what kind of weather will probably follow the entrance of the Moon into any of her Quarters.

MOON	TIME OF CHANGE	IN SUMMER.	IN WINTER.
If New Moon—First Quarter—Full Moon—or last Quarter happens	Between Midnigh and 2 in the Morn..	Fair	Hard Frost, unless the wind be S. or W.
	2 and 4 do	Cold, with frequent Showers	Snow and stormy.
	4 and 6	Rain	Rain.
	6 and 8	Wind and Rain	Stormy.
	8 and 10	Changeable	Cold rain, if the wind be W. Snow, if E.
	10 and 12	Frequent Showers	Cold and high winds.
	At 12 o'clock at Noon and to 2 P.M.	Very Rainy	Snow or rain.
	Between 2 and 4 After.	Changeable	Fair and mild.
	4 and 6	Fair	Fair.
	6 and 8	Fair, if the wind N.W. Rainy, if S. or S.W.	Fair and frosty, if N. or N. E. Rain or Snow, if S. or S.W.
	8 and 10	Ditto	Ditto.
	10 and 12	Fair	Fair and Frosty.

REMARKS.—1. The nearer the time of the Moon's Change, First Quarter, Full; and Last Quarter to MIDNIGHT, the fairer will the weather be during the 7 days following. The space for this calculation occupies from 10 at night to 2 next morning.—2. The nearer to MIDDAY these phases happen, the more foul or wet the weather may be expected the next 7 days. The space for this calculation occupies from 10 in the forenoon to 2, afternoon.—3. The phases happening from 4 to 10 in the afternoon, may be followed by fair weather, but this mostly depends upon the wind.—4. To prognosticate correctly, where the WIND is concerned, a good VANE should be within sight. Dr. Kirwan remarks, if a storm arise from the East on or immediately preceding the time of the Spring Equinox, or from any point of the compass near a week after; then, in either of these cases, the succeeding summer is dry, four times out of five; but if a storm arise from the S.W., or W.SW., on or just before the Spring Equinox then the summer following is wet, five times in six.

Useful Stamp Tables

BONDS.

Given as security for money			
Not exceeding £50			1s 3d
Above £50	and not exceeding	£100	2 6
Above £100	and not exceeding	£150	3 9
Above £150	and not exceeding	£200	5 0
Above £200	and not exceeding	£250	6 3
Above £250	and not exceeding	£300	7 6
For every £100 above £300, or any fractional part of £100			2 6

PROBATE OF WILLS.

£20		£100	£0 10
Above £100	and under	£200	2 0
Above £200	and under	£300	5 0
Above £300	and under	£450	8 0
Above £450	and under	£600	11 0
Above £600	and under	£800	15 0
Above £800	and under	£1000	22 0
Above £1000	and under	£1500	30 0
Above £1500	and under	£2000	40 0
Above £2000	and under	£3000	50 0
£3000		£4000	60 0
£4000		£5000	80 0
£5000		£6000	100 0
£6000		£7000	120 0

INLAND BILLS.

Not exceeding £5			0s 1d
Exceeding £5	and not exceeding	£10	0 2
Exceeding £10	and not exceeding	£25	0 3
Exceeding £25	and not exceeding	£50	0 6
Exceeding £50	and not exceeding	£75	0 9
Exceeding £75	and not exceeding	£100	1 0
Exceeding £100	and not exceeding	£200	2 0
Exceeding £200	and not exceeding	£300	3 0
Exceeding £300	and not exceeding	£400	4 0
Exceeding £400	and not exceeding	£500	5 0
Exceeding £500	and not exceeding	£750	7 6
Exceeding £750	and not exceeding	£1000	10 0
Exceeding £1000	and not exceeding	£1500	15 0
Exceeding £1500	and not exceeding	£2000	20 0
Exceeding £2000	and not exceeding	£3000	30 0

AGREEMENTS.

Of the value of £20 and upwards, containing only 1080 words, 2s. 6d.; and for every further 1080 words 2s. 6d.

Letter of Power of Attorney	£1 10 0
Bills of Lading, each	0 0 6
Charter Party	0 5 0

APPRENTICES' INDENTURES

If no Premium			£0 2 6
Prem. under £30			1 0 0
If 30	and under	50	2 0 0
50	and under	100	3 0 0
100	and under	200	6 0 0
200	and under	300	12 0 0
300	and under	400	20 0 0
400	and under	500	25 0 0
500	and under	600	30 0 0
600	and under	800	40 0 0
800	and under	1000	50 0 0
1000 and upwards			60 0 0

SEA INSURANCE POLICIES

Upon any voyage, for every £100 charged as follows:

			s. d
Not exc. 10s. per cent.			0 3
Exceed. 10s.	and not exceed.	20s.	0 6
Exceed. 20s.	and not exceed.	30s.	1 0
Exceed. 30s.	and not exceed.	40s.	2 0
Exceed. 40s.	and not exceed.	50s.	3 0
50s.			4 0
For every £100 insured for a term,			
Not exc. six months			2 6
Exc. six months			4 0

TO WHICH A WITNESS ATTENDING THE MANX COURTS, AS UNDER, IS ENTITLED.

	PARISHES.	Patrick.		German.		Michael.		Ballaugh.		Jurby.		Andreas.		Bride.		Lezayre.		Maughold.		Lonan.		Onchan.		Braddan.		Marown.		St. Ann.		Arbory.		Malew.		Rushen.	
		s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Castletown	Gentleman	3	6	5	3	7	0	8	9	10	6	10	6	12	3	10	6	10	6	8	9	7	0	5	3	7	0	3	6	3	6	2	4	5	3
	Tradesman	2	11	3	6	4	1	4	8	5	3	5	3	5	10	5	3	5	3	4	8	4	1	3	6	4	1	2	11	2	11	1	9	3	6
	Tradeswoman	2	4	2	11	3	6	4	1	4	8	4	8	5	3	4	8	4	8	4	1	3	6	2	11	3	6	2	4	2	4	1	9	3	11
	Labourer	1	10	2	2	2	6	2	10	3	2	3	2	3	6	3	2	3	2	2	10	2	6	2	2	2	6	1	10	1	10	1	6	2	2
Douglas	Gentleman	8	9	7	0	8	9	10	6	12	3	8	9	8	9	7	0	5	3	3	6	2	4	3	6	5	3	5	3	8	9	7	0	10	6
	Tradesman	4	8	4	1	4	8	5	3	5	10	4	8	4	8	4	1	3	6	2	11	2	4	2	11	3	6	3	6	4	8	4	1	5	3
	Tradeswoman	4	1	3	6	4	1	4	8	5	3	4	1	4	1	3	6	2	11	2	4	1	9	2	4	2	11	2	11	4	1	3	6	4	8
	Labourer	2	10	6	6	2	10	3	2	3	6	2	10	2	10	2	6	2	2	1	10	1	6	1	10	2	2	2	2	2	10	2	6	3	2
Ramsey	Gentleman	10	6	8	9	7	0	5	3	7	0	5	3	5	3	3	6	2	4	3	6	5	3	7	0	8	9	10	6	11	0	12	2	15	9
	Tradesman	5	3	4	8	4	1	3	6	4	1	3	6	3	6	2	11	1	9	2	11	3	6	4	1	4	8	5	3	6	5	5	10	7	0
	Tradeswoman	4	8	4	1	3	6	2	11	3	6	2	11	2	4	1	9	2	4	3	11	3	6	4	1	4	8	5	10	5	3	6	5		
	Labourer	3	2	2	10	2	6	2	2	2	6	2	2	2	2	1	10	1	6	1	10	2	2	2	2	2	6	2	10	3	2	3	10	3	6	4	2

A Tradesman attending to give evidence respecting matters connected with his trade, to be allowed, at the discretion of the Court, any sum not exceeding 12s. 3d.; a professional Gentleman any sum not exceeding 24s. 6d.

General Marketing Table.

N	2d.		2½d		3d		3½d		4d		4½d		5d		5½d		6½d		7d		7½d		8d		8½d		9d		9½d		10d		10½		11d		11½d	
	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d	s	d
2	0	4	0	5	0	6	0	7	0	8	0	9	0	10	0	11	1	1	1	2	1	3	1	4	1	5	1	6	1	7	1	8	1	9	1	10	1	11
4	0	8	0	10	1	0	1	2	1	4	1	6	1	8	1	10	2	2	2	4	2	6	2	8	2	10	3	0	3	2	3	4	3	6	3	8	3	10
6	1	0	1	3	1	6	1	9	2	0	2	3	2	6	2	9	3	3	3	6	3	9	4	0	4	3	4	6	4	9	5	0	5	3	5	6	5	9
8	1	4	1	8	2	0	2	4	2	8	3	0	3	4	3	8	4	4	4	8	5	0	5	4	5	8	6	0	6	4	6	8	7	0	7	4	7	8
10	1	8	2	1	2	6	2	11	3	4	3	9	4	2	4	7	5	5	5	10	6	3	6	8	7	1	7	6	7	11	8	4	8	9	9	2	9	7
12	2	0	2	6	3	0	3	6	4	0	4	6	5	0	5	6	6	6	7	0	7	6	8	0	8	6	9	0	9	6	10	0	10	6	11	0	11	6
14	2	4	2	11	3	6	4	1	4	8	5	3	5	10	6	5	7	7	8	2	8	9	9	4	9	11	10	6	11	1	11	8	12	3	12	10	13	5
16	2	8	3	4	4	0	4	8	5	4	6	0	6	8	7	4	8	8	9	4	10	0	10	8	11	4	12	0	12	8	13	4	14	0	14	8	15	4
18	3	0	3	9	4	6	5	3	6	0	6	9	7	6	8	3	9	9	10	6	11	3	12	0	12	9	13	6	14	3	15	0	15	9	16	6	17	3
20	3	4	4	2	5	0	5	0	6	8	7	6	8	4	9	2	10	10	11	8	12	6	13	4	14	2	15	0	15	10	16	8	17	6	18	4	19	2
22	3	8	4	7	5	6	6	5	7	4	8	3	9	2	10	1	11	11	12	10	13	9	14	8	15	7	16	6	17	5	18	4	19	3	20	2	21	1
24	4	0	5	0	6	0	7	0	8	0	9	0	10	0	11	0	13	0	14	0	15	0	16	0	17	0	18	0	19	0	20	0	21	0	22	0	23	0
26	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	14	1	15	2	16	3	17	4	18	5	19	6	20	7	21	8	22	9	23	10	24	11
28	4	8	5	10	7	0	8	2	9	4	10	6	11	8	12	10	15	2	16	4	17	6	18	8	19	10	21	0	22	2	23	4	24	6	25	8	26	10
30	5	0	6	3	7	6	8	9	10	0	11	3	12	6	13	9	16	3	17	6	18	9	20	0	21	3	22	6	23	9	25	0	26	3	27	6	28	9
32	5	4	6	8	8	0	9	4	10	8	12	0	13	4	14	8	17	4	18	8	20	0	21	4	22	8	24	0	25	4	26	8	28	0	29	4	30	8
34	5	8	7	1	8	6	9	11	11	4	12	9	14	2	15	7	18	5	19	10	21	3	22	8	24	1	25	6	26	11	28	4	29	9	31	2	32	7
36	6	0	7	6	9	0	10	6	12	0	13	6	15	0	16	6	19	6	21	0	22	6	24	0	25	6	27	0	28	6	30	0	31	6	33	0	34	6
38	6	4	7	11	9	6	11	1	12	8	14	3	15	10	17	5	20	7	22	2	23	9	25	4	26	11	28	6	30	1	31	8	33	3	34	10	36	5
40	6	8	8	4	10	0	11	8	13	4	15	0	16	8	18	4	21	8	23	4	25	0	6	8	28	4	30	0	31	8	33	4	35	0	36	8	38	4
42	7	0	8	9	10	6	12	3	14	0	15	9	17	6	19	3	22	9	24	6	26	3	28	0	29	9	31	6	33	3	35	0	36	9	38	6	40	3
44	7	4	9	2	11	0	12	10	14	8	16	6	18	4	20	2	23	10	25	8	27	6	29	4	31	2	33	0	34	10	36	8	38	6	40	4	42	2
46	7	8	9	7	11	6	13	5	15	4	17	3	19	2	21	1	24	11	26	10	28	9	30	8	32	7	34	6	36	5	38	4	40	3	42	2	44	1
48	8	0	10	0	12	0	14	0	16	0	18	0	20	0	22	0	26	0	28	2	30	0	32	0	34	0	36	0	38	0	40	0	42	0	44	0	46	0
50	8	4	10	5	12	6	14	7	16	8	18	9	20	10	22	11	27	1	29	4	31	3	33	4	35	5	37	6	39	7	41	8	43	9	45	10	47	11

Even numbers only are given in the above Table to make it more comprehensive.—For example, required the value of 17 yards of calico, at 8d. per yard. By referring to the Table, you will find 16 yards to be 10s. 8d., and by adding the price of the odd yards will give you the correct amount.

Table to calculate Wages, &c.

Year	Per M.			P.W.		P.D.	Year	P. M.			P.		W.	P.		D.
£	£	s	d	s	d	d	£	£	s	d	£	s	d	s		d
1	0	1	8	0	4¾	0¾	15	1	5	0	0	5	9	0		9¾
2	0	3	4	0	9½	1½	16	1	6	8	0	6	1¾	0		10½
3	0	5	0	1	1¾	2	17	1	8	4	0	6	6½	0		11¼
4	0	6	8	1	6½	2¾	18	1	10	0	0	6	10¾	0		11¾
5	0	8	4	1	11	3	19	1	11	8	0	7	3¾	1		0¾
6	0	10	0	2	3½	4	20	1	13	4	0	7	8	1		1½
7	0	11	8	2	8¼	4¾	30	2	10	0	0	11	6	1		7¾
8	0	13	4	3	0¾	5¼	40	3	6	8	0	15	4	2		2¼
9	0	15	0	3	5¾	6	50	4	3	4	0	17	2¼	2		9
10	0	16	8	3	10	6¾	60	5	0	0	1	3	0¼	3		3¼
11	0	18	4	4	2¾	7¼	70	5	16	8	1	6	10¼	3		10
12	1	0	0	4	7¼	8	80	6	13	4	1	10	8½	4		4½
13	1	1	8	4	11¾	8¾	90	7	10	0	1	14	6¾	4		11½
14	1	3	4	5	4½	9¼	100	8	6	8	1	18	4¾	5		5¾

If the Wages be Guineas instead of Pounds, for each Guinea add One Penny to each Month, or One Farthing to each Week.

RULE FOR CALCULATING INTEREST, at 5 per cent.—Multiply the Pounds by the Days, and divide the Product by 365. The Quotient gives the interest at 5 per cent. in Shillings.

Weights

BY WHICH GRAIN, ETC., ARE SOLD.

ISLE OF MAN.

	lbs.	*lbs.*
WHEAT, per bushel of 64, or boll of		256
BARLEY, per bushel of 50, or boll of		300
OATS, per bushel of.... 40, or boll of		240
BEANS or PEAS, per bushel of.... ..... 60, or boll of		240
POTATOES, per stone of 14, or boll of		448

LIVERPOOL.

WHEAT, per bushel	70
BARLEY ....do.....	60
OATS .....do.....	45
BEANS, per 480 lbs. and	504
INDIAN CORN	480
FLOUR, per sack	280
FLOUR, per barrel	196
OATMEAL, per load	240
POTATOES, per measure	90

The Royal National Life-boat Institution,

FOR THE PRESERVATION OF LIFE FROM SHIPWRECK.

APPEAL.

The Committee of Management have to state that, during the past year (1859), the Institution has incurred, or is about to incur, the following expenses, on either additional new Life-boat Stations, or the replacing of old boats, transporting-carriages, and houses, by new ones:—Berwick-on-Tweed, £149 5s. 5d.; Tynemouth, £180 9s. 6d.: Cullercoats, £254 10s.; Middlesborough, £110 10s. 9d.; Redcar, £148 10s.; Yarmouth, £180; Isle of Wight (two boats, Brook and Grange), £406 19s.; Exmouth, £237 4s. 7d.; Fowey, £333; Lizard, £314 9s. 7d.; Braunton, £59 18s.; Porthcawl, £323 19s; Carmarthen Bay, £375 9s. 6d.; Aberdovey, £146 15s. 1d.; Barmouth and Portmadoc, £409 19s. 2d.; Rhoscolyn (Anglesey), £148 0s. 1d.; Fleetwood, £174 18s. 6d.; Silloth (Cumberland), £291 19s. 6d.; Thurso, £203 19s.; Lossiemouth, £180 15s. 6d.; St. Andrew's, £261.; Elie, £203 9s. 6d.; North Berwick, £203 9s, 6d.; Ayr, £259 14s. 8d.; Portrush, £203 19s.; Dundalk, £117 13s. 6d.; Carnsore, £124 10s,; Dungarvon, £130 2s. The Institution has also expended on the repairs, stores, alterations, and inspection of its numerous Life-boats, Boat-houses, and Transporting-carriages, £3,476 16s. 2d., and £1,510 for exercising the Crews of its Life-boats; making altogether a total of £11,120 18s. 3d.

It has also granted, during the same period, £1,108 15s. 3d, as awards for saving 498 persons from a large number of shipwrecks on our coasts. A most satisfactory result, and clearly showing how much has been accomplished by the well-directed efforts which the Life-boat Institution has brought to bear on this humane cause. This great and national work has, however, only been accomplished by the Society incurring further liabilities to the extent of £3,834.

With so sacred an object in view as the rescue of our fellow-creatures from an appalling death by Shipwreck, it might be supposed that the NATIONAL LIFE-BOAT INSTITUTION had claims which would come home to the heart of every one in this great maritime country. Such we may hope will be the case as its operations become more generally known, and thus an abundant harvest, not only of popular sympathy but of general pecuniary support, will be the permanent result.

The Committee of this Institution do not, therefore, hesitate to solicit most earnestly the support of a public generally, in aid of the benevolent objects of the NATIONAL LIFE-BOAT INSTITUTION. Their help was never more needed than at the present time, when, through the extraordinary exertions the Society has made within the past few years, it has now Ninety-six Life-boats under its management, for the maintenance of which, in a state of thorough efficiency, a large permanent *annual income* is absolutely needed, if its humane mission is to be perpetuated,

THOMAS BARING, *Chairman.*
THOMAS CHAPMAN, *Deputy-Chairman.*

RICHARD LEWIS, Secretary of the Life-boat Institution, 14, John Street, Adelphi, London, W.C.

All the Agents of the Shipwrecked Mariners' Society will receive Contributions for the Life-boat Fund.

PROACHES T

VIEW D



Bidston Lighthouse is its apparent breadth open
N.W. Light Ship up the Horse Channel till Hoyla

QUIGGIN'S

ISLE OF MAN

ALMANACK,

FOR THE YEAR OF OUR LORD

1862,

Being the Second after Bissextile or Leap-Year,

AND THE 25th-26th OF THE REIGN OF HER PRESENT MAJESTY;

WITH CORRECT

TIDE TABLES,

FOR THE

OLD DOCK SILL, LIVERPOOL, AND THE CUMBERLAND GATES, BRISTOL;

AND

MARINERS' COMPANION;

CONTAINING ALSO EVERY CALCULATION NECESSARY FOR

WORKING A LUNAR DISTANCE.

CALCULATED TO MEAN TIME, IN LATITUDE 54° 10′ N. AND LONGITUDE 4° 30′ W.

☞ The Liverpool Tides are calculated for Greenwich mean time.

THIRTY-SEVENTH ANNUAL IMPRESSION.

DOUGLAS, ISLE OF MAN:
PRINTED AND PUBLISHED BY MARY A. QUIGGIN,
52, NORTH QUAY.

PHASES OF THE MOON.

First Quarter,	7th day, at	10h. 47m. night.
Full Moon,	16th day, at	1h. 55m. morning.
Last Quarter,	23rd day, at	6h. 37m. morning.
New Moon,	30th day, at	2h. 49m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury.* rises.	☿ *Mercury.* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	M D.
1	6 m 7	6 a 0	16 18	8m 9	11m 36	8 a 4	3 a 15	4m 44	8m 55	10a 50	5m 10	10a 20	4m 54	1
8	6 6	6 7	16 18	sets.	11 58	8 15	3 8	4 43	8 47	10 23	4 43	9 52	4 26	8
15	6 3	6 16	16 18	4 a 5	0 a 20	8 20	2 57	4 43	8 39	9 56	4 15	9 24	3 59	15
22	5 58	6 27	16 17	4 48	0 43	8 19	2 42	4 42	8 31	9 27	3 47	8 55	3 30	22
29	5 49	6 39	16 16	5 33	1 3	8 13	2 22	4 40	8 24	8 58	3 19	8 26	3 2	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time
1	W	**Circumcision.**	11 48	18 7	— —	— —	3
2	Th	Gen. Wolfe born	0 12	17 8	0 34	19 0	4
3	F	B. of Princeton, 1777	0 57	17 8	1 19	18 9	4
4	S	Newton born, 1642	1 40	17 1	2 3	18 0	5
5	ℰ	**2 Sun. aft. Christmas**	2 23	16 3	2 44	16 11	5
6	M	*Proper Lessons.* [Isa. xli; Matt. iv. — xliii; Rom. iv.	3 4	15 2	3 21	16 0	6
7	Tu	Pleiades souths 8 a 29	3 40	14 0	4 0	14 2	6
8	W	Lucian, P. & M.	4 21	12 8	4 43	12 10	7
9	Th	Fontenelle died, 1801.	5 14	11 9	5 48	11 8	7
10	F	Royal Ex. built, 1838	6 23	11 1	7 0	11 0	7
11	S	Hilary Term begins	7 35	11 2	8 10	11 2	8
12	ℰ	**1 Sun. aft. Epiphany**	8 46	11 10	9 19	11 11	8
13	M	*Proper Lessons.* [Isa. xliv; Matt. x. — xlvi; Rom. x.	9 34	13 0	10 6	12 11	9
14	Tu	Oxford Term begins	10 29	14 2	10 48	14 0	9
15	W	Brit. Musm. opd. 1759	11 8	15 6	11 27	15 2	9
16	Th	Battle Corunna, 1809	11 45	16 7	— —	— —	10
17	F	Battle of Falkirk, 1756	0 2	16 1	0 19	17 6	10
18	S	Prisca, V. & M.	0 37	16 10	0 55	18 1	10
19	ℰ	**2 Sun. aft. Epiphany**	1 15	17 2	1 34	18 2	11
20	M	*Pro. Les.* [Isa. li; Matt. xvii. — liii; 1 Cor. i.	1 52	17 1	2 12	17 10	11
21	Tu	Agnes, V. & M.	2 33	16 8	2 51	17 2	11
22	W	Vincent, Martyr	3 12	15 10	3 34	16 0	11
23	Th	Pleiades souths 7 a 26	3 57	14 9	4 22	14 7	12
24	F	Day increased 1 hour	4 52	13 6	5 26	13 3	12
25	S	Conversion of St. Paul	6 7	12 10	6 51	12 7	12
26	ℰ	**3 Sun. aft. Epiphany**	7 34	12 11	8 18	12 11	12
27	M	*Proper Lessons.* [Isa. lv; Matt. xxiii. — lvi; 1 Cor. vii.	8 59	14 1	9 31	14 0	13
28	Tu	Castor souths 10 a 53	10 2	15 8	10 30	15 5	13
29	W	Geo. III died, 1820	10 55	17 2	11 16	16 8	13
30	Th	King Charles. I beh.	11 37	18 4	12 0	17 6	13
31	F	Hilary Term ends	— —	— —	0 18	19 0	13

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	7 26	7 52	32 10	8 23	3 45	18 47 23	23 0 36	5 a 11	0a58	19s37	1	1	*Snow or*
2	8 15	8 37	33 2	8 23	3 46	18 51 48	22 55 22	6 36	1 53	15 19	2	2	☌ ☌ *k* ♎ 1 a 0
3	8 59	9 18	32 11	8 23	3 47	18 56 12	22 49 41	7 59	2 43	10 17	3	3	♄ stationary
4	9 39	9 57	31 7	8 22	3 48	19 0 36	22 43 32	9 19	3 30	4 54	4	4	♀ ☌ ☾, 6 m 25
5	10 16	10 33	30 1	8 22	3 50	19 5 0	22 36 57	10 33	4 14	0N31	5	5	*rain, followed*
6	10 46	11 2	28 7	8 21	3 51	19 9 23	22 29 54	11 46	4 57	5 46	6	6	♀ in ♌, 2 a 41
7	11 20	11 37	25 2	8 21	3 52	19 13 46	22 22 25	morn	5 39	10 39	7	7	*by frosty*
8	11 57	— —	22 9	8 20	3 54	19 18 8	22 14 30	0 58	6 22	15 2	8	8	
9	0 24	0 53	20 6	8 20	3 55	19 22 30	22 6 8	2 10	7 7	18 45	9	9	*and*
10	1 25	2 2	19 9	8 19	3 57	19 26 51	21 57 21	3 19	7 53	21 39	10	10	☾ in Apogee
11	2 44	3 27	20 10	8 18	3 58	19 31 11	21 48 8	4 26	8 42	23 35	11	11	*fair*
12	4 7	4 42	22 8	8 17	4 0	19 35 31	21 38 29	5 29	9 32	24 23	12	12	☿ in Sup. ☌ ☉
13	4 58	5 32	24 8	8 16	4 2	19 39 50	21 28 26	6 23	10 23	23 57	13	13	*weather,*
14	5 56	6 18	25 7	8 15	4 3	19 44 9	21 17 58	7 6	11 15	22 16	14	14	
15	6 40	7 2	27 6	8 14	4 5	19 48 27	21 7 5	7 40	morn	— —	15	15	*which*
16	7 22	7 41	29 3	8 13	4 7	19 52 44	20 55 48	rises.	0 5	19 23	F	16	*may*
17	8 0	8 18	30 9	8 12	4 9	19 57 0	20 44 7	6a20	0 55	15 26	17	17	*continue*
18	8 36	8 55	31 10	8 11	4 10	20 1 16	20 32 2	7 42	1 43	10 39	18	18	*several days.*
19	9 13	9 29	32 2	8 10	4 12	20 5 31	20 19 34	9 3	2 30	5 16	19	19	☿ gr. H. L. S.
20	9 47	10 7	32 10	8 9	4 14	20 9 46	20 6 43	10 24	3 17	0s28	20	20	♄ ☌ ☾, 2 a 3
21	10 22	10 40	30 9	8 8	4 16	20 13 59	19 53 30	11 48	4 4	6 14	21	21	♀ at grt. bril.
22	10 59	11 18	28 11	8 7	4 18	20 18 12	19 39 54	morn	4 54	11 45	22	22	*Now expect*
23	11 40	— —	26 3	8 5	4 20	20 22 24	19 25 56	1 13	5 46	16 41	23	23	*some*
24	0 6	0 35	23 8	8 4	4 22	20 26 36	19 11 37	2 39	6 42	20 39	24	24	*stormy*
25	1 11	1 51	20 9	8 2	4 24	20 30 46	18 56 56	4 0	7 41	23 18	25	25	*weather*
26	2 43	3 36	24 3	8 1	4 26	20 34 56	18 41 55	5 11	8 42	24 21	26	26	☌ ☌ ☾, 3 m 4
27	4 22	4 55	26 11	7 59	4 28	20 39 5	18 26 33	6 9	9 43	23 39	27	27	*towards*
28	5 28	5 58	29 5	7 58	4 30	20 43 13	18 10 51	6 51	10 42	21 17	28	28	*the*
29	6 26	6 50	30 6	7 56	4 32	20 47 20	17 54 50	7 21	11 38	17 35	29	29	*end of the*
30	7 13	7 38	32 2	7 54	4 34	20 51 27	17 38 29	sets.	0a30	12 53	N	30	*month.*
31	7 58	8 19	33 3	7 52	4 36	20 55 33	17 21 50	6a51	1 19	7 37	1	31	

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
2W	25 32 15	27 8 54	28 45 9	30 21 1	31 56 29	33 31 33	35 6 13	36 40 29
3	38 14 21	39 47 48	41 20 51	42 53 29	44 25 43	45 57 33	47 28 59	49 0 0
4	50 30 39	52 0 53	53 30 45	55 0 13	56 29 19	57 58 3	59 26 24	60 54 24
5	62 22 3	63 49 21	65 16 19	66 42 57	68 9 15	69 35 14	71 0 55	72 26 18
6	73 51 24	75 16 13	76 40 46	78 5 2	79 29 4	80 52 51	82 16 24	83 39 44
7	85 2 51	86 25 46	87 48 29	89 11 1	90 33 22	91 55 34	93 17 37	94 39 31
8	96 1 17	97 22 56	98 44 28	100 5 54	101 27 15	102 48 30	104 9 42	105 30 50
9	106 51 54	108 12 56	109 33 56	110 54 55	112 15 52	113 36 50	114 57 47	116 18 46
10	117 39 46	119 0 48	120 21 52	121 42 59	123 4 10	124 25 24	125 46 43	127 8 6
11	128 29 35	129 51 9	131 12 50	132 34 37	133 56 31	135 18 32	136 40 41	138 2 58
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
19E	138 14 38	136 41 2	135 7 15	133 33 18	131 59 11	130 24 54	128 50 28	127 15 52
20	125 41 7	124 6 13	122 31 10	120 55 57	119 20 35	117 45 5	116 9 26	114 33 38
21	112 57 41	111 21 36	109 45 23	108 9 1	106 32 31	104 55 52	103 19 6	101 42 11
22	100 5 9	98 27 59	96 50 41	95 13 15	93 35 41	91 58 1	90 20 12	88 42 17
23	87 4 14	85 26 5	83 47 48	82 9 25	80 30 56	78 52 20	77 13 38	75 34 50
24	73 55 56	72 16 57	70 37 53	68 58 43	67 19 29	65 40 11	64 0 49	62 21 23
25	60 41 53	59 2 21	57 22 46	55 43 9	54 3 31	52 23 51	50 44 10	49 4 29
26	47 24 49	45 45 9	44 5 31	42 25 55	40 46 22	39 6 52	37 27 26	35 48 5
27	34 8 50	32 29 42	30 50 41	29 11 48	27 33 6	25 54 34	24 16 15	22 38 11

Explanations

The Liverpool Tides on the left-hand Calendar pages are this year calculated for Greenwich mean time; with the height above the level of the Old Dock Sill, now represented by the marks on the east side of the Canning Dock, and include the diurnal inequality in the height of each Tide.

PHASES OF THE MOON.

First Quarter,	6th day, at	8h. 11m. night.
Full Moon,	14th day, at	5h. 6m. evening.
Last Quarter,	21st day, at	2h. 17m. evening.
New Moon,	28th day, at	4h. 49m. evening.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5m46	6 a 43	16 16	5 a 57	1 a 11	8 a 6	2 a 12	4m38	8m21	8 a 45	3 m 6	8 a 13	2m49	1
8	5 35	6 55	16 15	6 38	1 22	7 53	1 42	4 34	8 14	8 15	2 37	7 43	2 21	8
15	5 22	7 8	16 13	6 53	1 15	7 10	1 5	4 29	8 7	7 44	2 7	7 13	1 51	15
22	5 8	7 21	16 12	rises.	0 41	rises.	0 23	4 24	7 59	7 12	1 37	6 42	1 22	22
28	4 54	7 32	16 10	6m23	11m56	5m49	11a45	4 19	7 55	6 43	1 11	6 20	0 57	28

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	S	St. Bridget.	0 38	17 10	0 56	19 1	13 53
2	ℰ	4 Sun. aft. Epiphany	1 15	17 8	1 34	18 7	14 1
3	M	Proper Lessons. [Isaiah lvii; Mark ii. — lviii; 1 Cor. xiv.	1 50	17 1	2 7	17 8	14 7
4	Tu	Pleiades souths 6 a 43	2 25	16 2	2 43	16 4	14 13
5	W	Agatha, V. & M.	3 0	15 0	3 17	14 9	14 18
6	Th	Dr. Priestley d., 1804	3 34	13 8	3 52	13 1	14 23
7	F	Day long, 9h. 11m.	4 13	12 3	4 41	11 6	14 26
8	S	Mary Q. of Scots beh.	5 13	11 1	5 53	10 4	14 28
9	ℰ	5 Sun. aft. Epiphany	6 34	10 6	7 15	10 0	14 30
10	M	Proper Lessons. [Isa. lix; Mark ix. — lxiv; 2 Cor. v.	8 1	11 2	8 49	10 9	14 31
11	Tu	Rigel souths 7 a 40	9 17	12 3	9 43	12 3	14 31
12	W	Procyon souths 10 a 1	10 4	14 0	10 25	13 10	14 30
13	Th	Regulus souths 0 m 30	10 48	15 7	11 6	15 7	14 29
14	F	Valentine, Bishop	11 25	17 3	11 41	16 11	14 27
15	S	Bp. Atterbury d. 1732	11 59	18 6	— —	— —	14 24
16	ℰ	Septuagesima Sun.	0 15	17 11	0 32	19 3	14 21
17	M	Pro. Les. [Genesis i; Mark xvi. — ii; 2 Cor. xii.	0 51	18 6	1 10	19 5	14 16
18	Tu	Sirius souths 8 a 44	1 30	18 5	1 48	19 1	14 11
19	W	Galileo born, 1564	2 8	17 11	2 30	18 1	14 5
20	Th	Castor souths 9 a 22	2 51	16 10	3 10	16 5	13 59
21	F	Trinadad taken, 1797	3 34	15 4	3 59	14 6	13 52
22	S	Fren. Revolution, 1848	4 30	13 10	5 7	12 7	13 45
23	ℰ	Sexagesima Sunday	5 51	12 8	6 37	11 7	13 36
24	M	Proper Lessons. [Genesis iii; Luke vi. — vi; Galatians vi.	7 27	12 7	8 15	12 3	13 27
25	Tu	Cam. term divides M.	8 54	13 9	9 25	13 4	13 18
26	W	Day increa. 3h. 16m.	9 53	15 5	10 19	15 0	13 8
27	Th	Hare Hunting ends	10 43	17 0	11 4	16 4	12 58
28	F	Elliott's Engagement off Ramsey, 1760.	11 22	18 1	11 40	17 3	12 47

Clock before Sun.—Add to Apparent Time, or Subtract from Mean Time

To reduce the Liverpool Tides for the Isle of Man generally, subtract twelve minutes—the Tides at the Island being so much earlier than at Liverpool; and the height, or rise of the water is diminished one sixth to give the approximate rise at Douglas.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. sets. H. M.	souths H. M.	declin. ° ′	Age	M D.	ASPECTS AND WEATHER.
1	8 37	8 55	33 5	7 51	4 38	20 59 38	17 4 52	8 a 9	2 a 5	2 s 7	2	1	♀ ☌ ☾, 5 a 42
2	9 13	9 27	32 9	7 49	4 40	21 3 42	16 47 36	9 24	2 49	3N18	3	2	♀ stati. 9 a 42
3	9 43	9 59	31 3	7 47	4 42	21 7 45	16 30 3	10 38	3 33	8 26	4	3	*Changeable,*
4	10 15	10 29	29 4	7 46	4 44	21 11 47	16 12 13	11 51	4 16	13 7	5	4	*but inclined*
5	10 43	10 57	26 11	7 44	4 46	21 15 50	15 54 6	morn	5 1	17 10	6	5	♂ in ♉, 7m48
6	11 13	11 30	23 11	7 42	4 48	21 19 50	15 35 43	1 2	5 46	20 26	7	6	*to wet*
7	11 55	— —	21 0	7 40	4 50	21 23 50	15 17 4	2 11	6 34	22 47	8	7	☿ in ♊, 5 a 48
8	0 22	0 58	18 8	7 38	4 52	21 27 49	14 58 9	3 15	7 23	24 4	9	8	♅ ☌ ☾, 10a 25
9	1 35	2 19	18 6	7 36	4 54	21 31 47	14 39 0	4 11	8 14	24 11	10	9	♀ in Perihel.
10	3 13	4 1	20 9	7 34	4 56	21 35 44	14 19 36	5 0	9 5	23 3	11	10	*weather.*
11	4 40	5 7	23 8	7 32	4 58	21 39 41	13 59 58	5 37	9 56	20 43	12	11	☿ gr. elon. E.
12	5 29	5 52	26 7	7 30	5 0	21 43 37	13 40 6	6 7	10 46	17 13	13	12	☿ in Perihel.
13	6 17	6 39	27 10	7 28	5 2	21 47 32	13 20 1	6 30	11 35	12 44	14	13	*More fair*
14	6 59	7 17	30 4	7 26	5 4	21 51 27	12 59 43	rises.	morn	— —	F	14	*and*
15	7 37	7 55	32 6	7 24	5 6	21 55 20	12 39 12	6a44	0 24	7 30	16	15	♅ stati. 3 a 28
16	8 13	8 32	34 0	7 21	5 8	21 59 13	12 18 29	8 5	1 12	1 46	17	16	♄ ☌ ☾, 6 a 9
17	8 50	9 9	34 7	7 19	5 10	22 3 5	11 57 34	9 29	2 0	4 s 8	18	17	♃ ☌ ☾, 1 m21
18	9 26	9 44	34 0	7 17	5 12	22 6 57	11 36 28	10 57	2 51	9 53	19	18	*frosty;*
19	10 4	10 22	32 5	7 15	5 14	22 10 48	11 15 11	morn	3 43	15 6	20	19	☾ in Perigee
20	10 38	10 59	30 2	7 12	5 16	22 14 38	10 53 43	0 25	4 38	19 25	21	20	*more mild*
21	11 20	11 47	26 8	7 10	5 18	22 18 28	10 32 5	1 52	5 35	22 29	22	21	*and fair*
22	— —	0 19	23 3	7 8	5 20	22 22 17	10 10 17	3 3	6 35	24 2	23	22	☿ gr. H. L. N.
23	0 57	1 38	21 5	7 6	5 22	22 26 5	9 48 19	4 3	7 35	23 55	24	23	☌ ☌ ☾, 5 a 58
24	2 33	3 31	23 1	7 4	5 24	22 29 53	9 26 13	4 48	8 34	22 11	25	24	*at the*
25	4 16	4 49	26 0	7 1	5 26	22 33 40	9 3 58	5 22	9 29	19 4	26	25	*close of*
26	5 18	5 46	28 11	6 59	5 28	22 37 26	8 41 35	5 47	10 22	14 52	27	26	♀ in Inf. ☌ ☉
27	6 12	6 36	30 1	6 57	5 30	22 41 12	8 19 4	6 6	11 11	9 56	28	27	*the month.*
28	6 56	7 16	31 9	6 54	5 32	22 44 58	7 56 26	6 22	11 57	4 37	N	28	♀ ☌ ☾, 6 m 23

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	29 58 53	31 28 22	32 57 33	34 26 26	35 55 2	37 23 21	38 51 21	40 19 4
2	41 46 29	43 13 36	44 40 26	46 6 59	47 33 14	48 59 13	50 24 55	51 50 21
3	53 15 31	54 40 25	56 5 4	57 29 28	58 53 38	60 17 34	61 41 16	63 4 45
4	64 28 2	65 51 6	67 13 59	68 36 40	69 59 11	71 21 32	72 43 43	74 5 45
5	75 27 39	76 49 24	78 11 3	79 32 34	80 54 0	82 15 20	83 36 35	84 57 45
6	86 18 52	87 39 55	89 0 56	90 21 55	91 42 52	93 3 49	94 24 46	95 45 43
7	97 6 41	98 27 40	99 48 42	101 9 47	102 30 55	103 52 7	105 13 23	106 34 45
8	107 56 12	109 17 45	110 39 25	112 1 13	113 23 8	114 45 12	116 7 24	117 29 46
9	118 52 17	120 14 59	121 37 51	123 0 55	124 24 10	125 47 37	127 11 16	128 35 8
10	129 59 13	131 23 31	132 48 3	134 12 48	135 37 48	137 3 2	138 28 30	139 54 12
..	.. .. ..	.. .. ..	.. . ..	.. .. ..	.. . ..	.. .. ..	.. .. ..	.. .. ..
18E	130 39 4	129 0 40	127 22 12	125 43 42	124 5 9	122 26 34	120 47 57	119 9 19
19	117 30 41	115 52 2	114 13 22	112 34 44	110 56 5	109 17 28	107 38 51	106 0 16
20	104 21 43	102 43 12	101 4 43	99 26 16	97 47 52	96 9 31	94 31 13	92 52 58
21	91 14 47	89 36 39	87 58 36	86 20 36	84 42 40	83 4 49	81 27 2	79 49 20
22	78 11 43	76 34 10	74 56 43	73 19 22	71 42 6	70 4 56	68 27 51	66 50 53
23	65 14 1	63 37 16	62 0 38	60 24 6	58 47 42	57 11 25	55 35 17	53 59 16
24	52 23 23	50 47 39	49 12 4	47 36 38	46 1 23	44 26 17	42 51 21	41 16 37
25	39 42 4	38 7 43	36 33 35	34 59 40	33 26 0	31 52 34	30 19 24	28 46 32

The Equation of Time is given to the nearest second for Greenwich mean noon; and as the difference between the equation of time for mean noon and apparent noon does not in any instance amount to the fifth part of a second, the given minutes and seconds may be used for reducing mean time into apparent time, or the contrary. When the column is headed "Clock before Sun," the Equation is to be *subtracted* from *mean* time to reduce it to *apparent*; or, in the case of a celestial observation, the result being apparent time, the equation must be added to reduce it to mean time. And when "after Sun," the equation must be added to *mean* time, to reduce it to *apparent* time, or subtracted from *apparent* time to reduce it to *mean* time.

PHASES OF THE MOON.
- First Quarter, 8th day, at 5h. 21m. evening.
- Full Moon, 16th day, at 5h. 17m. morning.
- Last Quarter, 22nd day, at 9h. 49m. night.
- New Moon, 30th day, at 7h. 45m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	4m54	7a35	16 10	6m18	11m48	5m44	11m39	4m18	7m54	6a38	1m6	6a11	0m53	1
8	4 34	7 50	16 8	5 51	11 3	5 14	10 59	4 10	7 47	6 6	0 36	sets.	0 23	8
15	4 16	8 4	16 6	5 35	10 37	4 49	10 26	4 0	7 40	sets.	0 5	6m33	11a49	15
22	3 56	8 19	16 5	5 24	10 26	4 29	10 0	3 49	7 34	6m4	11a30	6 5	11 20	22
29	3 24	8 36	16 3	5 14	10 26	4 16	9 41	3 37	7 27	5 35	10 59	5 37	10 50	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height	Evening. Time.	Evening. Height.	Equation of Time. Clock before Sun.—Add to Apparent Time, or Subtract from Mean Time.
1	S	St. David	11 56	18 9	— —	— —	12 35
2	ℰ	Shrove Sunday	0 13	17 10	0 28	17 9	12 23
3	M	*Proper Lessons.* [Gen. ix, to v. 20; Luke xiii. — xii,; Philippians i.	0 46	17 10	1 3	18 6	12 10
4	Tu	Shrove Tuesday	1 17	17 5	1 34	17 6	11 57
5	W	Ash Wednesday	1 50	16 7	2 5	16 4	11 44
6	Th	Pleiades sets 1 m 15	2 22	15 6	2 39	14 10	11 30
7	F	Perpetua, M.	2 58	14 2	3 11	13 3	11 15
8	S	Castor souths 8 a 19	3 37	12 10	3 59	11 7	11 0
9	ℰ	1 Sunday in Lent	4 24	11 5	5 0	10 2	10 45
10	M	*Proper Lessons.* [Gen. xix, to v. 30; Luke xx. — xxii; Colossians iv.	5 42	10 7	6 28	9 8	10 30
11	Tu	Sirius sets, 11 a 52	7 14	10 10	7 54	10 5	10 14
12	W	Gregory, M. B.	8 33	12 1	9 3	12 0	9 57
13	Th	♅ discovered, 1781	9 30	13 11	9 55	14 1	9 41
14	F	Admiral Byng shot	10 15	15 10	10 36	15 11	9 24
15	S	Julius Cæsar assass.	10 57	17 7	11 12	17 4	9 7
16	ℰ	2 Sunday in Lent.	11 30	19 0	11 48	19 7	8 49
17	M	*Proper Lessons.* [Genesis xxvii; John iii. — xxxiv; 2 Thes. ii.	— —	— —	0 4	19 10	8 32
18	Tu	St. Patrick, 17th	0 25	19 2	0 44	20 0	8 14
19	W	Princess Louisa born	1 6	19 3	1 25	19 4	7 56
20	Th	Sir I. Newton d. 1727	1 45	18 6	2 9	17 11	7 38
21	F	Benedict, Abbot.	2 33	17 3	2 58	16 3	7 20
22	S	Goethe died, 1822	3 23	15 7	3 52	14 0	7 2
23	ℰ	3 Sunday in Lent	4 22	13 9	4 59	12 1	6 43
24	M	*Pro. Less.* [Genesis xxxix; John x. — xlii; 2 Tim. i.	5 44	12 8	6 31	11 4	6 25
25	Tu	Lady Day	7 15	12 8	8 1	11 10	6 6
26	W	Sirius souths 6 a 19	8 36	13 9	9 7	13 3	5 48
27	Th	Pea. of Ameins, 1802	9 34	15 3	9 59	14 7	5 30
28	F	Pleiades sets 11 a 48	10 21	16 6	10 38	15 10	5 11
29	S	Castor souths 9 a 45	10 56	17 5	11 11	16 9	4 53
30	ℰ	4 Sunday in Lent	11 30	17 11	11 45	17 3	4 34
31	M	*Pro. Les.* [Genesis xliii; John xvii. — xlv; Heb. i.	— —	— —	0 2	17 11	4 16

BRISTOL TIDES.				SUN.				MOON.				M	ASPECTS AND WEATHER.
morn.	even.	height		rises	sets.	rt. ascen.	declin. S.	sets.	souths	declin.	age.	D.	
H. M.	H. M.	F.	I.	H M	H M	H. M. S.	° ′ ″	H. M.	H. M.	° ′			
7 34	7 52	33	0	6 52	5 34	22 48 43	7 33 41	7 a 3	0a42	0N49	1	1	*Fair*
8 9	8 27	33	4	6 50	5 36	22 52 27	7 10 50	8 18	1 26	6 6	2	2	*and*
8 43	8 56	32	9	6 47	5 38	22 56 11	6 47 53	9 31	2 10	11 0	3	3	♀ gr. H.L.N.
9 11	9 26	31	6	6 45	5 40	22 59 55	6 24 50	10 43	2 54	15 21	4	4	*favourable*
9 40	9 56	29	7	6 43	5 42	23 3 38	6 1 41	11 53	3 40	18 58	5	5	*to*
10 10	10 27	27	5	6 40	5 44	23 7 20	5 38 28	morn	4 26	21 42	6	6	*march*
10 46	10 59	24	9	6 38	5 46	23 11 2	5 15 11	1 0	5 15	23 26	7	7	☾ in Apogee.
11 17	11 39	21	8	6 35	5 48	23 14 44	4 51 50	2 0	6 4	24 3	8	8	♅ ☌ ☾, 6m 48
— —	0 11	19	1	6 33	5 50	23 18 25	4 28 24	2 52	6 55	23 29	9	9	*dust.*
0 47	1 29	18	1	6 30	5 52	23 22 6	4 4 56	3 32	7 45	21 43	10	10	♄ ☍ ☉, 2 m 51
2 18	3 7	19	10	6 28	5 54	23 25 47	3 41 25	4 4	8 35	18 48	11	11	☿ stationary
3 53	4 26	23	4	6 26	5 56	23 29 27	3 17 51	4 31	9 24	14 51	12	12	*Now*
4 54	5 20	27	2	6 23	5 57	23 33 7	2 54 15	4 54	10 12	10 0	13	13	♃ ☍ ☉, 8 m 20
5 42	6 5	30	3	6 21	5 59	23 36 47	2 30 37	5 12	11 1	4 28	14	14	*expect some*
6 28	6 46	31	4	6 18	6 1	23 40 26	2 6 58	5 27	11 51	1s26	15	15	♄ ☌ ☾, 11 a 34
7 6	7 26	33	8	6 16	6 3	23 44 6	1 43 17	rises.	morn	— —	F	16	♃ ☌ ☾, 4 m 36
7 43	8 6	35	2	6 13	6 5	23 47 45	1 19 36	8a35	0 41	7 23	17	17	*rain, if not*
8 25	8 46	35	8	6 11	6 7	23 51 23	0 55 54	10 4	1 34	12 58	18	18	☿ in ♉, 3 m 3
9 3	9 22	34	11	6 8	6 9	23 55 2	0 32 12	11 31	2 30	17 47	19	19	*the*
9 44	10 6	32	9	6 6	6 11	23 58 40	0 8 30	morn	3 29	21 23	20	20	[Spring com.
10 27	10 48	30	3	6 3	6 13	0 2 19	N0 15 11	0 51	4 29	23 28	21	21	☉ ent. ♈, 8a45
11 13	11 40	26	4	6 1	6 15	0 5 57	0 38 51	1 57	5 30	23 52	22	22	*Equinoctial*
— —	0 11	22	9	5 58	6 16	0 9 35	1 2 30	2 47	6 29	22 37	23	23	*Gales;*
0 50	1 32	21	4	5 56	6 18	0 13 13	1 26 7	3 24	7 25	19 56	24	24	♂ ☌ ☾, 10m 34
2 21	3 16	22	11	5 53	6 20	0 16 52	1 49 43	3 52	8 18	16 7	25	25	*now*
3 57	4 31	25	11	5 51	6 22	0 20 29	2 13 16	4 12	9 7	11 31	26	26	☿ gr. elon. W.
5 1	5 25	28	4	5 48	6 24	0 24 8	2 36 45	4 28	9 53	6 27	27	27	*more*
5 48	6 8	30	2	5 46	6 26	0 27 46	3 0 13	4 43	10 38	1 9	28	28	☿ ☌ ☾, 4 m 5
6 28	6 45	30	10	5 43	6 28	0 31 24	3 23 36	4 57	11 21	4N 5	29	29	*changeable*
7 6	7 22	31	8	5 41	6 30	0 35 2	3 46 56	sets.	0 a 5	9 4	N	30	*if south or*
7 41	7 59	32	0	5 38	6 31	0 38 40	4 10 12	8a26	0 49	13 36	1	31	*southwest.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

t.	NOON.			3 HOURS.			6 HOURS.			9 HOURS.			MIDN.			15 HOUR.			18 HOUR.			21 HOUR.		
).	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
SW	21	51	11	23	15	44	24	40	17	26	4	46	27	29	10	28	53	29	30	17	40	31	41	45
	33	5	41	34	29	28	35	53	7	37	16	36	38	39	56	40	3	7	41	26	9	42	49	2
	44	11	45	45	34	20	46	56	47	48	19	5	49	41	14	51	3	16	52	25	11	53	46	58
	55	8	38	56	30	12	57	51	40	59	13	2	60	34	19	61	55	31	63	16	39	64	37	43
	65	58	43	67	19	41	68	40	36	70	1	30	71	22	22	72	43	14	74	4	5	75	24	57
	76	45	49	78	6	43	79	27	39	80	48	38	82	9	40	83	30	45	84	51	55	86	13	9
	87	34	30	88	55	56	90	17	29	91	39	9	93	0	57	94	22	54	95	44	59	97	7	14
	98	29	40	99	52	16	101	15	3	102	38	2	104	1	13	105	24	38	106	48	15	108	12	7
	109	36	13	111	0	35	112	25	11	113	50	4	115	15	13	116	40	38	118	6	21	119	32	21
	120	58	40	122	25	16	123	52	12	125	19	26	126	46	59	128	14	52	129	43	4	131	11	35
	132	40	27	134	9	38	135	39	9	137	9	0	138	39	11	140	9	41	141	40	30	143	11	38
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
NE	135	13	33	133	32	14	131	50	59	130	9	48	128	28	41	126	47	40	125	6	46	123	25	58
	121	45	18	120	4	46	118	24	23	116	44	10	115	4	6	113	24	12	111	44	29	110	4	57
	108	25	36	106	46	27	105	7	30	103	28	45	101	50	13	100	11	53	98	33	46	96	55	52
	95	18	12	93	40	44	92	3	30	90	26	30	88	49	43	87	13	10	85	36	50	84	0	44
	82	24	52	80	49	14	79	13	50	77	38	39	76	3	42	74	28	58	72	54	29	71	20	13
	69	46	10	68	12	21	66	38	46	65	5	25	63	32	17	61	59	22	60	26	41	58	54	13
	57	21	59	55	49	58	54	18	11	52	46	37	51	15	17	49	44	10	48	13	17	46	42	37
	45	12	12	43	41	59	42	12	1	40	42	18	39	12	49	37	43	34	36	14	34	34	45	50
	33	17	22	31	49	10	30	21	16	28	53	39	27	26	22	25	59	24	24	32	48	23	6	36

IN THE TIDE TABLE FOR BRISTOL, on the right-hand pages, the heights are given f those Tides which happen nearest to noon in each day at the Cumberland Gates, ithout taking into account the diurnal inequality of the height.

PHASES OF THE MOON.
- First Quarter, 7th day. at 0h. 13m. noon.
- Full Moon, 14th day, at 2h. 57m. afternoon.
- Last Quarter, 21st day, at 6h. 3m. morning.
- New Moon, 28th day, at 11h. 27m. night.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.
1	3m36	8 a 43	16 2	5m10	10m 28	4 m 9	9 m35	3 m31	7 m23	5m23	10a46	5m24	10 38
8	3 4	9 2	16 0	4 59	10 36	3 56	9 23	3 17	7 16	4 54	10 16	4 56	10 9
15	2 40	9 23	15 58	4 47	10 49	3 44	9 15	3 2	7 9	4 25	9 46	4 28	9 40
22	2 12	9 45	15 56	4 40	11 5	3 31	9 9	2 46	7 1	3 57	9 16	4 0	9 11
29	1 42	10 12	15 54	4 19	11 28	3 19	9 6	2 30	6 52	3 29	8 47	3 32	8 43

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. Apparent Time
1	Tu	Day increa. 5h. 45m.	0 18	17 5	0 33	17 7	3 58
2	W	Regulus souths 9 a 20	0 49	17 1	1 6	16 10	3 40
3	Th	Richard, Bishop	1 21	16 5	1 39	15 11	3 22
4	F	Ambrose, Bishop	1 56	15 7	2 12	14 8	3 4
5	S	Aldebaran sets 11 a 15	2 30	14 6	2 48	13 3	2 46
6	E	**5 Sunday in Lent**	3 10	13 3	3 33	11 11	2 29
7	M	*Proper Lessons.* [Exodus iii; Acts iii. — v; Heb. viii.	3 58	12 1	4 30	10 9	2 12
8	Tu	Altair rises 11 a 50	5 7	11 4	5 48	10 3	1 55
9	W	Lord Bacon d., 1626	6 28	11 5	7 8	10 9	1 38
10	Th	Cambridge Term ends	7 46	12 4	8 18	12 2	1 21
11	F	Wm. & My. crnd., 1689	8 47	14 1	9 13	14 0	1 5
12	S	Dr. Young died, 1765	9 34	15 11	9 58	15 9	0 48
13	E	**Palm Sunday.**	10 20	17 7	10 39	17 5	0 33
14	M	*Proper Lessons.* [Exod. ix; Matt. xxvi. — x; Heb. v to ver. 11	10 58	18 10	11 17	19 8	0 17
15	Tu	Easter T. begins	11 38	19 7	— —	— —	0 2
16	W	Battle Culloden, 1746	0 1	19 4	0 22	19 9	0 13
17	Th	B. Franklin d. 1790	0 44	19 4	1 8	19 0	0 27
18	F	**Good Friday**	1 32	18 2	1 58	17 7	0 41
19	S	Alphege, Archbishop	2 24	17 4	2 51	16 9	0 55
20	E	**Easter Sunday**	3 17	15 9	3 47	13 10	1 8
21	M	*Proper Lessons.* [Evod. xii; Rom. vi. — xiv; Acts ii to v. 22.	4 19	14 2	4 53	12 4	1 21
22	Tu	**Easter Tuesday**	5 34	13 2	6 16	11 8	1 33
23	W	St. George, Martyr	6 57	13 1	7 32	12 0	1 45
24	Th	Cromwell born, 1599	8 6	13 8	8 35	12 11	1 56
25	F	Cambridge T. begins	9 2	14 7	9 26	14 1	2 7
26	S	Altair rises, 10 a 36	9 49	15 8	10 8	15 2	2 17
27	E	**1 Sun. after Easter**	10 29	16 2	10 45	15 9	2 27
28	M	*Proper Lessons.* [Num. xvi; Acts xxiv. — xxii; 1 John iii.	11 1	16 6	11 18	16 4	2 37
29	Tu	Mut. of Bounty 28th	11 33	16 7	11 50	16 6	2 46
30	W	Oxford Term begins	— —	— —	0 5	16 5	2 54

BRISTOL TIDES morn.	BRISTOL TIDES even.	BRISTOL TIDES height	SUN. rises.	SUN. sets.	SUN. rt. ascen.	SUN. declin. N.	MOON. sets.	MOON. souths	MOON. declin.	MOON. age.	M. D.	ASPECTS AND WEATHER.
H. M.	H. M.	F. I.	H M	H M	H. M. S.	° ′ ″	H. M.	H. M.	° ′			
8 14	8 29	31 6	5 36	6 33	0 42 19	4 33 22	9a37	1a34	17 N 29	2	1	*Still*
8 45	8 59	30 7	5 33	6 35	0 45 58	4 56 28	10 45	2 20	20 33	3	2	♀ great. bril.
9 16	9 32	29 1	5 31	6 37	0 49 36	5 19 29	11 47	3 8	22 39	4	3	☾ in Apogee
9 46	10 1	27 3	5 28	6 39	0 53 15	5 42 23	morn	3 57	23 41	5	4	♅ ☌ ☾, 3 a 44
10 16	10 35	25 2	5 26	6 41	0 56 54	6 5 12	0 42	4 47	23 35	6	5	*showery*
10 54	11 16	23 11	5 24	6 43	1 0 33	6 27 54	1 28	5 36	22 19	7	6	*and*
11 45	— —	20 6	5 21	6 45	1 4 12	6 50 30	2 3	6 25	19 56	8	7	*changeable,*
0 16	0 43	19 2	5 19	6 46	1 7 52	7 12 59	2 31	7 13	16 31	9	8	*inclined*
1 29	2 13	20 3	5 16	6 48	1 11 31	7 35 20	2 54	8 1	12 11	10	9	*to rain*
2 59	3 38	23 6	5 14	6 50	1 15 11	7 57 33	3 13	8 49	7 6	11	10	*or*
4 10	4 37	27 0	5 11	6 52	1 18 51	8 19 38	3 29	9 37	1 28	12	11	*sleet.*
4 59	5 24	30 2	5 9	6 54	1 22 32	8 41 35	3 46	10 27	½4s25	13	12	♄ ☌ ☾, 6 m 42
5 49	6 10	32 8	5 7	6 56	1 26 12	9 3 24	4 3	11 19	10 14	14	13	*Now*
6 32	6 53	33 9	5 4	6 58	1 29 53	9 25 3	rises.	morn	— —	F	14	*expect*
7 16	7 41	35 2	5 2	6 59	1 33 35	9 46 33	9 a 4	0 15	15 31	16	15	☾ in Perigee
8 3	8 25	35 6	5 0	7 1	1 37 16	10 7 53	10 30	1 14	19 48	17	16	*fair*
8 48	9 10	34 8	4 57	7 3	1 40 59	10 29 4	11 45	2 16	22 37	18	17	☿ gr. H. L. S.
9 34	9 57	32 6	4 55	7 5	1 44 41	10 50 4	morn	3 19	23 41	19	18	*and*
10 20	10 42	29 10	4 53	7 7	1 48 24	11 10 54	0 34	4 21	22 59	20	19	*mild,*
11 8	11 36	26 5	4 51	7 9	1 52 7	11 31 32	1 23	5 20	20 41	21	20	*which*
— —	0 5	23 6	4 48	7 11	1 55 51	11 52 0	1 53	6 14	17 9	22	21	*may*
0 41	1 18	22 1	4 46	7 12	1 59 35	12 12 16	2 15	7 5	12 45	23	22	♂ ☌ ☾, 5 m 15
2 0	2 43	23 0	4 43	7 14	2 3 20	12 32 20	2 33	7 52	7 50	24	23	*change*
3 25	3 57	25 3	4 41	7 16	2 7 5	12 52 12	2 50	8 37	2 39	25	24	*to wind*
4 26	4 51	27 2	4 39	7 18	2 10 51	13 11 51	3 6	9 20	2 N 32	26	25	♀ ☌ ☾, 2 m 47
5 15	5 35	28 9	4 37	7 20	2 14 37	13 31 17	3 20	10 3	7 31	27	26	*and rain*
5 58	6 16	29 1	4 35	7 22	2 18 24	13 50 30	3 34	10 46	12 8	28	27	*or*
6 34	6 54	29 8	4 32	7 24	2 22 11	14 9 29	sets.	11 31	16 12	N	28	♀ in ♉, 4 m 15
7 10	7 29	29 11	4 30	7 25	2 25 59	14 28 14	8a34	0a17	19 30	1	29	☿ ☌ ☾, 7 m 49
7 45	8 4	29 9	4 28	7 27	2 29 47	14 46 46	9 38	1 4	21 55	2	30	*showery.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	NOON. ° ′ ″	3 HOURS. ° ′ ″	6 HOURS. ° ′ ″	9 HOURS. ° ′ ″	MIDN. ° ′ ″	15 HOUR. ° ′ ″	18 HOUR. ° ′ ″	21 HOUR. ° ′ ″
1 W	24 44 39	26 5 37	27 26 37	28 47 38	30 8 39	31 29 40	32 50 40	34 11 39
2	35 32 36	36 53 32	38 14 26	39 35 18	40 56 8	42 16 57	43 37 45	44 58 31
3	46 19 17	47 40 1	49 0 46	50 21 30	51 42 14	53 2 59	54 23 44	55 44 31
4	57 5 19	58 26 10	59 47 4	61 8 0	62 29 0	63 50 3	65 11 11	66 32 24
5	67 53 42	69 15 6	70 36 37	71 58 14	73 19 59	74 41 52	76 3 54	77 26 5
6	78 48 26	80 10 57	81 33 38	82 56 31	84 19 36	85 42 53	87 6 24	88 30 8
7	89 54 6	91 18 19	92 42 47	94 7 31	95 32 32	96 57 50	98 23 25	99 49 18
8	101 15 30	102 42 1	104 8 51	105 36 1	107 3 32	108 31 24	109 59 37	111 28 12
9	112 57 9	114 26 29	115 56 11	117 26 17	118 56 45	120 27 38	121 58 55	123 30 36
0	125 2 41	126 35 11	128 8 5	129 41 23	131 15 6	132 49 14	134 23 45	135 58 41
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
17 E	139 38 59	137 55 44	136 12 39	134 29 46	132 47 6	131 4 39	129 22 27	127 40 29
18	125 58 48	124 17 23	122 36 15	120 55 24	119 14 52	117 34 38	115 54 43	114 15 8
19	112 35 51	110 56 55	109 18 18	107 40 2	106 2 6	104 24 30	102 47 15	101 10 20
20	99 33 46	97 57 32	96 21 39	94 46 6	93 10 53	91 36 1	90 1 28	88 27 16
21	86 53 23	85 19 49	83 46 35	82 13 40	80 41 5	79 8 47	77 36 48	76 5 7
22	74 33 45	73 2 39	71 31 52	70 1 21	68 31 7	67 1 9	65 31 28	64 2 3
23	62 32 53	61 3 59	59 35 20	58 6 56	56 38 46	55 10 51	53 43 10	52 15 43
24	50 48 30	49 21 29	47 54 42	46 28 8	45 1 47	43 35 39	42 9 43	40 43 59
25	39 18 27	37 53 8	36 28 1	35 3 6	33 38 23	32 13 52	30 49 33	29 25 27

THE SUN'S RIGHT ASCENSION is given in time to the nearest second for Greenwich mean noon, and with the table of the right ascension of the principal fixed stars, given in page 29, is useful to find the time by the meridian distance of those stars.

The SUN'S DECLINATION is also given for *Greenwich mean noon*, and may be reduced to any other place by applying the proportional part of the daily difference.

PHASES OF THE MOON.
- First Quarter, 7th day, at 3h. 24m. morning.
- Full Moon, 13th day, at 11h. 0m. night.
- Last Quarter, 20th day, at 3h. 38m. afternoon.
- New Moon, 28th day, at 3h. 26m. afternoon.

M D.	Day brek.	Twil. ends	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	0m31	10a28	15 54	4m21	11m35	3m16	9m5	2m25	6m50	3m21	8 a 39	3m24	8 a 34	1
8	0 45	11 16	15 52	sets.	0 a 5	3 1	9 3	2 8	6 41	2 53	8 11	2 56	8 6	8
15	noreal night.	noreal night.	15 51	9 a 6	0 39	2 47	9 2	1 50	6 32	2 25	7 43	2 28	7 38	15
22			15 50	9 58	1 10	2 33	9 2	1 32	6 23	1 57	7 16	2 0	7 11	22
29			15 48	10 23	1 32	2 19	9 2	1 13	6 13	1 30	6 49	1 33	6 44	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Th	St. Philip & St. James	0 23	16 5	0 39	15 11	3 Clock after Sun 2
2	F	Camden born, 1551	0 57	16 1	1 15	15 4	3 9
3	S	Inven. of the Cross	1 32	15 7	1 51	14 6	3 16
4	✠	2 Sun. after Easter	2 10	14 10	2 29	13 6	3 22
5	M	*Proper Lessons.* [Num. xxiii, xxiv; Matt. ii. — xxv; Rom. iii.	2 48	13 10	3 10	12 6	3 27
6	Tu	St. John, Port. Lat.	3 34	13 1	4 2	11 9	3 32
7	W	Procyon sets 11 a 7	4 31	12 6	5 5	11 5	3 37
8	Th	Altair rises 9 a 48	4 45	12 5	6 22	11 7	3 41
9	F	Antares souths 1 m 14	6 54	13 0	7 27	12 7	3 45
10	S	Battle of Lodi, 1778	7 58	14 2	8 29	13 11	3 47
11	✠	3 Sun. after Easter	8 54	15 6	9 19	15 6	3 50
12	M	*Proper Lessons.* [Deut. iv; Mat. ix. — v; Rom. x.	9 42	16 10	10 8	17 0	3 52
13	Tu	Easter Term ends	10 31	18 0	10 55	18 2	3 53
14	W	Fahrenheit born, 1686	11 19	18 8	11 42	19 0	3 53
15	Th	Cuvier died, 1832	— —	— —	0 7	18 1	3 53
16	F	O'Connell died, 1847	0 31	19 1	0 56	18 3	3 53
17	S	Dr. Jenner born, 1794	1 20	18 7	1 48	17 2	3 52
18	✠	4 Sun. after Easter	2 14	17 7	2 42	15 8	3 50
19	M	*Pro. Les.* [Deut. vi; Matthew xvi. — vii; 1 Cor. i.	3 9	16 3	3 35	14 3	3 48
20	Tu	Spica souths 9 a 52	4 4	15 0	4 34	13 0	3 45
21	W	Arcturus sout. 10 a 12	5 7	13 11	5 44	12 4	3 42
22	Th	Lyra souths 2 m 34	6 16	13 4	6 48	12 2	3 38
23	F	Cam. Term divides N	7 18	13 5	7 48	12 6	3 33
24	S	Queen Victoria born	8 17	13 8	8 45	13 2	3 28
25	✠	Rogation Sunday	9 12	14 1	9 35	14 0	3 23
26	M	[Deut. viii; Matthew xxiii. — ix; 1 Cor. viii.	9 56	14 6	10 17	14 7	3 16
27	Tu	Trinity Term begins	10 36	14 11	10 56	15 2	3 10
28	W	Wm. Pitt born, 1759	11 13	15 1	11 29	15 7	3 3
29	Th	Ascension Day	11 48	15 3	— —	— —	2 55
30	F	Antares souths 11 a 42	0 4	15 10	0 22	15 3	2 47
31	S	A. Pope died, 1744	0 40	15 11	0 59	15 1	2 39

Equation of Time. Sun's Apparent Time is to be Subtracted from Mean Time, or Added to Mean Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt.ascen. H. M. S.	declin. N ♌ / //	MOON. sets. H. M.	souths H. M.	declin. ° /	age.	M D.	ASPECTS AND WEATHER.
1	8 20	8 37	29 2	4 26	7 29	2 33 36	15 5 2	10a35	1a53	23N18	3	1	*Showery*
2	8 54	9 10	28 4	4 24	7 31	2 37 25	15 23 3	11 23	2 41	23 34	4	2	☿ ☌ ☾, 0 m 48
3	9 27	9 44	27 1	4 22	7 33	2 41 15	15 40 50	morn	3 31	22 42	5	3	*weather*
4	9 59	10 16	25 10	4 20	7 35	2 45 5	16 58 20	0 1	4 19	20 43	6	4	*may be*
5	10 34	10 55	24 1	4 18	7 37	2 48 56	16 15 35	0 31	5 7	17 44	7	5	*expected*
6	11 20	11 45	22 6	4 16	7 38	2 52 48	16 32 33	0 56	5 54	13 50	8	6	☿ in sup. ☌ ☉
7	— —	0 14	21 5	4 14	7 40	2 56 40	16 49 15	1 16	6 40	9 11	9	7	*at the*
8	0 50	1 23	21 7	4 12	7 42	3 0 32	17 5 40	1 34	7 27	3 57	10	8	*begining,*
9	1 58	2 39	23 8	4 10	7 43	3 4 25	17 21 48	1 50	8 14	1s40	11	9	♄ ☌ ☾, 2 a 47
10	3 17	3 51	26 9	4 8	7 45	3 8 19	17 37 39	2 6	9 4	7 24	12	10	*succeeded*
11	4 18	4 44	29 5	4 6	7 47	3 12 13	17 53 12	2 24	9 57	12 54	13	11	☿ in Perihel.
12	5 8	5 36	31 8	4 5	7 49	3 16 8	18 8 27	2 44	10 54	17 43	14	12	*by fair*
13	6 2	6 29	32 8	4 3	7 51	3 20 3	18 23 24	rises.	11 56	21 20	F	13	♂ ☌ Iota Aqu
14	6 55	7 21	33 11	4 1	7 52	3 23 59	18 38 2	9a 21	morn	— —	16	14	☾ in Perigee
15	7 48	8 12	34 5	4 0	7 54	3 27 56	18 52 22	10 28	1 0	23 18	17	15	♃ stationary
16	8 36	8 59	33 10	3 58	7 56	3 31 53	19 6 22	11 18	2 5	23 24	18	16	*and*
17	9 25	9 48	32 2	3 56	7 57	3 35 51	19 20 3	11 54	3 8	21 41	19	17	*warm*
18	10 12	10 35	30 1	3 54	7 59	3 39 49	19 33 25	morn	4 6	18 29	20	18	Disap ♄'s ring
19	10 57	11 23	27 6	3 53	8 0	3 43 48	19 46 27	0 20	4 59	14 14	21	19	*days.*
20	11 49	— —	25 1	3 51	8 2	3 47 47	19 59 8	0 40	5 49	9 21	22	20	☿ ☌ ☾, 11 a 43
21	0 18	0 51	23 3	3 50	8 3	3 51 47	20 11 30	0 57	6 35	4 10	23	21	☌ ☌ ☾, 1 m 8
22	1 19	1 54	22 10	3 48	8 5	3 55 48	20 23 31	1 12	7 19	1N 4	24	22	*Now*
23	2 28	3 5	23 11	3 47	8 7	3 59 49	20 35 10	1 25	8 2	6 7	25	23	*more*
24	3 38	4 9	25 3	3 46	8 8	4 3 50	20 46 29	1 40	8 45	10 50	26	24	♀ ☌ ☾, 6 a 24
25	4 36	5 0	26 4	3 44	8 10	4 7 52	20 57 27	1 58	9 29	15 2	27	25	*changeable*
26	5 22	5 45	27 1	3 43	8 11	4 11 55	21 8 2	2 18	10 14	18 34	28	26	*at the*
27	6 6	6 29	27 5	3 42	8 13	4 15 58	21 18 16	2 43	11 1	21 15	29	27	☌ □ ☉, 9 a 8
28	6 48	7 5	27 9	3 41	8 14	4 20 2	21 28 8	sets.	11 49	22 57	N	28	☾ in Apogee
29	7 27	7 44	28 1	3 40	8 15	4 24 6	21 37 37	9a31	0a38	23 34	1	29	♅ ☌ ☾, 9 m 54
30	8 3	8 20	28 2	3 38	8 17	4 28 10	21 46 44	10 6	1 28	23 2	2	30	☿ ☌ ☾, 5 a 4
31	8 39	8 55	28 1	3 37	8 18	4 32 15	21 55 29	10 35	2 17	21 24	3	31	*end.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° / //	3 Hours. ° / //	6 Hours. ° / //	9 Hours. ° / //	Midn. ° / //	15 Hour. ° / //	18 Hour. ° / //	21 Hour. ° / //
1w	27 29 37	28 50 13	30 10 52	31 31 34	32 52 20	34 13 10	35 34 3	36 54 59
2	38 16 0	39 37 4	40 58 12	42 19 24	43 40 41	45 2 3	46 23 30	47 45 2
3	49 6 39	50 28 23	51 50 14	53 12 11	54 34 16	55 56 28	57 18 49	58 41 18
4	60 3 55	61 26 43	62 49 40	64 12 48	65 36 6	66 59 36	68 23 17	69 47 11
5	71 11 18	72 35 38	74 0 12	75 25 1	76 50 4	78 15 23	79 40 58	81 6 49
6	82 32 57	83 59 23	85 26 7	86 53 9	88 20 30	89 48 12	91 16 13	92 44 34
7	94 13 17	95 42 21	97 11 47	98 41 36	100 11 47	101 42 22	103 13 20	104 44 42
8	106 16 29	107 48 41	109 21 17	110 54 19	112 27 46	114 1 40	115 35 59	117 10 45
9	118 45 56	120 21 35	121 57 39	123 34 11	125 11 8	126 48 32	128 26 23	130 4 40
10	131 43 22	133 22 30	135 2 4	136 42 2	138 22 25	140 3 12	141 44 23	143 25 56
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
16E	144 4 27	142 20 39	140 37 9	138 53 58	137 11 7	135 28 37	133 46 28	132 4 40
17	130 23 15	128 42 13	127 1 35	125 21 20	123 41 29	122 2 3	120 23 1	118 44 24
18	117 6 12	115 28 25	113 51 2	112 14 5	110 37 33	109 1 27	107 25 45	105 50 27
19	104 15 34	102 41 6	101 7 2	99 33 22	98 0 6	96 27 14	94 54 44	93 22 37
20	91 50 53	90 19 31	88 48 31	87 17 52	85 47 34	84 17 36	82 47 59	81 18 42
21	79 49 44	78 21 4	76 52 43	75 24 40	73 56 55	72 29 27	71 2 15	69 35 20
22	68 8 40	66 42 15	65 16 6	63 50 10	62 24 29	60 59 1	59 33 46	58 8 43
23	56 43 53	55 19 15	53 54 48	52 30 31	51 6 26	49 42 30	48 18 44	46 55 8
24	45 31 40	44 8 21	42 45 10	41 22 8	39 59 13	38 36 25	37 13 44	35 51 9
25	34 28 41	33 6 19	31 44 3	30 21 53	28 59 48	27 37 48	26 15 53	24 54 3
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
30w	20 9 2	21 30 53	22 52 51	24 14 54	25 37 3	26 59 18	28 21 39	29 44 6
31	31 6 40	32 29 20	33 52 7	35 15 1	36 38 2	38 1 11	39 24 28	40 47 53

THE SUN'S RISING AND SETTING, and the MOON'S RISING, SOUTHING, AND SETTING are given, for Latitude 54° 10′ N., and Longitude 4° 30′ W.

THE MOON'S DECLINATION is given to the nearest minute for her transit over the meridian of Greenwich.

PHASES OF THE MOON.

First Quarter,	5th day, at	2h. 43m. afternoon.
Full Moon,	12th day, at	6h. 17m. morning.
Last Quarter,	19th day, at	3h. 12m. morning.
New Moon,	27th day, at	6h. 54m. morning.

M D.	Day brek.	Twil-ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 48	10a28	1 a 38	2 m14	9 m 2	1 m 4	6 m 9	1 m18	6 a 38	1 m21	6 a 32	1
8			15 47	10 20	1 43	2 1	9 4	0 45	5 58	0 51	6 12	0 54	6 5	8
15			15 47	9 54	1 33	1 48	9 7	0 25	5 47	0 24	5 47	0 27	5 39	15
22			15 46	9 15	1 8	1 37	9 10	0 5	5 36	11a54	5 21	11a56	5 13	22
29			15 46	8 25	0 29	1 27	9 15	11a42	5 23	11 27	4 57	11 28	4 47	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	ℰ	Sun. af. Ascens. Day	1 16	15 9	1 34	14 10	2 30 Clock after Sun.
2	M	*Pro. Les.* [Deut. xii; Mark ii. — xiii; 1 Cor. xv.	1 53	15 5	2 11	14 3	2 21
3	Tu	Arcturus souths 9 a 21	2 32	15 0	2 54	13 7	2 11
4	W	Br. Inst. founded, 1805	3 15	14 6	3 39	13 3	2 2
5	Th	Boniface, Bishop	4 4	13 11	4 31	12 9	1 51
6	F	J. Bentham died, 1832	4 59	13 6	5 34	12 7	1 41
7	S	Oxford Term ends	6 10	13 7	6 40	13 0	1 30 See May.
8	ℰ	Whit Sunday, Pente.	7 11	14 0	7 42	13 10	1 19
9	M	[Deut. xvi to v. 18; Acts x v. 34 [Isaiah xi; Acts xix to v. 21.	8 12	14 10	8 44	14 11	1 7
10	Tu	Whit Tuesday	9 15	15 9	9 44	16 4	0 56
11	W	St. Barnabas, Apos.	10 13	16 10	10 41	17 7	0 44
12	Th	Oxford Term begins	11 6	17 8	11 32	18 6	0 32
13	F	Regulus sets 11 a 50	11 56	18 1	— —	— —	0 20
14	S	Battle Marengo, 1800	0 22	19 0	0 47	17 11	0 7
15	ℰ	Trinity Sunday.	1 12	18 10	1 37	17 3	0 5 Clock before Sun.
16	M	*Proper Lessons.* [Genesis i; Matthew iii. — xviii; 1 John v.	2 1	18 1	2 26	16 3	0 18
17	Tu	Trinity Term ends	2 50	17 1	3 17	15 1	0 30
18	W	Bat. of Waterloo, 1815	3 41	15 10	4 4	13 11	0 43
19	Th	Corpus Christi.	4 27	14 7	4 53	12 10	0 56
20	F	Queen's Accession	5 23	13 5	5 55	12 3	1 9
21	S	Queen Victoria Procl.	6 26	12 8	6 56	11 11	1 22
22	ℰ	1 Sun. after Trinity	7 29	12 4	8 2	12 2	1 35 See January.
23	M	[Joshua x; Luke vi. — xxiii; Galatians vi.	8 33	12 6	9 0	12 9	1 48
24	Tu	St. John Baptist	9 28	12 11	9 52	13 6	2 1
25	W	Midsummer Day, 24th	10 14	13 6	10 36	14 4	2 14
26	Th	Geo. IV. died, 1830	10 56	14 2	11 13	15 1	2 27
27	F	Dr. Dodd execu, 1774	11 30	14 8	11 48	15 8	2 40
28	S	St. Peter, Apostle, 29	— —	— —	0 6	15 2	2 52
29	ℰ	2 Sun. after Trinity	0 23	16 3	0 41	15 5	3 4
30	M	*Proper Lessons.* [Judges iv; Acts iii. — v; — iv.	0 58	16 6	1 17	15 6	3 16

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
1	9 11	9 28	27 8	3 36	8 19	4 36 21	22 3 50	11 a 0	3 a 4	8N 43	4	1	♀ in Aphelion
2	9 45	10 3	27 0	3 35	8 21	4 40 26	22 11 49	11 21	3 50	15 8	5	2	*Still*
3	10 22	10 40	26 4	3 34	8 22	4 44 32	22 19 24	11 38	4 36	10 47	6	3	*changeable*
4	11 1	11 23	25 3	3 33	8 23	4 48 39	22 26 36	11 55	5 22	5 51	7	4	*during*
5	11 47	— —	24 3	3 33	8 24	4 52 46	22 33 24	morn	6 7	0 31	8	5	♄ ☌ ☾, 11 a 9
6	0 10	0 41	23 6	3 32	8 25	4 56 53	22 39 49	0 12	6 54	5 s 1	9	6	♃ ☌ ☾, 2 m 17
7	1 12	1 41	23 11	3 32	8 26	5 1 0	22 45 49	0 29	7 44	10 29	10	7	♄ □ ☉, 6 m 12
8	2 20	2 58	25 11	3 31	8 27	5 5 8	22 51 26	0 57	8 38	15 31	11	8	*the*
9	3 34	4 8	28 2	3 31	8 27	5 9 16	22 56 39	1 8	9 36	19 40	12	9	♃ □ ☉, 3 a 49
10	4 40	5 10	30 3	3 30	8 28	5 13 24	23 1 28	1 39	10 38	22 30	13	10	*begining,*
11	5 42	6 13	31 11	3 30	8 29	5 17 32	23 5 52	2 21	11 43	23 34	14	11	☾ Eclip. invis
12	6 41	7 9	32 7	3 29	8 30	5 21 41	23 9 52	rises.	morn	— —	F	12	*changing*
13	7 35	8 3	33 5	3 29	8 31	5 25 50	23 13 28	9a50	0 48	22 44	16	13	*to*
14	8 28	8 52	33 5	3 29	8 31	5 29 59	23 16 39	10 21	1 50	20 10	17	14	☿ in ♍, 2 m 17
15	9 16	9 38	32 7	3 28	8 32	5 34 8	23 19 25	10 44	2 47	16 14	18	15	*wind*
16	9 59	10 19	31 1	3 28	8 32	5 38 17	23 21 47	11 2	3 40	11 26	19	16	*and*
17	10 43	11 5	29 2	3 28	8 32	5 42 26	23 23 44	11 18	4 29	6 10	20	17	*rain,*
18	11 24	11 44	26 9	3 28	8 33	5 46 36	23 25 17	11 33	5 15	0 47	21	18	♂ ☌ ☾, 7 a 59
19	— —	0 6	24 5	3 28	8 33	5 50 45	23 26 24	11 48	6 0	4N 27	22	19	*or*
20	0 32	1 0	22 7	3 28	8 34	5 54 55	23 27 7	morn	6 43	9 21	23	20	☿ stati. 2 m 58
21	1 27	2 0	21 11	3 28	8 34	5 59 4	23 27 25	0 4	7 27	13 46	24	21	☉ en. ♋ 5a 20
22	2 40	3 19	22 8	3 28	8 34	6 3 14	23 27 18	0 24	8 12	17 32	25	22	[Snm. com.
23	3 55	4 24	23 9	3 29	8 34	6 7 24	23 26 46	0 47	8 58	20 30	26	23	♀ ☌ ☾, 3 a 56
24	4 52	5 17	24 10	3 29	8 34	6 11 33	23 25 49	1 16	9 46	22 31	27	24	☿ in Aphelion
25	5 41	6 5	25 11	3 29	8 34	6 15 43	23 24 28	1 54	10 35	23 30	28	25	*showery*
26	6 28	6 47	26 5	3 30	8 34	6 19 52	23 22 42	2 41	11 24	23 21	29	26	☉ Eclip. invis
27	7 6	7 26	27 4	3 30	8 34	6 24 1	23 20 31	sets.	0a14	22 3	N	27	*and*
28	7 46	8 4	28 3	3 31	8 34	6 28 10	23 17 55	9 a 5	1 2	19 40	1	28	☿ ☌ ☾, 1 m 5
29	8 22	8 38	28 10	3 31	8 34	6 32 19	23 14 55	9 29	1 49	16 20	2	29	*wet*
30	8 56	9 12	29 2	3 32	8 34	6 36 27	23 11 31	9 47	2 35	12N 12	3	30	*weather.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	42 11 26	43 35 9	44 59 0	46 23 0	47 47 11	49 11 31	50 36 2	52 0 44
2	53 25 37	54 50 42	56 15 59	57 41 28	59 7 10	60 33 6	61 59 14	63 25 37
3	64 52 15	66 19 7	67 46 15	69 13 38	70 41 18	72 9 14	73 37 27	75 5 58
4	76 34 47	78 3 54	79 33 20	81 3 5	82 33 9	84 3 34	85 34 19	87 5 24
5	88 36 51	90 8 40	91 40 50	93 13 23	94 46 18	96 19 36	97 53 17	99 27 21
6	101 1 49	102 36 41	104 11 58	105 47 38	107 23 43	109 0 12	110 37 7	112 14 25
7	113 52 9	115 30 17	117 8 50	118 47 48	120 27 10	122 6 56	123 47 7	125 27 41
8	127 8 39	128 50 1	130 31 45	132 13 52	133 56 20	135 39 11	137 22 22	139 5 54
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
15E	135 8 13	133 29 2	131 50 16	130 11 58	128 34 6	126 56 40	125 19 42	123 43 10
16	122 7 5	120 31 26	118 56 15	117 21 30	115 47 10	114 13 18	112 39 51	111 6 49
17	109 34 13	108 2 2	106 30 16	104 58 54	103 27 56	101 57 21	100 27 10	98 57 21
18	97 27 55	95 58 51	94 30 8	93 1 46	91 33 44	90 6 2	88 38 40	87 11 36
19	85 44 51	84 18 23	82 52 13	81 26 19	80 0 42	78 35 20	77 10 13	75 45 21
20	74 20 43	72 56 18	71 32 6	70 8 6	68 44 19	67 20 42	65 57 17	64 34 1
21	63 10 55	61 47 59	60 25 11	59 2 31	57 40 0	56 17 35	54 55 17	53 33 5
22	52 10 59	50 48 59	49 27 4	48 5 12	46 43 25	45 21 42	44 0 2	42 38 24
23	41 16 49	39 55 16	38 33 45	37 12 15	35 50 46	34 29 18	33 7 50	31 46 22
24	30 24 54	29 3 25	27 41 55	26 20 24	24 58 51	23 37 17	22 15 41	20 54 3
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
29w	24 52 3	26 17 11	27 42 29	29 7 57	30 33 35	31 59 23	33 25 21	34 51 30
30	36 17 49	37 44 20	39 11 1	40 37 53	42 4 57	43 32 13	44 59 41	46 27 20

THE MOON'S SEMI-DIAMETER is given to the nearest second for Greenwich mean noon and midnight on page 26, and the HORIZONTAL PARALLAX on page 27.

THE LUNAR DISTANCES FROM THE SUN are given with a view to assist those who may not have an opportunity of using the Nautical Almanack, and are given for every three hours of Greenwich astronomical mean time. As the rest of the Almanack is adapted to CIVIL time, this distinction must be kept in mind; the *Civil*

PHASES OF THE MOON.
- First Quarter, 4th day, at 10h. 51m. evening.
- Full Moon, 11th day, at 1h. 38m. afternoon.
- Last Quarter, 18th day, at 5h. 13m. evening.
- New Moon, 26th day, at 9h. 5m. evening.

M D.	Day brek.	Twil end.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus rises.	♀ Venus sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 46	8 a 11	0 a 16	1 m 25	9 m 16	11 a 36	5 m 20	11 a 20	4 a 50	11 a 21	4 a 39	1
8			15 46	rises.	11 m 32	1 18	9 22	11 16	5 7	10 53	4 26	10 54	4 14	8
15			15 46	3 m 0	10 58	1 15	9 28	10 55	4 53	10 27	4 2	10 27	3 48	15
22			15 47	2 34	10 42	1 16	9 36	10 33	4 38	10 1	3 38	10 0	3 23	22
29			15 47	2 30	10 46	1 20	9 44	10 11	4 22	9 35	3 15	9 34	2 58	29

M D	W D	Remarkable Days	High Water.—Liverpool. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Tu	Bat. of Boyne, 1690	1 35	16 6	1 54	15 5	3 28
2	W	Sir R. Peel died, 1850	2 14	16 4	2 35	15 2	3 40
3	Th	Dog Days begin	2 54	15 10	3 16	14 8	3 51
4	F	Trans. St. Martin	3 39	15 3	4 2	14 1	4 2
5	S	Chusan taken, 1840	4 26	14 5	4 53	13 6	4 13
6	ℰ	3 Sun. after Trinity	5 23	13 9	5 58	13 2	4 23
7	M	Proper Lessons. [1 Samuel ii; Luke xviii. — iii; Coloss. ii.	6 35	13 5	7 10	13 4	4 33
8	Tu	Lyra souths 11 a 26	7 48	13 9	8 23	14 1	4 42
9	W	Sheridan died, 1816	8 58	14 7	9 30	15 8	4 51
10	Th	Columbus born, 1447	10 0	15 9	10 31	17 2	5 0
11	F	Lalande born, 1732	10 58	16 11	11 24	18 5	5 8
12	S	Erasmus died, 1536	11 49	17 8	— —	— —	5 16
13	ℰ	4 Sun. after Trinity	0 12	19 1	0 36	17 11	5 23
14	M	Pro. Les. [1 Saml. xii; John i. — xiii; 1 Thess. v.	0 59	19 2	1 20	17 8	5 30
15	Tu	Swithin, Bishop	1 43	18 8	2 5	17 0	5 37
16	W	Sir J. Reynolds born	2 26	16 5	2 47	15 11	5 43
17	Th	Dr. Watts born, 1674	3 7	15 3	3 26	15 8	5 48
18	F	Dr. Hooke born, 1635	3 46	14 1	4 6	14 0	5 53
19	S	B. Hallidon Hill, 1333	4 29	12 10	4 55	12 8	5 57
20	ℰ	5 Sun. after Trinity	5 16	12 0	5 59	11 5	6 1
21	M	Proper Lessons. [1 Sam. xv; John viii. — xvii; 1 Tim. v.	6 36	11 2	7 12	11 3	6 5
22	Tu	Aldebaran rises 0 m 50	7 48	11 1	8 26	11 9	6 8
23	W	R. Burns died, 1796	8 56	11 8	9 25	12 8	6 10
24	Th	Gibraltar taken 1804	9 50	12 7	10 14	13 11	6 11
25	F	St. James, Apostle	10 35	13 8	10 55	15 1	6 12
26	S	St. Anne	11 12	14 8	11 30	16 1	6 13
27	ℰ	6 Sun. after Trinity	11 46	15 7	— —	— —	6 13
28	M	Proper Lessons. [2 Samuel xii; John xv. — xix; Titus ii, iii.	0 3	17 0	0 20	16 4	6 12
29	Tu	Pleiades rises 10 a 35	0 37	17 7	0 53	16 10	6 11
30	W	Cook's first voy. 1768	1 11	17 10	1 30	16 10	6 9
31	Th	Igna. Loyola d. 1556	1 50	17 8	2 8	16 7	6 6

Equation of Time. Clock before Sun.—Add to Apparent Time, or Subtract from Mean Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. asc. H. M. S.	declin. N. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	☿ ☍	M D.	ASPECTS AND WEATHER.
1	9 30	9 48	29 1	3 33	8 33	6 40 36	23 7 42	10 a 3	3a20	7 N 27	4	1	☉ in Apogee
2	10 8	10 23	28 9	3 34	8 33	6 44 44	23 3 29	10 18	4 5	2 16	5	2	*Now*
3	10 43	11 3	28 1	3 34	8 33	6 48 52	22 58 52	10 34	4 51	3 s 8	6	3	♄ ☌ ☾, 7 m 49
4	11 23	11 43	26 7	3 35	8 32	6 52 59	22 53 51	10 51	5 38	8 30	7	4	♄ ☌, sig. leo.
5	— —	0 7	25 2	3 36	8 32	6 57 6	22 48 26	11 11	6 28	13 35	8	5	*fair*
6	0 32	1 3	23 10	3 37	8 31	7 1 13	22 42 37	11 36	7 22	18 0	9	6	*and*
7	1 36	2 16	24 3	3 38	8 30	7 5 20	22 36 25	morn	8 21	21 22	10	7	*warm*
8	3 3	3 45	26 5	3 39	8 30	7 9 26	22 29 49	0 12	9 23	23 16	11	8	*days*
9	4 22	4 55	28 8	3 40	8 29	7 13 31	22 22 50	1 0	10 27	23 24	12	9	*may*
10	5 27	6 1	30 9	3 41	8 28	7 17 37	22 15 27	2 6	11 30	21 42	13	10	☾ in Perigee
11	6 31	7 0	31 8	3 42	8 27	7 21 41	22 7 42	rises.	morn	— —	F	11	☌ gr. H. L. S.
12	7 27	7 53	33 2	3 43	8 26	7 25 46	21 59 34	8a46	0 30	18 25	15	12	*be*
13	8 17	8 39	33 8	3 44	8 25	7 29 50	21 51 3	9 5	1 26	13 56	16	13	*expected,*
14	9 0	9 20	33 4	3 46	8 24	7 33 53	21 42 10	9 23	2 18	8 45	17	14	☿ stationary
15	9 41	10 0	32 1	3 47	8 23	7 37 56	21 32 55	9 39	3 7	3 15	18	15	*succeeded*
16	10 19	10 36	30 5	3 49	8 22	7 41 59	21 23 17	9 55	3 53	2 N 12	19	16	*by*
17	10 51	11 8	28 1	3 50	8 20	7 46 1	21 13 18	10 11	4 38	7 23	20	17	☌ ☌ ☾, 10 m 28
18	11 25	11 46	25 3	3 51	8 19	7 50 2	21 2 57	10 29	5 23	12 6	21	18	*showery*
19	— —	0 8	22 9	3 53	8 18	7 54 3	20 52 14	10 52	6 8	16 10	22	19	*and*
20	0 35	1 3	20 5	3 54	8 17	7 58 4	20 41 10	11 21	6 54	19 28	23	20	*changeable,*
21	1 37	2 17	20 1	3 56	8 15	8 2 3	20 29 46	11 56	7 41	21 52	24	21	*inclined*
22	3 1	3 46	21 6	3 57	8 14	8 6 3	20 18 0	morn	8 30	23 14	25	22	☾ in Apogee
23	4 19	4 49	23 3	3 59	8 12	8 10 2	20 5 54	0 37	9 19	23 30	26	23	♅ ☌ ☾, 4 m 51
24	5 15	5 40	25 1	4 0	8 11	8 14 0	19 53 28	1 28	10 9	22 37	27	24	☿ gr. elon. W.
25	6 4	6 26	26 0	4 2	8 9	8 17 58	19 40 42	2 33	10 58	20 37	28	25	*to rain*
26	6 46	7 6	27 7	4 3	8 8	8 21 55	19 27 36	sets.	11 46	17 35	N	26	*unless*
27	7 23	7 42	29 2	4 5	8 6	8 25 51	19 14 11	7a54	0a33	13 41	1	27	*the*
28	8 1	8 18	30 5	4 7	8 4	8 29 47	19 0 27	8 12	1 19	9 5	2	28	*wind be*
29	8 33	8 50	31 4	4 8	8 3	8 33 42	18 46 24	8 28	2 4	3 58	3	29	*northerly.*
30	9 8	9 26	31 7	4 10	8 1	8 37 37	18 32 3	8 42	2 50	1 s 24	4	30	♄ ☌ ☾, 5 a 33
31	9 43	10 1	31 0	4 12	7 59	8 41 31	18 17 23	8 58	3 36	6 47	5	31	♃ ☌ ☾, 2 m 17

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 W	47 55 12	49 23 17	50 51 35	52 20 6	53 48 50	55 17 48	56 46 59	58 16 25
2	59 46 6	61 16 1	62 46 11	64 16 36	65 47 17	67 18 14	68 49 26	70 20 55
3	71 52 40	73 24 43	74 57 2	76 29 39	78 2 33	79 35 45	81 9 15	82 43 4
4	84 17 10	85 51 36	87 26 20	89 1 23	90 36 45	92 12 27	93 48 28	95 24 48
5	97 1 28	98 38 27	100 15 46	101 53 25	103 31 23	105 9 41	106 48 19	108 27 16
6	110 6 32	111 46 7	113 26 1	115 6 14	116 46 45	118 27 35	120 8 42	121 50 7
7	123 31 49	125 13 47	126 56 2	128 38 32	130 21 17	132 4 16	133 47 29	135 30 55
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
14 E	140 23 51	138 47 55	137 12 23	135 37 16	134 2 34	132 28 17	130 54 25	129 20 57
15	127 47 55	126 15 17	124 43 4	123 11 15	121 39 50	120 8 49	118 38 12	117 7 58
16	115 38 6	114 8 38	112 39 32	111 10 47	109 42 24	108 14 22	106 46 41	105 19 20
17	103 52 18	102 25 35	100 59 11	99 33 5	98 7 16	96 41 45	95 16 30	93 51 31
18	92 26 47	91 2 18	89 38 4	88 14 3	86 50 15	85 26 39	84 3 16	82 40 4
19	81 17 2	79 54 11	78 31 30	77 8 57	75 46 34	74 24 18	73 2 9	71 40 8
20	70 18 12	68 56 22	67 34 38	66 12 58	64 51 22	63 29 50	62 8 21	60 46 54
21	59 25 30	58 4 7	56 42 46	55 21 25	54 0 4	52 38 43	51 17 22	49 55 59
22	48 34 35	47 13 10	45 51 42	44 30 11	43 8 38	41 47 1	40 25 21	39 3 37
23	37 41 49	36 19 57	34 58 1	33 36 0	32 13 55	30 51 45	29 29 30	28 7 11
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
29 W	31 12 23	32 42 7	34 12 5	35 42 17	37 12 43	38 43 22	40 14 14	41 45 19
30	43 16 37	44 48 9	46 19 52	47 51 49	49 23 59	50 56 21	52 28 56	54 1 44
31	55 34 44	57 7 57	58 41 23	60 15 1	61 48 53	63 22 56	64 57 13	66 31 42

day commences at *Midnight*, and the *Astronomical day* at the following *Noon*, being twelve hours later; thus the hours named 15, 18, and 21, on the 2nd January, are according to Civil reckoning, 3, 6, and 9 in the morning of the 3rd of January, and

PHASES OF THE MOON.
- First Quarter, 3rd day, at 4h. 56m. morning.
- Full Moon 9th day, at 9h. 53m. evening.
- Last Quarter, 17th day, at 9h. 47m. morning.
- New Moon, 25th day, at 9h. 40m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	no	night	15 48	2m 36	10 m54	1m23	9m47	10 a 2	4m 14	9 a 24	3 a 5	9 a 22	2 a 47	1
8	1m17	10a49	15 49	3 10	11 20	1 35	9 56	9 39	3 56	8 59	2 43	8 55	2 23	8
15	1 52	10 15	15 50	4 4	11 50	1 48	10 4	9 16	3 36	8 33	2 20	8 29	1 58	15
22	2 18	9 45	15 51	sets.	0 a 17	2 5	10 12	8 51	3 14	8 7	1 57	8 3	1 33	22
29	2 41	9 17	15 53	7 a 20	0 38	2 26	10 20	8 25	2 49	7 41	1 35	7 37	1 9	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	F	Lammas Day	2 28	17 1	2 48	16 0	6 Clock b
2	S	Battle of Nile, 1798	3 10	16 1	3 32	15 1	6 0
3	✠	7 Sun. after Trinity	3 57	14 10	4 23	13 11	5 56
4	M	[2 Samuel xxi; Acts i. — xxiv; Heb. vi.	4 52	13 7	5 29	13 1	5 51
5	Tu	Altair souths 10 a 47	6 11	12 8	6 55	12 11	5 45
6	W	Transfiguration	7 37	12 9	8 22	13 10	5 39
7	Th	Name of Jesus	8 57	13 9	9 31	15 2	5 32
8	F	G. Canning died, 1827	10 0	15 2	10 29	17 2	5 25
9	S	Dryden born, 1631	10 51	16 8	11 13	18 5	5 17
10	✠	8 Sun. after Trinity	11 34	17 8	11 55	19 3	5 8
11	M	Proper Lessons. [1 Kings xiii; Acts viii. — xvii; Heb. xiii.	— —	— —	0 15	18 2	4 59
12	Tu	Lyra souths 9 a 8	0 35	19 5	0 55	18 1	4 49
13	W	Old Lammas Day	1 16	19 0	1 34	17 7	4 39
14	Th	Printing invend., 1437	1 52	17 11	2 11	16 6	4 28
15	F	Bonaparte I. b. 1769	2 28	16 7	2 48	15 4	4 17
16	S	Bomarsund tkn., 1854	3 6	15 0	3 25	13 11	4 5
17	✠	9 Sun. after Trinity	3 44	13 2	4 7	12 4	3 53
18	M	Proper Lessons. [1 Kings xvii; Acts xv. — xix; 1 Peter ii.	4 34	11 7	5 5	11 3	3 40
19	Tu	Pleaides rises 9 a 13	5 43	10 5	6 24	10 9	3 27
20	W	R. Bloomfield d., 1823	7 5	10 2	7 46	11 1	3 13
21	Th	C. Rumford d., 1814	8 23	10 9	8 56	12 4	2 59
22	F	B. Bosworth field, 1485	9 23	12 1	9 48	13 9	2 44
23	S	Herschell died, 1822	10 10	14 7	10 30	15 4	2 29
24	✠	10 Sun. after Trinity	10 47	15 1	11 4	16 8	2 13
25	M	Pro. Less. [1 Kings xxi; Acts xxii. — xxii; 1 John i.	11 20	16 4	11 35	17 11	1 57
26	Tu	Prince Albert b. 1819	11 55	17 4	— —	— —	1 41
27	W	Thomson died, 1748	0 12	18 8	0 29	18 0	1 24
28	Th	St. Augustine, Bp.	0 47	18 11	1 4	18 1	1 7
29	F	St. John Baptist bhd.	1 25	18 7	1 43	17 8	0 49
30	S	[2 Kings v; Matthew i. — ix; Romans i.	2 4	17 9	2 24	16 10	0 31
31	✠	11 Sun. after Trinity	2 46	16 5	3 8	15 7	0 13

Clock b efore Sun.—Add to Apparent Time, or subtract from Mean Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin ° ′	age.	M. D.
1	10 19	10 38	30 1	4 13	7 57	8 45 25	18 2 25	9a17	4a25	11s56	6	1
2	10 57	11 18	28 2	4 15	7 56	8 49 18	17 47 10	9 41	5 17	16 31	7	2
3	11 41	— —	25 9	4 17	7 54	8 53 10	17 31 38	10 12	6 12	20 12	8	3
4	0 6	0 37	23 6	4 18	7 52	8 57 1	17 15 49	10 53	7 11	22 37	9	4
5	1 14	1 56	22 11	4 20	7 50	9 0 52	16 59 42	11 48	8 12	23 28	10	5
6	2 48	3 42	25 1	4 22	7 48	9 4 43	16 43 20	morn	9 14	22 36	11	6
7	4 21	4 55	27 5	4 24	7 46	9 8 32	16 26 41	1 0	10 14	20 6	12	7
8	5 26	5 58	30 7	4 25	7 44	9 12 51	16 9 47	2 23	11 12	16 14	13	8
9	6 23	6 48	31 7	4 27	7 42	9 16 10	15 52 36	rises.	morn	— —	F	9
10	7 11	7 34	33 3	4 29	7 40	9 19 58	15 35 11	7a28	0 5	11 24	15	10
11	7 56	8 16	34 1	4 31	7 38	9 23 45	15 17 31	7 44	0 56	6 1	16	11
12	8 35	8 55	33 10	4 32	7 36	9 27 32	14 59 35	8 0	1 44	0 28	17	12
13	9 12	9 28	32 11	4 34	7 34	9 31 19	14 41 26	8 17	2 30	4N57	18	13
14	9 46	10 1	31 0	4 36	7 31	9 35 4	14 23 2	8 36	3 16	9 58	19	14
15	10 18	10 33	28 10	4 38	7 29	9 38 50	14 4 24	8 56	4 1	14 23	20	15
16	10 49	11 5	25 11	4 40	7 27	9 42 34	13 45 33	9 20	4 48	18 4	21	16
17	11 25	11 49	22 9	4 41	7 25	9 46 18	13 26 29	9 52	5 35	20 51	22	17
18	— —	0 15	20 0	4 43	7 23	9 50 2	13 7 11	10 33	6 23	22 39	23	18
19	0 48	1 25	18 8	4 45	7 21	9 53 45	12 47 41	11 22	7 12	23 22	24	19
20	2 9	2 58	19 6	4 47	7 18	9 57 28	12 27 59	morn	8 2	22 57	25	20
21	3 43	4 19	22 2	4 49	7 16	10 1 11	12 8 5	0 21	8 51	21 25	26	21
22	4 47	5 13	24 9	4 50	7 14	10 4 52	11 47 59	1 27	9 39	18 49	27	22
23	5 36	5 59	27 3	4 52	7 11	10 8 34	11 27 42	2 38	10 27	15 15	28	23
24	6 18	6 37	28 6	4 54	7 9	10 12 15	11 7 14	3 53	11 14	10 53	29	24
25	6 56	7 12	30 7	4 56	7 7	10 15 55	10 46 35	sets.	0 a 0	5 55	N	25
26	7 34	7 53	32 4	4 58	7 4	10 19 36	10 25 47	6a50	0 46	0 33	1	26
27	8 10	8 27	33 8	4 59	7 2	10 23 15	10 4 48	7 6	1 34	4s55	2	27
28	8 43	9 3	33 6	5 1	7 0	10 26 55	9 43 40	7 25	2 23	10 13	3	28
29	9 19	9 39	32 9	5 3	6 57	10 30 34	9 22 22	7 48	3 14	15 2	4	29
30	9 58	10 16	31 2	5 5	6 55	10 34 12	9 0 56	8 16	4 8	19 0	5	30
31	10 34	10 56	26 8	5 7	6 53	10 37 51	8 39 21	8 54	5 6	21 49	6	31

ASPECTS AND WEATHER

Expect
☿ in ☌ 4 a 17
some
♂ in Perihel.
rainy
☾ in Perigee
☿ in Perihel.
and
showery
days.
Still
very
Reap ♄'s ring
☌ ☌ ☾, 3 a 27
changeable,
depending
☿ gr. H.L.N.
☾ in Apogee
☿ in sup. ☌ ☉
♅ ☌ ☾, 2 a 33
on the
direction
♀ ☌ ☾, 3 m 25
of the
wind,
☿ ☌ ☾, 3 m 34
♃ ☌ ☉, 5 a 33
which, if
northerly,
expect
fair.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 W	68 6 24	69 41 19	71 16 26	72 51 47	74 27 20	76 3 6	77 39 4	79 15 16
2	80 51 40	82 28 17	84 5 6	85 42 8	87 19 23	88 56 51	90 34 30	92 12 22
3	93 50 27	95 28 43	97 7 12	98 45 52	100 24 44	102 3 47	103 43 2	105 22 28
4	107 2 4	108 41 51	110 21 48	112 1 55	113 42 12	115 22 37	117 3 12	118 43 55
5	120 24 45	122 5 43	123 46 48	125 27 59	127 9 15	128 50 37	130 32 3	132 13 33
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
13 E	134 16 18	132 47 11	131 18 25	129 49 57	128 21 49	126 54 0	125 26 29	123 59 17
14	122 32 24	121 5 48	119 39 30	118 13 29	116 47 44	115 22 17	113 57 5	112 32 8
15	111 7 27	109 43 1	108 18 48	106 54 50	105 31 4	104 7 31	102 44 10	101 21 1
16	99 58 2	98 35 14	97 12 37	95 50 8	94 27 48	93 5 36	91 43 32	90 21 35
17	88 59 45	87 38 0	86 16 21	84 54 47	83 33 16	82 11 50	80 50 26	79 29 5
18	78 7 45	76 46 27	75 25 10	74 3 53	72 42 36	71 21 18	69 59 58	68 38 37
19	67 17 13	65 55 46	64 34 15	63 12 41	61 51 2	60 29 19	59 7 30	57 45 35
20	56 23 34	55 1 27	53 39 13	52 16 51	50 54 21	49 31 44	48 8 58	46 46 4
21	45 23 1	43 59 48	42 36 27	41 12 56	39 49 16	38 25 26	37 1 27	35 37 18
22	34 13 0	32 48 33	31 23 57	29 59 13	28 34 21	27 9 22	25 44 18	24 19 10
..	.. .. ..	.. .. ..	.. . ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
27 W	26 30 41	28 3 50	29 37 18	31 11 5	32 45 8	34 19 27	35 54 1	37 28 49
28	39 3 50	40 39 3	42 14 28	43 50 4	45 25 51	47 1 48	48 37 55	50 14 11
29	51 50 36	53 27 9	55 3 50	56 40 40	58 17 37	59 54 41	61 31 52	63 9 9
30	64 46 33	66 24 3	68 1 39	69 39 21	71 17 8	72 54 59	74 32 56	76 10 58
31	77 49 4	79 27 14	81 5 28	82 43 46	84 22 8	86 0 33	87 39 1	89 17 32

in any other part of the Almanack would be set down as such. The letters E. and W. inserted in the first column refer to the position of the Sun; E. East, W. West

The Planets

Mercury [☿] will be visible in the mornings about the 25th March, 24th July,

PHASES OF THE MOON.

First Quarter,	1st day, at	10h. 18m. morning.
Full Moon,	8th day, at	7h. 57m. morning.
Last Quarter,	16th day, at	4h. 22m. morning.
New Moon,	23rd day, at	8h. 57m. night.
First Quarter,	30th day, at	4h. 10m. evening.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus* rises.	♀ *Venus* sout.	♂ *Mars* rises.	♂ *Mars* sout.	♃ *Jupiter* sets.	♃ *Jupiter* sout.	♄ *Saturn* sets.	♄ *Saturn* sout.	M D.
1	2m52	9 a 6	15 54	7 a 14	0 a 45	2 m35	10m 25	8 a 13	2m 38	7 a 31	1 a 25	7 a 25	0 a 58	1
8	3 10	8 44	15 55	6 58	0 59	2 57	10 30	7 45	2 10	7 5	1 3	6 59	0 34	8
15	3 27	8 21	15 57	6 40	1 9	3 20	10 36	7 15	1 39	6 40	0 41	rises.	0 10	15
22	3 45	8 0	15 59	6 21	1 17	3 43	10 41	6 44	1 5	6 15	0 19	5m 24	11m 45	22
29	3 58	7 40	16 1	6 2	1 21	4 7	10 46	6 12	0 30	5 50	11m 57	5 2	11 21	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	M	Giles, Abbot	3 34	14 8	4 3	14 1	0 5
2	Tu	Lyra souths, 7 a 37	4 37	13 1	5 16	12 11	0 24
3	W	Cromwell died, 1658	5 59	11 11	6 48	12 9	0 43
4	Th	John Horne d., 1808	7 33	12 2	8 13	13 9	1 3
5	F	Aldebaran rises 9 a 4	8 50	13 5	9 20	15 5	1 22
6	S	Hannah More d. 1823	9 47	15 1	10 14	17 0	1 42
7	ℰ	12 Sun. after Trinity	10 37	17 5	10 56	18 4	2 3
8	M	Proper Lessons. [2 Kings x; Matt. viii. — xviii; Rom. viii.	11 13	17 7	11 33	19 1	2 23
9	Tu	Altair souths 8 a 29	11 50	18 1	— —	— —	2 44
10	W	Tea first import. 1391	0 8	19 2	0 27	18 1	3 4
11	Th	Mahomed born, 569	0 44	18 8	1 1	17 7	3 25
12	F	Day 12h. 55m. long	1 19	17 9	1 36	16 9	3 46
13	S	Battle Quebec, 1759	1 52	16 3	2 10	15 4	4 7
14	ℰ	13 Sun. after Trinity	2 27	14 7	2 46	14 1	4 28
15	M	Proper Lessons. [2 Kings xix; Matt. xv. — xxiii; Rom. xv.	3 6	13 1	3 27	12 10	4 49
16	Tu	James II died, 1701	3 52	11 7	4 21	11 6	5 10
17	W	Lambert, Bishop	4 56	10 3	5 39	10 9	5 32
18	Th	Geo. I and II landed	6 20	9 10	7 1	11 0	5 53
19	F	Battle Poictiers, 1356	7 44	10 6	8 19	12 2	6 14
20	S	Mnx.H.Flet.lost,1787	8 48	11 11	9 14	13 9	6 35
21	ℰ	14 Sun. after Trinity	9 36	13 8	9 56	15 7	6 56
22	M	Proper Lessons. [Jeremiah v; Mat. xxii. — xxii; 1 Cor. vi.	10 17	15 5	10 34	17 2	7 17
23	Tu	Arietes souths 1 m 51	10 52	16 11	11 11	18 5	7 37
24	W	Charles I. dethroned	11 27	18 1	11 44	19 3	7 58
25	Th	Porson died, 1808	— —	— —	0 1	18 9	8 18
26	F	St. Cyprian, Abp.	0 21	19 5	0 42	18 8	8 39
27	S	Jesuits founded, 1540	1 2	19 0	1 22	18 4	8 59
28	ℰ	15 Sun. aft. Trinity	1 43	17 11	2 5	17 3	9 19
29	M	Proper Lessons. [Jeremiah xxxv; Mark i. — xxxvi; 1 Cor. xiii.	2 30	16 7	2 55	15 10	9 38
30	Tu	St. Michael, 29th	3 23	14 5	3 53	14 3	9 58

Equation of Time. Clock after Sun. / Sun fast. / Apparent Time, or / Mean Time

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″	N.	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	11 22	11 52	25 7	5 9	6 50	10 41 29	8 17 38		9a44	6 a 5	23 s10	7	1	*Expect*
2	— —	0 25	22 10	5 10	6 48	10 45 6	7 55 47		10 48	7 5	22 54	8	2	♂ stationary
3	1 2	1 49	22 1	5 12	6 45	10 48 44	7 33 48		morn	8 4	21 3	9	3	☿ ☌ ♄, 9 a 8
4	2 44	3 33	24 7	5 14	6 43	10 52 21	7 11 42		0 6	9 1	17 49	10	4	*changeable,*
5	4 13	4 44	27 8	5 16	6 40	10 55 58	6 49 30		1 27	9 55	13 29	11	5	☾ ☌ Del.Capri
6	5 13	5 42	30 3	5 18	6 38	10 59 34	6 27 10		2 50	10 46	8 26	12	6	*inclined*
7	6 7	6 29	31 4	5 19	6 35	11 3 11	6 4 44		4 14	11 34	3 1	13	7	*to*
8	6 49	7 10	33 0	5 21	6 33	11 6 47	5 42 12		rises.	morn	— —	F	8	*wet,*
9	7 29	7 49	33 10	5 23	6 31	11 10 23	5 19 35		6a28	0 21	2N25	15	9	☿ ☌ ♃, 10m10
10	8 8	8 24	33 7	5 25	6 28	11 13 59	4 56 52		6 44	1 8	7 38	16	10	*and*
11	8 40	8 57	32 8	5 27	6 26	11 17 34	4 34 3		7 2	1 54	12 21	17	11	♂ ☌ ☾, 3 m 45
12	9 12	9 27	30 5	5 28	6 23	11 21 10	4 11 10		7 24	2 40	16 23	18	12	*windy*
13	9 44	9 57	28 2	5 30	6 21	11 24 45	3 48 13		7 53	3 27	19 34	19	13	♅ □ ☉, 6 a 43
14	10 14	10 30	25 10	5 32	6 18	11 28 21	3 25 11		8 30	4 16	21 48	20	14	♀ ☌ Reg.2a46
15	10 48	11 10	23 2	5 34	6 16	11 31 56	3 2 5		9 15	5 5	22 57	21	15	♅ ☌ ☾, 11a39
16	11 36	— —	20 4	5 36	6 13	11 35 32	2 38 56		10 10	5 54	23 1	22	16	*weather*
17	0 5	0 44	18 4	5 37	6 11	11 39 7	2 15 44		11 12	6 43	21 57	23	17	*about*
18	1 21	2 6	18 11	5 39	6 8	11 42 43	1 52 28		morn	7 31	19 50	24	18	*the*
19	2 58	3 39	21 8	5 41	6 6	11 46 18	1 29 10		0 21	8 19	16 44	25	19	♄ ☌ ☉, 3 m 17
20	4 11	4 38	24 10	5 43	6 3	11 49 54	1 5 50		1 34	9 6	12 45	26	20	☿ in Aphelion
21	5 1	5 22	28 0	5 45	6 1	11 53 29	0 42 29		2 49	9 52	8 4	27	21	♀ in Periheli.
22	5 46	6 5	30 8	5 46	5 58	11 57 5	0 19 5		4 6	10 39	2 52	28	22	♀ ☌ ☾, 0 a 9
23	6 25	6 46	31 7	5 48	5 56	12 0 41	s 4 19		sets.	11 26	2 s 37	N	23	☉ ent ♎, 7m28
24	7 4	7 23	33 6	5 50	5 53	12 4 17	0 27 44		5a31	0a16	8 5	1	24	[Aut. com.
25	7 42	8 2	34 7	5 52	5 51	12 7 53	0 51 9		5 51	1 7	13 12	2	25	☿ ☌ ☾, 6 a 49
26	8 22	8 42	34 6	5 54	5 48	12 11 29	1 14 35		6 19	2 2	17 35	3	26	*Equinox,*
27	9 0	9 19	33 7	5 56	5 46	12 15 5	1 38 0		6 55	3 0	20 50	4	27	☾ in Perigee
28	9 39	10 0	33 2	5 57	5 43	12 18 42	2 1 24		7 42	4 0	22 40	5	28	*or*
29	10 21	10 46	28 10	5 59	5 41	12 22 19	2 24 47		8 43	5 0	22 54	6	29	*soon*
30	11 12	11 44	25 5	6 1	5 38	12 25 56	2 48 8		9 55	5 59	21 31	7	30	*after.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ″
1w	90 56 6	92 34 43	94 13 22	95 52 3	97 30 45	99 9 30	100 48 16	102 27 3
2	104 5 50	105 44 39	107 23 27	109 2 16	110 41 4	112 19 52	113 58 39	115 37 24
3	117 16* 8	118 54 50	120 33 29	122 12 6	123 50 39	125 29 9	127 7 35	128 45 55
4	130 24 11	132 2 21	133 40 25	135 18 21	136 56 10	138 33 51	140 11 23	141 48 45
..	.. .. ..	.. .. ..	.. .. .	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
11E	141 35 19	140 9 42	138 44 19	137 19 7	135 54 9	134 29 23	133 4 51	131 40 30
12	130 16 22	128 52 26	127 28 41	126 5 8	124 41 46	123 18 36	121 55 35	120 32 45
13	119 10 4	117 47 33	116 25 11	115 2 57	113 40 51	112 18 52	110 57 1	109 35 16
14	108 13 37	106 52 3	105 30 35	104 9 10	102 47 50	101 26 33	100 5 19	98 44 7
15	97 22 57	96 1 48	94 40 39	93 19 30	91 58 21	90 37 10	89 15 58	87 54 43
16	86 33 25	85 12 4	83 50 39	82 29 9	81 7 33	79 45 52	78 24 5	77 2 11
17	75 40 9	74 17 59	72 55 41	71 33 13	70 10 36	68 47 49	67 24 51	66 1 43
18	64 38 22	63 14 50	61 51 5	60 27 7	59 2 56	57 38 32	56 13 53	54 49 0
19	53 23 52	51 58 29	50 32 51	49 6 58	47 40 49	46 14 24	44 47 43	43 20 46
20	41 53 33	40 26 4	38 58 19	37 30 18	36 2 2	34 33 31	33 4 45	31 35 45
21	30 6 32	28 37 6	27 7 30	25 37 44	24 7 51	22 37 53	21 7 54	19 37 59
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. . ..
25w	21 42 46	23 19 34	24 56 49	26 34 27	28 12 25	29 50 40	31 29 10	33 7 52
26	34 46 46	36 25 50	38 5 3	39 44 22	41 23 48	43 3 19	44 42 54	46 22 33
27	48 2 15	49 41 58	51 21 42	53 1 28	54 41 12	56 20 56	58 0 39	59 40 20
28	61 19 59	62 59 35	64 39 8	66 18 37	67 58 3	69 37 23	71 16 39	72 55 50
29	74 34 56	76 13 55	77 52 49	79 31 37	81 10 18	82 48 52	84 27 19	86 5 39
30	87 43 51	89 21 56	90 59 54	92 37 43	94 15 24	95 52 57	97 30 22	99 7 38

and 12th November; and in the evenings about the 11th February, 6th June, and 3rd October. The most favourable time for seeing this beautiful planet will be at its eastern elongation, in the middle of February, being then in the best position for

PHASES OF THE MOON.
- FULL MOON, 7th day, at 8h. 46m. night.
- LAST QUARTER, 15th day, at 11h. 42m. night.
- NEW MOON, 23rd day, at 7h. 37m. morning.
- FIRST QUARTER, 29th day, at 11h. 44m. night.

M D.	Day brek.	Twil. end.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	4 m 3	7 a 36	16 1	5 a 56	1 a 21	4 m 14	10 m 47	6 a 2	0 m 20	5 m 59	11 m 51	4 m 55	11 m 14	1
8	4 18	7 19	16 3	5 36	1 18	4 37	10 52	sets.	11 a 39	5 41	11 29	4 33	10 50	8
15	4 30	7 0	16 5	5 14	1 1	5 1	10 56	5 m 17	11 3	5 22	11 7	4 10	10 25	15
22	4 44	6 46	16 7	rises.	0 23	5 25	11 1	4 42	10 29	5 3	10 45	3 47	10 1	22
29	4 56	6 31	16 9	6 m 32	11 m 26	5 49	11 6	4 10	9 58	4 44	10 23	3 24	9 36	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	W	Cambridge T. begins	4 30	12 7	5 11	13 0	10 17
2	Th	F. Arago died, 1853	5 48	11 8	6 42	12 11	10 36
3	F	R. Barclay died, 1690	7 25	12 1	8 3	14 0	10 55
4	S	Sir J. Rennie d. 1821	8 35	13 4	9 5	15 4	11 13
5	ℰ	16 Sun. after Trinity	9 29	14 10	9 50	16 8	11 31
6	M	Proper Lessons. [Ezekiel ii; Mark viii. — xiii; 2 Cor. iv.	10 12	16 1	10 33	17 8	11 49
7	Tu	Altair souths 6 a 39	10 51	17 1	11 10	18 2	12 6
8	W	Dr. Kippis died, 1795	11 25	17 5	11 40	18 3	12 23
9	Th	St. Denys, Archbishop	11 58	17 8	— —	— —	12 39
10	F	Oxford Term begins	0 15	17 9	0 32	17 4	12 55
11	S	Old Michaelmas Day	0 49	17 0	1 6	16 7	13 11
12	ℰ	17 Sun. after Trinity	1 23	15 11	1 41	15 8	13 26
13	M	Proper Lessons. [Ezekiel xiv; Mark xv. — xviii; 2 Cor. xi.	1 59	14 7	2 18	14 6	13 40
14	Tu	Pleiades rises 5 a 32	2 37	13 2	2 58	13 3	13 54
15	W	Virgil born, B.C. 70	3 20	12 9	3 47	12 1	14 8
16	Th	Battle of Leipsic, 1813	4 17	10 8	4 55	11 3	14 21
17	F	Ethelreda, V. Q.	5 34	10 3	6 13	11 3	14 33
18	S	St. Luke Evangelist	6 52	10 10	7 29	12 2	14 45
19	ℰ	18 Sun. after Trinity	8 2	12 0	8 32	12 9	14 55
20	M	Proper Lessons. [Ezekiel xx; Luke v. — xxiv; Gala. v.	8 56	13 8	9 18	15 5	15 6
21	Tu	Battle Trafalgar, 1805	9 39	15 4	10 0	17 0	15 16
22	W	Dr. Arnold died, 1802	10 19	16 11	10 39	18 2	15 25
23	Th	R. Exch. found. 1667	10 57	18 2	11 17	19 1	15 33
24	F	Chaucer died, 1400	11 37	19 0	11 58	19 4	15 41
25	S	St. Crispin Martyr	— —	— —	0 20	19 2	15 47
26	ℰ	19 Sun. after Trinity	0 43	18 11	1 7	18 8	15 54
27	M	Pro. Less. [Daniel iii; Luke xii. — vi; Ephes. vi.	1 32	17 9	1 57	17 8	15 59
28	Tu	St. Sim. & St. Jude	2 23	16 2	2 49	16 2	16 4
29	W	Bristol Riots, 1831	3 18	14 5	3 48	14 8	16 8
30	Th	St. Marcellus	4 21	12 10	4 58	13 7	16 11
31	F	All-hallow Eve	5 29	12 1	6 19	13 4	16 14

Equation of Time. Clock after Sun. Subtract from Apparent Time, or Add to Mean Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M. D.	ASPECTS AND WEATHER
1	— —	0 19	22 6	6 3	5 36	12 29 33	3 11 28	11a14	6a56	18s44	8	1	♃ ☌ ☉, 6 m 51
2	1 0	1 45	22 7	6 5	5 33	12 33 11	3 34 46	morn	7 50	14 50	9	2	*Now*
3	2 37	3 23	24 8	6 7	5 31	12 36 49	3 58 1	0 36	8 41	10 8	10	3	☿ gr. elon. E
4	3 58	4 29	27 5	6 9	5 28	12 40 27	4 21 13	1 57	9 29	4 59	11	4	*more*
5	4 54	5 17	29 9	6 10	5 26	12 44 6	4 44 23	3 16	10 15	0N19	12	5	*changeable*
6	5 41	6 4	31 4	6 12	5 23	12 47 45	5 7 28	4 34	11 1	5 32	13	6	☌ ☍ ☉, 0 m 20
7	6 24	6 46	32 0	6 14	5 21	12 51 24	5 30 30	rises.	11 47	10 24	F	7	☌ ☌ ☾, 10 a 41
8	7 2	7 19	32 7	6 16	5 18	12 55 3	5 53 27	5 a 4	morn	— —	15	8	*weather.*
9	7 39	7 56	32 4	6 18	5 16	12 58 43	6 16 20	5 25	0 33	14 41	16	9	*Now inclined*
10	8 12	8 28	31 6	6 20	5 13	13 2 24	6 39 8	5 52	1 20	18 13	17	10	☿ gr. H. L. S.
11	8 44	9 0	30 1	6 22	5 11	13 6 5	7 1 51	6 27	2 8	20 49	18	11	*to frosty*
12	9 16	9 32	28 2	6 24	5 9	13 9 47	7 24 28	7 10	2 57	22 24	19	12	*and*
13	9 48	10 4	26 2	6 25	5 7	13 13 29	7 46 59	8 1	3 46	22 53	20	13	♅ ☌ ☾, 7 m 21
14	10 22	10 41	23 9	6 27	5 4	13 17 11	8 9 24	9 0	4 35	22 16	21	14	*fair*
15	11 4	11 30	21 4	6 29	5 2	13 20 54	8 31 42	10 6	5 23	20 35	22	15	*for*
16	— —	0 4	19 5	6 31	5 0	13 24 38	8 53 53	11 15	6 10	17 56	23	16	☿ stationary
17	0 38	1 14	19 4	6 33	4 57	13 28 22	9 15 57	morn	6 57	14 24	24	17	*some*
18	1 57	2 42	21 4	6 35	4 54	13 32 7	9 37 52	0 27	7 42	10 7	25	18	♀ ☌ ♃, 7 m 29
19	3 22	3 55	24 9	6 37	4 52	13 35 53	9 59 39	1 42	8 28	5 14	26	19	*days.*
20	4 20	4 43	27 11	6 39	4 50	13 39 39	10 21 18	3 0	9 15	0 s 3	27	20	
21	5 4	5 27	30 8	6 41	4 48	13 43 26	10 42 47	4 19	10 3	5 31	28	21	♄ ☌ ☾, 10 a 45
22	5 49	6 12	31 8	6 43	4 46	13 47 14	11 4 7	5 38	10 54	10 51	29	22	♃ ☌ ☾, 6 m 53
23	6 32	6 54	33 6	6 45	4 43	13 51 2	11 25 17	sets.	11 49	15 39	N	23	☿ ☌ ☾, 10 a 17
24	7 16	7 39	34 8	6 47	4 41	13 54 51	11 46 16	4a52	0a47	19 30	1	24	*Probably*
25	8 1	8 23	34 9	6 49	4 39	13 58 40	12 7 5	5 34	1 48	21 59	2	25	☾ in Perigee
26	8 45	9 8	33 9	6 51	4 37	14 2 31	12 27 42	6 33	2 51	22 49	3	26	*stormy*
27	9 31	9 54	31 8	6 53	4 35	14 6 22	12 48 8	7 45	3 52	21 56	4	27	☿ in Inf. ☌ ☉
28	10 16	10 41	29 1	6 55	4 32	14 10 13	13 8 22	9 4	4 51	19 31	5	28	*towards*
29	11 7	11 36	25 10	6 57	4 30	14 14 6	13 28 23	10 25	5 46	15 53	6	29	☿ in ♌, 3 a 33
30	— —	0 7	23 4	6 59	4 28	14 17 59	13 48 11	11 47	6 38	11 25	7	30	*the*
31	0 42	1 19	22 8	7 1	4 26	14 21 53	14 7 47	morn	7 27	6 26	8	31	*end.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ″ ′	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	100 44 46	102 21 45	103 58 35	105 35 16	107 11 48	108 48 11	110 24 24	112 0 28
2	113 36 23	115 12 7	116 47 42	118 23 7	119 58 22	121 33 27	123 8 21	124 43 5
3	126 17 38	127 52 0	129 26 11	131 0 11	132 33 59	134 7 35	135 41 0	137 14 12
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..	.. .. ..	.. .. ..
11E	138 41 29	137 19 32	135 57 41	134 35 56	133 14 17	131 52 44	130 31 15	129 9 51
12	127 48 32	126 27 17	125 6 6	123 44 58	122 23 53	121 2 50	119 41 50	118 20 52
13	116 59 54	115 38 58	114 18 2	112 57 5	111 36 7	110 15 8	108 54 8	107 33 5
14	106 11 59	104 50 50	103 29 37	102 8 19	100 46 55	99 25 27	98 3 52	96 42 9
15	95 20 20	93 58 22	92 36 16	91 14 1	89 51 35	88 29 0	87 6 13	85 43 15
16	84 20 5	82 56 42	81 33 5	80 9 15	78 45 10	77 20 51	75 56 16	74 31 25
17	73 6 17	71 40 52	70 15 10	68 49 10	67 22 51	65 56 13	64 29 15	63 1 58
18	61 34 21	60 6 23	58 38 4	57 9 24	55 40 23	54 10 59	52 41 14	51 11 6
19	49 40 36	48 9 43	46 38 27	45 6 49	43 34 49	42 2 25	40 29 39	38 56 31
20	37 23 1	35 49 9	34 14 56	32 40 22	31 5 28	29 30 15	27 54 43	26 18 55
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
25w	29 59 56	31 42 41	33 25 28	35 8 15	36 51 1	38 33 44	40 16 23	41 58 58
26	43 41 26	45 23 48	47 6 1	48 48 7	50 30 3	52 11 48	53 53 23	55 34 47
27	57 15 58	58 56 57	60 37 43	62 18 16	63 58 34	65 38 38	67 18 28	68 58 3
28	70 37 22	72 16 26	73 55 14	75 33 46	77 12 3	78 50 2	80 27 46	82 5 13
29	83 42 24	85 19 18	86 55 55	88 32 17	90 8 21	91 44 10	93 19 42	94 54 57
30	96 29 56	98 4 38	99 39 5	101 13 16	102 47 11	104 20 51	105 54 14	107 27 23
31	109 0 16	110 32 54	112 5 17	113 37 26	115 9 19	116 40 59	118 12 24	119 43 35

observation in the evening sky.

Venus [♀] will be an evening star to the 26th February, its greatest brilliancy will be on the 21st January; from 26th February to 10th December a morning star; then an evening star to the end of the year; its greatest brilliancy as a morning star will be on the 2nd of April.

PHASES OF THE MOON.
- FULL MOON, 6th day, at 0h. 49m. noon.
- LAST QUARTER, 14th day, at 6h. 11m. evening.
- NEW MOON, 21st day, at 6h. 15m. evening.
- FIRST QUARTER, 28th day, at 10h. 2m. morning.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5 m 2	6 a 24	16 10	5 m 59	11 m 5	6 m 0	11 m 8	8 m 57	9 a 45	4 m 36	10 m 13	3 m 14	9 m 25	1
8	5 13	6 13	16 11	5 21	10 36	6 24	11 14	3 30	9 16	4 17	9 51	2 51	9 1	8
15	5 24	6 5	16 13	5 31	10 33	6 49	11 21	3 8	8 50	3 57	9 29	2 27	8 36	15
22	5 34	5 58	16 14	6 0	10 42	7 13	11 28	2 49	8 27	3 38	9 6	2 3	8 10	22
29	5 44	5 53	16 15	6 37	10 58	7 38	11 37	2 32	8 5	3 18	8 43	1 39	7 45	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′	″
1	S	All Saints' Day	6 58	12 2	7 36	13 9	16	16
2	ℰ	20 Sun. after Trinity	8 8	13 1	8 35	14 8	16	17
3	M	*Pro.* Joel ii; Luke xviii. *Les.* Micah vi; Coloss. ii.	9 2	14 2	9 25	15 6	16	17
4	Tu	Wm. III. Ian. 1688	9 47	15 1	10 9	16 3	16	16
5	W	Gunpowder Plot	10 27	16 0	10 44	16 6	16	15
6	Th	Leonard, Confessor	11 4	16 7	11 20	16 9	16	13
7	F	1st English Paper, 1665	11 37	16 9	11 52	16 9	16	9
8	S	Cambr. Term div., N.	— —	— —	0 9	16 8	16	6
9	ℰ	21 Sun. after Trinity	0 25	16 2	0 43	16 4	16	1
10	M	*Proper Lessons.* Haba. ii; John i, Prov. i; 1 Thess. v.	0 59	15 5	1 17	15 9	15	55
11	Tu	St. Martin, Bishop	1 36	14 7	1 56	14 11	15	49
12	W	Procyon rises 9 a 29	2 15	13 8	2 33	14 1	15	41
13	Th	Britius, Bishop	2 55	12 8	3 17	13 2	15	33
14	F	Leibnitz died, 1716	3 41	11 9	4 9	12 4	15	24
15	S	Machutus, Bishop	4 42	11 3	5 19	12 2	15	14
16	ℰ	22 Sun. after Trinity	5 55	11 3	6 29	12 6	15	3
17	M	*Pro.* Prov. ii; John viii. *Les.* — iii; 1 Tim. v.	7 4	12 1	7 36	13 5	14	52
18	Tu	Capella souths 1 m 17	8 5	13 5	8 34	14 9	14	39
19	W	Regulus rises 10 a 45	8 59	14 10	9 22	16 1	14	26
20	Th	Edmund, King	9 47	16 4	10 12	17 4	14	12
21	F	Princess of Prussia b.	10 36	17 8	10 58	18 4	13	57
22	S	Cecilia, V. & M.	11 22	18 9	11 44	18 10	13	41
23	ℰ	23 Sun. after Trinity	— —	— —	0 6	19 3	13	24
24	M	*Proper Lessons* Prov. xi; John xv. — xii; Titus ii, iii.	0 30	18 8	0 56	19 2	13	7
25	Tu	Michaelmas Term ends	1 23	18 0	1 49	18 5	12	49
26	W	Procyon rises 8 a 30	2 16	16 7	2 44	17 2	12	30
27	Th	Aldebaran sou. 12 a 0	3 9	15 1	3 35	15 8	12	10
28	F	Wolsey died, 1530	4 2	13 8	4 33	14 6	11	50
29	S	*Proper Lessons.* Isaiah i; Acts i. — ii; Heb. vi.	5 6	12 9	5 41	13 7	11	29
30	ℰ	Advent Sunday	6 15	12 3	6 50	13 4	11	7

Equation of Time. Clock after Sun.—Subtract from Apparent Time, or Add to Mean Time.

Bristol Tides.				SUN.							MOON.				M	ASPECTS AND WEATHER.
morn.		even.		height.		rises.	sets.	rt ascen.		declin.	S.	sets.	souths	declin.		age.	D.	
H.	M.	H.	M.	F.	I.	H	M	H.	M.	S.	° ′	″	H. M.	H. M.	° ′			
2	5	2	51	24	2	7	3	4	24	14 25 48	14	27 8	1 m 6	8a13	1s14	9	1	☿ ☌ ♀, 0 m 53
3	29	3	58	26	4	7	5	4	22	14 29 44	14	46 16	2 22	8 58	3N55	10	2	*Rain*
4	26	4	50	28	0	7	7	4	20	14 33 40	15	5 9	3 37	9 43	8 48	11	3	☿ in Periheli.
5	14	5	38	29	3	7	9	4	18	14 37 37	15	23 47	4 51	10 28	13 13	12	4	*or*
5	58	6	17	29	10	7	11	4	16	14 41 35	15	42 10	6 2	11 15	16 59	13	5	☿ stationary
6	39	6	56	30	2	7	13	4	14	14 45 34	16	0 18	rises.	morn	— —	F	6	*snow*
7	16	7	33	30	4	7	15	4	12	14 49 34	16	18 9	4a27	0 2	19 54	15	7	♂ stationary
7	50	8	5	29	11	7	16	4	11	14 53 34	16	35 44	5 6	0 51	21 50	16	8	*more*
8	22	8	37	29	2	7	18	4	9	14 57 35	16	53 3	5 54	1 40	22 42	17	9	♅ ☌ ☾, 1 a 12
8	53	9	11	28	0	7	20	4	7	15 1 37	17	10 4	6 51	2 29	22 29	18	10	*or less*
9	30	9	45	26	8	7	22	4	5	15 5 41	17	26 47	7 53	3 18	21 11	19	11	*may*
10	0	10	19	25	3	7	24	4	3	15 9 44	17	43 13	9 0	4 5	18 53	20	12	☿ gr. elon. W.
10	38	10	59	23	5	7	26	4	2	15 13 49	17	59 20	10 10	4 50	15 44	21	13	☿ gr. H.L.N.
11	24	11	52	21	8	7	28	4	0	15 17 55	18	15 8	11 21	5 35	11 49	22	14	*be expected,*
—	—	0	25	21	0	7	30	3	59	15 22 1	18	30 37	morn	6 20	7 18	23	15	*and*
0	57	1	30	21	8	7	32	3	57	15 26 9	18	45 47	0 35	7 5	2 20	24	16	*followed*
2	13	2	51	24	1	7	34	3	56	15 30 17	19	0 37	1 51	7 51	2s56	25	17	*by*
3	26	3	57	26	10	7	36	3	54	15 34 26	19	15 6	3 11	8 39	8 14	26	18	♄ ☌ ☾, 2 m 9
4	23	4	47	29	6	7	38	3	53	15 38 36	19	29 14	4 35	9 31	13 16	27	19	♃ ☌ ☾, 2 m 53
5	14	5	42	31	6	7	40	3	51	15 42 47	19	43 2	6 1	10 28	17 38	28	20	☿ ☌ ☾, 3 a 33
6	8	6	33	32	5	7	42	3	50	15 46 58	19	56 28	sets.	11 28	20 52	N	21	♀ ☌ ☾, 11 m 16
6	59	7	23	33	11	7	43	3	49	15 51 11	20	9 31	4a16	0a32	22 34	1	22	☾ in Perigee
7	47	8	11	34	5	7	45	3	47	15 55 24	20	22 13	5 25	1 36	22 27	2	23	*intervals*
8	36	9	0	34	2	7	47	3	46	15 59 38	20	34 32	6 43	2 39	20 36	3	24	*of*
9	24	9	49	32	7	7	49	3	45	16 3 52	20	46 28	8 8	3 38	17 17	4	25	*fair and*
10	13	10	34	30	6	7	51	3	44	16 8 8	20	58 1	9 32	4 33	12 56	5	26	*frosty*
10	56	11	20	27	8	7	52	3	43	16 12 24	21	9 10	10 54	5 23	7 58	6	27	*weather.*
11	47	—	—	24	2	7	54	3	42	16 16 41	21	19 55	morn	6 11	2 45	7	28	*Now*
0	15	0	45	23	3	7	56	3	41	16 20 58	21	30 16	0 12	6 57	2N27	8	29	*more*
1	16	1	54	23	2	7	57	3	40	16 25 16	21	40 12	1 28	7 42	7 25	9	30	*showery.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1w	121 14 32	122 45 15	124 15 45	125 46 1	127 16 4	128 45 54	130 15 30	131 44 54
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
10e	136 43 33	135 22 39	134 1 46	132 40 51	131 19 55	129 58 59	128 38 0	127 16 58
11	125 55 54	124 34 47	123 13 37	121 52 22	120 31 2	119 9 38	117 48 8	116 26 32
12	115 4 50	113 43 0	112 21 3	110 58 58	109 36 44	108 14 21	106 51 48	105 29 5
13	104 6 11	102 43 6	101 19 48	99 56 18	98 32 35	97 8 37	95 44 26	94 19 59
14	92 55 17	91 30 19	90 5 5	88 39 33	87 13 43	85 47 35	84 21 8	82 54 21
15	81 27 15	79 59 48	78 32 0	77 3 50	75 35 19	74 6 25	72 37 8	71 7 27
16	69 37 23	68 6 54	66 36 1	65 4 43	63 33 0	62 0 51	60 28 16	58 55 15
17	57 21 47	55 47 53	54 13 33	52 38 46	51 3 32	49 27 51	47 51 43	46 15 8
18	44 38 7	43 0 39	41 22 44	39 44 24	38 5 38	36 26 26	34 46 49	33 6 48
19	31 26 23	29 45 34	28 4 23	26 22 50	24 40 56	22 58 41	21 16 8	19 33 17
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
23w	24 31 33	26 17 2	28 2 24	29 47 36	31 32 37	33 17 26	35 2 2	36 46 24
24	38 30 32	40 14 23	41 57 58	43 41 15	45 24 15	47 6 55	48 49 16	50 31 18
25	52 12 58	53 54 18	55 35 16	57 15 53	58 56 7	60 35 59	62 15 28	63 54 35
26	65 33 18	67 11 39	68 49 35	70 27 9	72 4 20	73 41 7	75 17 31	76 53 31
27	78 29 9	80 4 24	81 39 15	83 13 45	84 47 52	86 21 36	87 54 59	89 28 1
28	91 0 41	92 33 0	94 4 58	95 36 36	97 7 53	98 38 51	100 9 30	101 39 50
29	103 9 51	104 39 34	106 8 59	107 38 7	109 6 57	110 35 31	112 3 49	113 31 51
30	114 59 37	116 27 8	117 54 25	119 21 27	120 48 15	122 14 49	123 41 11	125 7 19

Mars [♂] will be a morning star until the 12th October, then an evening star to the end of the year. At its opposition in October this planet will appear to advantage, and will be known by its firey red colour.

Jupiter [♃] will be a morning star until its opposition on the 13th March, then an evening star to the 1st October, and from thence to the end of the year a morning star.

PHASES OF THE MOON.
- FULL MOON, 6th day, at 7h. 37m. morning.
- LAST QUARTER, 14th day, at 10h. 33m. morning.
- NEW MOON, 21st day, at 5h. 4m. morning.
- FIRST QUARTER, 27th day, at 11h. 44m. night.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5m48	5 a 50	16 16	6m49	11m1	7m44	11m40	2m28	7 a 59	3m12	8m37	1m32	7m38	1
8	5 53	5 50	16 17	7 28	11 18	8 5	11 50	2 14	7 39	2 51	8 14	1 7	7 12	8
15	6 1	5 51	16 17	8 3	11 37	sets.	0 a 0	2 2	7 21	2 30	7 50	0 42	6 46	15
22	6 4	5 53	16 18	sets.	11 58	3 a 45	0 9	1 53	7 4	2 8	7 27	0 17	6 20	22
29	6 6	5 58	16 18	3 a 46	0 a 20	3 58	0 22	1 44	6 48	1 46	7 3	11a47	5 53	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	M	Regulus rises 10 a 1	7 22	12 7	7 56	13 6	10 45
2	Tu	Mariners' Comp. inv.	8 26	13 0	8 55	13 11	10 22
3	W	James II. abdi. 1688	9 20	13 11	9 44	14 5	9 59
4	Th	♅ souths 0 m 22	10 3	14 7	10 25	14 11	9 35
5	F	Bible translated, 1611	10 43	15 4	11 0	15 3	9 10
6	S	Nicholas, Bishop	11 19	15 10	11 37	15 6	8 45
7	ℰ	**2 Sunday in Advent**	11 53	16 3	— —	— —	8 19
8	M	*Proper Lessons.* [Isaiah v; Acts vii, v 30. — xxiv; Heb. xiii.	0 11	15 7	0 28	16 3	7 53
9	Tu	Castor souths 2 m 3	0 46	15 5	1 4	16 1	7 26
10	W	Pleiades souths 10a21	1 21	15 1	1 39	15 10	6 59
11	Th	Chas. XII. died, 1718	1 56	14 9	2 15	15 6	6 32
12	F	Cromwell Protec. 1653	2 35	14 2	2 56	14 8	6 4
13	S	Lucy, V. & M.	3 17	13 5	3 38	14 1	5 35
14	ℰ	**3 Sunday in Advent**	4 3	12 10	4 29	13 5	5 7
15	M	*Proper Lessons.* [Isaiah xxv; Acts. xiv. — xxvi; 1 Peter ii.	4 57	12 6	5 31	13 2	4 38
16	Tu	O Sapientia	6 5	12 4	6 39	13 1	4 9
17	W	**Ember Week**	7 6	12 11	7 50	13 10	3 39
18	Th	♅ souths 11 a 20	8 22	14 1	8 51	14 9	3 9
19	F	Dr. S. Johnson d. 1784	9 20	15 6	9 49	16 1	2 40
20	S	Day decrea. 9h. 50m.	10 17	17 1	10 44	17 3	2 10
21	ℰ	**4 Sunday in Advent**	11 9	18 5	11 36	18 2	1 40
22	M	[Isaiah xxx; Acts xxi. — xxxii; 1 John i.	11 59	19 5	— —	— —	1 10
23	Tu	Rigel souths 10 a 59	0 24	18 7	0 49	19 7	0 40
24	W	Pleaides souths 9 a 26	1 13	18 3	1 38	19 2	0 10
25	Th	**Christmas Day**	2 2	17 5	2 27	18 2	0 20
26	F	**St. Stephen**	2 52	16 3	3 16	16 10	0 50
27	S	**St. John**	3 38	14 11	3 59	15 4	1 20
28	ℰ	**1 Sun. after Christ.**	4 23	13 7	4 50	13 10	1 49
29	M	*Proper Lessons.* [Isaiah xxxvii; Acts xxv. — xxxviii; 1 John v.	5 22	12 6	5 55	12 8	2 19
30	Tu	Sirius souths 0 m 2	6 30	11 10	7 5	12 0	2 48
31	W	Silvester, Bishop	7 38	11 9	8 15	12 1	3 17

Equation of Time. Clock before Mean Time. Clock after Mean Time. Apparent Time. Add to Mean Time.

D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	☽ age D.	M D.	ASPECTS AND WEATHER.
1	2 34	3 15	24 4	7 59	3 39	16 29 35	21 49 44	2m41	8a27	11N57	10	1	♂ ☌ ☾, 6 m 30
2	3 48	4 19	25 6	8 0	3 39	16 33 55	21 58 50	3 52	9 12	15 53	11	2	*Expect*
3	4 45	5 10	26 9	8 2	3 38	16 38 15	22 7 31	5 2	9 59	19 3	12	3	*some*
4	5 30	5 54	27 6	8 3	3 37	16 42 35	22 15 46	6 10	10 47	21 18	13	4	*stormy*
5	6 15	6 34	27 10	8 5	3 37	16 46 57	22 23 36	7 15	11 36	22 31	14	5	☾ eclip., vis.
6	6 55	7 15	28 4	8 6	3 36	16 51 18	22 30 59	rises.	morn	— —	F	6	♅ ☌ ☾, 5 a 34
7	7 32	7 52	28 9	8 7	3 36	16 55 41	22 37 56	4a43	0 25	22 40	16	7	☾ in Apogee
8	8 9	8 26	28 10	8 8	3 35	17 0 3	22 44 26	5 45	1 13	21 43	17	8	*weather*
9	8 44	8 59	28 6	8 10	3 35	17 4 27	22 50 29	6 49	2 1	19 44	18	9	♃ in Aphelion
10	9 15	9 30	27 11	8 11	3 35	17 8 50	22 56 6	7 57	2 47	16 52	19	10	☿ in Sup. ☌ ☉
11	9 48	10 5	27 9	8 12	3 35	17 13 14	23 1 15	9 8	3 32	13 13	20	11	*with*
12	10 23	10 41	26 4	8 13	3 34	17 17 39	23 5 57	10 20	4 16	8 58	21	12	*frequent*
13	10 59	11 21	25 1	8 14	3 34	17 22 4	23 10 11	11 33	5 0	4 15	22	13	*showers,*
14	11 44	— —	23 10	8 15	3 34	17 26 29	23 13 58	morn	5 44	0s46	23	14	*inclined*
15	0 8	0 38	22 9	8 16	3 34	17 30 54	23 17 16	0 48	6 29	5 54	24	15	♄ ☌ ☾, 2 a 53
16	1 7	1 40	23 0	8 17	3 35	17 35 20	23 20 7	2 7	7 18	10 55	25	16	♃ ☌ ☾, 8 a 49
17	2 25	3 6	25 2	8 18	3 35	17 39 46	23 22 30	3 30	8 10	15 31	26	17	☿ in Aphelion
18	3 44	4 15	27 6	8 19	3 35	17 44 12	23 24 24	4 53	9 7	19 18	27	18	*to more*
19	4 45	5 15	30 0	8 20	3 35	17 48 39	23 25 51	6 13	10 8	21 51	28	19	*rain*
20	5 46	6 16	31 1	8 20	3 35	17 53 5	23 26 49	7 29	11 12	22 44	29	20	☉ eclip., inv.
21	6 44	7 13	32 11	8 21	3 36	17 57 32	23 27 19	sets.	0a17	21 48	N	21	☿ ☌ ☾, 3 m 20
22	7 38	8 5	34 5	8 21	3 36	18 1 58	23 27 20	5a35	1 20	19 8	1	22	☉ enters Cap.
23	8 29	8 52	34 6	8 22	3 37	18 6 25	23 26 53	7 4	2 19	15 7	2	23	[Win. com.
24	9 16	9 37	33 9	8 22	3 37	18 10 52	23 25 58	8 30	3 14	10 12	3	24	*or*
25	10 0	10 22	32 2	8 22	3 38	18 15 18	23 24 35	9 53	4 5	4 52	4	25	*snow.*
26	10 42	11 1	29 11	8 23	3 38	18 19 45	23 22 43	11 13	4 53	0N32	5	26	*Now*
27	11 19	11 40	27 1	8 23	3 39	18 24 11	23 20 23	morn	5 39	5 44	6	27	♄ □ ☉, 4 m 8
28	— —	0 3	24 5	8 23	3 40	18 28 37	23 17 35	0 29	6 24	10 30	7	28	*more*
29	0 31	0 59	22 1	8 23	3 41	18 33 3	23 14 19	1 43	7 10	14 40	8	29	♂ ☌ ☾, 7 m 59
30	1 32	2 9	21 5	8 23	3 42	18 37 29	23 10 35	2 55	7 56	18 6	9	30	☿ ☌ ♀, 7 a 0
31	2 50	3 34	22 4	8 23	3 43	18 41 54	23 6 24	4 3	8 44	20 39	10	31	*fair.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 W	126 33 15	127 58 59	129 24 32	130 49 53	132 15 2	133 40 1	135 4 50	136 29 29
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..	.. .. ..	.. .. ..	.. .. ..
10 W	134 37 37	133 15 27	131 53 10	130 30 47	129 8 16	127 45 38	126 22 51	124 59 56
11	123 36 51	122 13 37	120 50 13	119 26 39	118 2 53	116 38 57	115 14 48	113 50 27
12	112 25 53	111 1 6	109 36 4	108 10 49	106 45 18	105 19 32	103 53 30	102 27 11
13	101 0 36	99 33 43	98 6 32	96 39 2	95 11 14	93 43 5	92 14 37	90 45 48
14	89 16 39	87 47 8	86 17 14	84 46 59	83 16 21	81 45 19	80 13 54	78 42 4
15	77 9 51	75 37 12	74 4 9	72 30 40	70 56 46	69 22 25	67 47 39	66 12 26
16	64 36 47	63 0 41	61 24 8	59 47 9	58 9 44	56 31 51	54 53 32	53 14 46
17	51 35 35	49 55 57	48 15 53	46 35 24	44 54 30	43 13 11	41 31 28	39 49 21
18	38 6 51	36 23 59	34 40 45	32 57 9	31 13 14	29 28 59	27 44 26	25 59 36
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
23 E	32 28 27	34 11 52	35 54 55	37 37 37	39 19 55	41 1 50	42 43 20	44 24 27
24	46 5 8	47 45 23	49 25 13	51 4 37	52 43 34	54 22 5	56 0 8	57 37 46
25	59 14 56	60 51 39	62 27 55	64 3 44	65 39 7	67 14 3	68 48 32	70 22 35
26	71 56 12	73 29 24	75 2 9	76 34 30	78 6 25	79 37 56	81 9 3	82 39 46
27	84 10 6	85 40 3	87 9 37	88 38 50	90 7 41	91 36 10	93 4 20	94 32 9
28	95 59 38	97 26 49	98 53 41	100 20 14	101 46 31	103 12 30	104 38 13	106 3 40
29	107 28 52	108 53 48	110 18 30	111 42 59	113 7 14	114 31 16	115 55 6	117 18 43
30	118 42 10	120 5 25	121 28 31	122 51 26	124 14 11	125 36 48	126 59 16	128 21 36
31	129 43 48	131 5 52	132 27 50	133 49 41	135 11 25	136 33 4	137 54 38	139 16 6

SATURN [♄] will be also a morning star until its opposition on the 10th March; then an evening star to the 19th September; then a morning star to the end of the year.

URANUS [♅] will be best observed in the evenings of January to April in the Constellation Pisces; and in the mornings from July to the close of the year.

NEPTUNE—This newly discovered Planet will be best observed when near its opposition on the 26th September, its Right Ascension at Noon on that day will be 0h. 11m. 16sec., and Declination 0° 21′ 57″ South.

M D.	JANUARY. Noon	JANUARY. Midn.	FEBRUARY. Noon	FEBRUARY. Midn.	MARCH. Noon.	MARCH. Midn.	APRIL. Noon.	APRIL. Midn.	MAY. Noon.	MAY. Midn.	JUNE. Noon.	JUNE. Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	16 12	16 7	15 28	15 23	15 19	15 15	14 51	14 49	14 44	14 44	14 56	14 59	1
2	16 0	15 53	15 17	15 12	15 11	15 6	14 47	14 46	14 45	14 47	15 3	15 8	2
3	15 46	15 39	15 7	15 2	15 3	14 59	14 46	14 46	14 49	14 51	15 13	15 18	3
4	15 32	15 25	14 58	14 55	14 56	14 53	14 46	14 47	14 54	14 58	15 24	15 30	4
5	15 19	15 12	14 52	14 50	14 51	14 49	14 49	14 52	15 2	15 7	15 37	15 44	5
6	15 7	15 2	14 49	14 48	14 48	14 48	14 55	14 59	15 12	15 18	15 51	15 58	6
7	14 58	14 54	14 48	14 49	14 48	14 49	15 3	15 8	15 25	15 32	16 6	16 13	7
8	14 51	14 49	14 50	14 53	14 51	14 53	15 14	15 20	15 39	15 47	16 20	16 26	8
9	14 48	14 47	14 56	14 59	14 56	15 0	15 27	15 34	15 55	16 3	16 32	16 36	9
10	14 47	14 47	15 3	15 7	15 4	15 9	15 42	15 50	16 11	16 18	16 40	16 43	10
11	14 49	14 50	15 12	15 17	15 15	15 21	15 57	16 5	16 25	16 31	16 44	16 44	11
12	14 53	14 55	15 22	15 28	15 27	15 34	16 12	16 18	16 36	16 40	16 43	16 40	12
13	14 58	15 2	15 33	15 39	15 40	15 47	16 24	16 29	16 43	16 45	16 36	16 31	13
14	15 6	15 10	15 44	15 48	15 54	16 0	16 33	16 36	16 45	16 44	16 25	16 18	14
15	15 13	15 18	15 53	15 57	16 6	16 11	16 38	16 38	16 41	16 38	16 11	16 3	15
16	15 22	15 26	16 1	16 4	16 15	16 19	16 37	16 35	16 33	16 27	15 56	15 48	16
17	15 30	15 34	16 6	16 8	16 22	16 24	16 33	16 29	16 21	16 14	15 40	15 33	17
18	15 38	15 42	16 10	16 11	16 25	16 25	16 24	16 19	16 7	15 59	15 25	15 19	18
19	15 45	15 49	16 11	16 11	16 24	16 23	16 13	16 7	15 52	15 44	15 13	15 7	19
20	15 52	15 55	16 11	16 10	16 21	16 18	16 1	15 55	15 37	15 30	15 2	14 58	20
21	15 59	16 1	16 10	16 8	16 15	16 11	15 48	15 42	15 24	15 18	14 54	14 51	21
22	16 4	16 7	16 7	16 5	16 7	16 3	15 36	15 31	15 12	15 7	14 49	14 47	22
23	16 9	16 11	16 3	16 1	15 59	15 54	15 25	15 20	15 3	14 59	14 45	14 44	23
24	16 12	16 14	15 58	15 55	15 50	15 45	15 16	15 11	14 55	14 52	14 44	14 44	24
25	16 15	16 15	15 52	15 49	15 41	15 37	15 7	15 3	14 50	14 48	14 45	14 46	25
26	16 15	16 14	15 45	15 41	15 33	15 28	15 0	14 57	14 46	14 45	14 47	14 49	26
27	16 13	16 11	15 37	15 33	15 24	15 20	14 54	14 52	14 44	14 43	14 51	14 53	27
28	16 8	16 5	15 29	15 24	15 16	15 13	14 50	14 48	14 43	14 43	14 55	14 58	28
29	16 1	15 56	.. ..	.. ..	15 9	15 5	14 46	14 45	14 44	14 45	15 1	15 5	29
30	15 51	15 46	.. ..	.. ..	15 2	14 59	14 44	14 44	14 46	14 48	15 9	15 13	30
31	15 40	15 34	.. ..	.. ..	14 56	14 53	.. ..	.. ..	14 50	14 53	.. ..	.. ..	31

M D.	JULY. Noon.	JULY. Midn.	AUGUST. Noon.	AUGUST. Midn.	SEPT. Noon.	SEPT. Midn.	OCTOBER. Noon.	OCTOBER. Midn.	NOVEMBER Noon	NOVEMBER Midn.	DECEMBER. Noon.	DECEMBER. Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	15 17	15 22	15 52	15 56	16 11	16 11	16 4	16 1	15 34	15 29	15 9	15 5	1
2	15 27	15 32	16 0	16 4	16 11	16 11	15 58	15 55	15 25	15 21	15 1	14 58	2
3	15 37	15 43	16 8	16 11	16 11	16 10	15 51	15 48	15 17	15 13	14 55	14 52	3
4	15 49	15 55	16 15	16 17	16 9	16 7	15 44	15 40	15 9	15 6	14 50	14 48	4
5	16 1	16 7	16 20	16 22	16 5	16 2	15 36	15 32	15 2	14 59	14 47	14 45	5
6	16 12	16 18	16 23	16 23	15 58	15 55	15 28	15 24	14 56	14 54	14 44	14 44	6
7	16 23	16 27	16 23	16 21	15 51	15 46	15 20	15 16	14 51	14 49	14 44	14 44	7
8	16 31	16 34	16 19	16 16	15 41	15 36	15 12	15 8	14 48	14 46	14 44	14 45	8
9	16 35	16 36	16 13	16 8	15 31	15 26	15 4	15 0	14 45	14 45	14 46	14 48	9
10	16 36	16 34	16 3	15 58	15 21	15 15	14 57	14 54	14 45	14 46	14 51	14 53	10
11	16 31	16 27	15 52	15 45	15 11	15 6	14 52	14 50	14 47	14 48	14 57	15 1	11
12	16 22	16 17	15 39	15 32	15 2	14 58	14 48	14 47	14 51	14 54	15 5	15 10	12
13	16 10	16 4	15 26	15 20	14 55	14 52	14 47	14 47	14 57	15 2	15 16	15 22	13
14	15 56	15 49	15 14	15 9	14 50	14 49	14 48	14 50	15 7	15 12	15 28	15 35	14
15	15 42	15 34	15 4	15 0	14 48	14 49	14 52	14 55	15 18	15 25	15 43	15 51	15
16	15 27	15 20	14 56	14 53	14 49	14 51	14 59	15 4	15 32	15 40	15 58	16 6	16
17	15 14	15 9	14 51	14 49	14 53	14 56	15 9	15 14	15 48	15 56	16 14	16 21	17
18	15 3	14 59	14 48	14 48	15 59	15 3	15 20	15 27	16 3	16 11	16 28	16 34	18
19	14 55	14 52	14 48	14 50	15 8	15 13	15 34	15 41	16 18	16 25	16 39	16 43	19
20	14 50	14 48	14 51	14 54	15 18	15 24	15 48	15 55	16 30	16 35	16 45	16 46	20
21	14 47	14 46	14 57	15 0	15 20	15 36	16 2	16 8	16 39	16 41	16 46	16 44	21
22	14 46	14 47	15 4	15 8	15 42	15 47	16 14	16 19	16 42	16 42	16 41	16 37	22
23	14 48	14 50	15 12	15 16	15 53	15 58	16 23	16 27	16 40	16 37	16 32	16 25	23
24	14 52	14 54	15 21	15 26	16 2	16 6	16 29	16 30	16 34	16 29	16 19	16 11	24
25	14 57	15 0	15 30	15 35	16 9	16 12	16 30	16 29	16 23	16 17	16 3	15 55	25
26	15 3	15 7	15 39	15 43	16 14	16 15	16 28	16 25	16 10	16 3	15 47	15 40	26
27	15 10	15 14	15 47	15 51	16 16	16 16	16 22	16 18	15 57	15 50	15 32	15 25	27
28	15 18	15 22	15 54	15 58	16 16	16 15	16 14	16 9	15 43	15 36	15 19	15 13	28
29	15 26	15 30	16 0	16 3	16 13	16 11	16 4	15 59	15 30	15 24	15 8	15 3	29
30	15 35	15 39	16 5	16 7	16 9	16 6	15 54	15 49	15 19	15 14	14 59	14 55	30
31	15 43	15 47	16 8	16 10	.. ..	.. ..	15 44	15 39	.. ..	.. ..	14 52	14 49	31

JANUARY.		FEBRUARY		MARCH		APRIL.		MAY.		JUNE.		M
Noon.	Midn.	Noon.	Midn.	Noon	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	D.
′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	—
59 23	59 1	56 42	56 20	56 9	55 53	54 24	54 17	53 59	54 0	54 43	54 55	1
58 37	58 12	56 0	55 40	55 37	55 21	54 11	54 7	54 3	54 9	55 10	55 26	2
57 46	57 20	55 22	55 6	55 7	54 53	54 5	54 5	54 16	54 25	55 44	56 4	3
56 54	56 29	54 51	54 39	54 42	54 31	54 7	54 12	54 36	54 49	56 25	56 48	4
56 5	55 43	54 29	54 21	54 23	54 17	54 18	54 27	55 5	55 23	57 12	57 38	5
55 23	55 5	54 16	54 14	54 13	54 12	54 39	54 53	55 43	56 5	58 4	58 31	6
54 49	54 36	54 14	54 17	54 13	54 17	55 9	55 28	56 29	56 55	58 58	59 24	7
54 26	54 18	54 23	54 31	54 23	54 32	55 49	56 12	57 22	57 50	59 49	60 12	8
54 12	54 9	54 41	54 54	54 43	54 57	56 37	57 4	58 19	58 48	60 33	60 50	9
54 9	54 11	55 8	55 24	55 13	55 32	57 31	57 59	59 16	59 43	61 4	61 14	10
54 16	54 22	55 42	56 0	55 52	56 14	58 27	58 54	60 8	60 31	61 19	61 18	11
54 30	54 40	56 20	56 39	56 37	57 1	59 20	59 44	60 50	61 5	61 13	61 4	12
54 51	55 4	56 59	57 19	57 26	57 50	60 5	60 25	61 16	61 21	60 49	60 31	13
55 18	55 32	57 37	57 55	58 14	58 37	60 38	60 49	61 22	61 18	60 9	59 45	14
55 47	56 2	58 11	58 26	58 58	59 17	60 55	60 57	61 9	60 55	59 18	58 50	15
56 17	56 33	58 39	58 51	59 33	59 47	60 54	60 47	60 38	60 17	58 21	57 52	16
56 48	57 2	59 0	59 7	59 57	60 4	60 37	60 22	59 54	59 28	57 24	56 56	17
57 17	57 31	59 13	59 17	60 8	60 9	60 6	59 46	59 1	58 34	56 31	56 6	18
57 44	57 57	59 19	59 19	60 6	60 1	59 25	59 3	58 6	57 39	55 44	55 24	19
58 9	58 21	59 18	59 16	59 53	59 43	58 40	58 17	57 13	56 48	55 6	54 50	20
58 32	58 42	59 13	59 8	59 31	59 18	57 55	57 32	56 24	56 2	54 36	54 25	21
58 52	59 1	59 3	58 56	59 3	58 48	57 11	56 50	55 42	55 24	54 16	54 9	22
59 10	59 17	58 49	58 40	58 32	58 16	56 30	56 12	55 7	54 53	54 4	54 1	23
59 23	59 28	58 31	58 21	58 0	57 44	55 55	55 39	54 40	54 29	53 59	54 0	24
59 31	59 32	58 9	57 57	57 28	57 12	55 24	55 10	54 20	54 12	54 1	54 5	25
59 32	59 29	57 44	57 29	56 57	56 41	54 58	54 46	54 6	54 1	54 10	54 16	26
59 24	59 16	57 14	56 59	56 26	56 12	54 36	54 27	53 58	53 56	54 23	54 31	27
59 6	58 54	56 43	56 26	55 57	55 43	54 19	54 13	53 56	53 57	54 41	54 51	28
58 40	58 23	.. ..	.. ..	55 30	55 17	54 7	54 3	53 59	54 3	55 3	55 16	29
58 5	57 45	.. ..	.. ..	55 5	54 53	54 0	53 59	54 8	54 14	55 29	55 44	30
57 24	57 3	.. ..	.. ..	54 42	54 33	.. ..	.. ..	54 22	54 32	.. ..	.. ..	31

JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER		DECEMBER		M
Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	D.
′ ″	′ ″	″ ′	′ ″	′ ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	—
56 0	56 17	58 6	58 22	59 16	59 18	58 52	58 41	57 2	56 45	55 32	55 16	1
56 35	56 54	58 37	58 51	59 19	59 19	58 30	58 18	56 29	56 13	55 3	54 50	2
57 14	57 35	59 5	59 19	59 17	59 14	58 6	57 53	55 58	55 44	54 39	54 30	3
57 56	58 18	59 30	59 41	59 9	59 2	57 39	57 25	55 31	55 18	54 21	54 14	4
58 40	59 2	59 50	59 56	58 54	58 44	57 11	56 56	55 6	54 54	54 9	54 4	5
59 22	59 43	60 0	60 2	58 32	58 18	56 41	56 26	54 44	54 34	54 1	53 58	6
60 1	60 17	60 0	59 56	58 3	57 46	56 11	55 56	54 26	54 18	53 58	53 58	7
60 30	60 40	59 48	59 38	57 29	57 10	55 41	55 26	54 12	54 7	54 0	54 3	8
60 47	60 49	59 24	59 8	56 51	56 32	55 12	54 59	54 4	54 2	54 8	54 15	9
60 47	60 41	58 49	58 28	56 13	55 54	54 47	54 36	54 2	54 4	54 23	54 33	10
60 31	60 17	58 6	57 43	55 36	55 20	54 27	54 20	54 8	54 15	54 45	55 0	11
60 0	59 39	57 20	56 56	55 4	54 51	54 14	54 11	54 23	54 34	55 16	55 34	12
59 16	58 51	56 33	56 10	54 39	54 29	54 10	54 11	54 48	55 3	55 55	56 17	13
58 24	57 57	55 49	55 29	54 22	54 17	54 14	54 21	55 22	55 42	56 41	57 7	14
57 30	57 3	55 12	54 56	54 15	54 15	54 29	54 41	56 5	56 29	57 35	58 3	15
56 37	56 12	54 43	54 32	54 18	54 24	54 54	55 11	56 56	57 24	58 32	59 0	16
55 50	55 29	54 23	54 18	54 32	54 42	55 29	55 50	57 52	58 21	59 28	59 55	17
55 10	54 54	54 14	54 14	54 55	55 10	56 13	56 37	58 50	59 18	60 20	60 41	18
54 40	54 28	54 15	54 19	55 27	55 45	57 2	57 28	59 44	60 8	61 0	61 14	19
54 19	54 13	54 26	54 34	56 5	56 26	57 54	58 19	60 29	60 46	61 23	61 27	20
54 9	54 7	54 45	54 57	56 47	57 9	58 44	59 7	60 59	61 8	61 26	61 20	21
54 7	54 9	55 11	55 26	57 30	57 51	59 29	59 47	61 12	61 11	61 9	60 53	22
54 14	54 20	55 41	55 58	58 10	58 29	60 3	60 15	61 5	60 54	60 33	60 11	23
54 27	54 36	56 15	56 32	58 45	59 0	60 23	60 28	60 40	60 22	59 45	59 18	24
54 46	54 57	56 49	57 5	59 12	59 21	60 28	60 25	60 2	59 39	58 49	58 20	25
55 10	55 22	57 21	57 37	59 29	59 33	60 19	60 10	59 15	58 50	57 51	57 23	26
55 36	55 50	57 51	58 5	59 36	59 36	59 58	59 43	58 25	57 59	56 56	56 31	27
56 4	56 19	58 17	58 28	59 34	59 31	59 27	59 10	57 35	57 11	56 7	55 45	28
56 34	56 49	58 38	58 47	59 25	59 19	58 52	58 33	56 48	56 27	55 25	55 8	29
57 4	57 20	58 55	59 2	59 11	59 2	58 15	57 56	56 7	55 49	54 52	54 39	30
57 35	57 51	59 8	59 13	.. ..	.. ..	57 37	57 19	.. ..	.. ..	54 28	54 18	31

Mean Refraction.

App Alt.	Refr.	App Alt.	Refr	App. Alt	Refr	App. Alt.	Refr	App. Alt.	Refr
° ′	′ ″	° ′	′ ″	° ′	″ ″	° ′	′ ″	° ′	′ ″
0 0	33 0	5 0	9 54	10 0	5 15	20 0	2 35	34 0	1 24
0 5	32 10	5 5	9 46	10 10	5 10	20 10	2 34	34 30	1 23
0 10	31 22	5 10	9 38	10 20	5 5	20 20	2 32	35 0	1 21
0 15	30 35	5 15	9 30	10 30	5 0	20 30	2 31	35 30	1 20
0 20	29 50	5 20	9 23	10 40	4 56	20 40	2 29	36 0	1 18
0 25	29 6	5 25	9 15	10 50	4 51	20 50	2 28	36 30	1 17
0 30	28 23	5 30	9 8	11 0	4 47	21 0	2 27	37 0	1 16
0 35	27 41	5 35	9 1	11 10	4 43	21 10	2 26	37 30	1 14
0 40	27 0	5 40	8 54	11 20	4 39	21 20	2 25	38 0	1 13
0 45	26 20	5 45	8 47	11 30	4 34	21 30	2 24	38 30	1 11
0 50	25 42	5 50	8 41	11 40	4 31	21 40	2 23	39 0	1 10
0 55	25 5	5 55	8 34	11 50	4 27	21 50	2 21	39 30	1 9
1 0	24 29	6 0	8 28	12 0	4 23	22 0	2 20	40 0	1 8
1 5	23 54	6 5	8 21	12 10	4 20	22 10	2 19	41 0	1 5
1 10	23 20	6 10	8 15	12 20	4 16	22 20	2 18	42 0	1 3
1 15	22 47	6 15	8 9	12 30	4 13	22 30	2 17	43 0	1 1
1 20	22 15	6 20	8 3	12 40	4 9	22 40	2 16	44 0	0 59
1 25	21 44	6 25	7 57	12 50	4 6	22 50	2 15	45 0	0 57
1 30	21 15	6 30	7 51	13 0	4 3	23 0	2 14	46 0	0 55
1 35	20 46	6 35	7 45	13 10	4 0	23 10	2 13	47 0	0 53
1 40	20 18	6 40	7 40	13 20	3 57	23 20	2 12	48 0	0 51
1 45	19 51	6 45	7 35	13 30	3 54	23 30	2 11	49 0	0 49
1 50	19 25	6 50	7 30	13 40	3 51	23 40	2 10	50 0	0 48
1 55	19 0	6 55	7 25	13 50	3 48	23 50	2 9	51 0	0 46
2 0	18 35	7 0	7 20	14 0	3 45	24 0	2 8	52 0	0 44
2 5	18 11	7 5	7 15	14 10	3 43	24 10	2 7	53 0	0 43
2 10	17 48	7 10	7 11	14 20	3 40	24 20	2 6	54 0	0 41
2 15	17 26	7 15	7 6	14 30	3 38	24 30	2 5	55 0	0 40
2 20	17 4	7 20	7 2	14 40	3 35	24 40	2 4	56 0	0 38
2 25	16 44	7 25	6 57	14 50	3 33	24 50	2 3	57 0	0 37
2 30	16 24	7 30	6 53	15 0	3 30	25 0	2 2	58 0	0 35
2 35	16 4	7 35	6 49	15 10	3 28	25 10	2 1	59 0	0 34
2 40	15 45	7 40	6 45	15 20	3 26	25 20	2 0	60 0	0 33
2 45	15 27	7 45	6 41	15 30	3 24	25 30	1 59	61 0	0 32
2 50	15 9	7 50	6 37	15 40	3 21	25 40	1 58	62 0	0 30
2 55	14 52	7 55	6 33	15 50	3 19	25 50	1 57	63 0	0 29
3 0	14 36	8 0	6 29	16 0	3 17	26 0	1 56	64 0	0 28
3 5	14 20	8 5	6 25	16 10	3 15	26 10	1 55	65 0	0 26
3 10	14 4	8 10	6 22	16 20	3 12	26 20	1 55	66 0	0 25
3 15	13 49	8 15	6 18	16 30	3 10	26 30	1 54	67 0	0 24
3 20	13 34	8 20	6 15	16 40	3 8	26 40	1 53	68 0	0 23
3 25	13 20	8 25	6 11	16 50	3 6	26 50	1 52	69 0	0 22
3 30	13 6	8 30	6 8	17 0	3 4	27 0	1 51	70 0	0 21
3 35	12 53	8 35	6 5	17 10	3 3	27 15	1 50	71 0	0 19
3 40	12 40	8 40	6 1	17 20	3 1	27 30	1 49	72 0	0 18
3 45	12 27	8 45	5 58	17 30	2 59	27 45	1 48	73 0	0 17
3 50	12 15	8 50	5 55	17 40	2 57	28 0	1 47	74 0	0 16
3 55	12 3	8 55	5 52	17 50	2 55	28 15	1 46	75 0	0 15
4 0	11 51	9 0	5 48	18 0	2 54	28 30	1 45	76 0	0 14
4 5	11 40	9 5	5 45	18 10	2 52	28 45	1 44	77 0	0 13
4 10	11 29	9 10	5 42	18 20	2 51	29 0	1 42	78 0	0 12
4 15	11 18	9 15	5 39	18 30	2 49	29 30	1 40	79 0	0 11
4 20	11 8	9 20	5 36	18 40	2 47	30 0	1 38	80 0	0 10
4 25	10 58	9 25	5 34	18 50	2 46	30 30	1 37	81 0	0 9
4 30	10 48	9 30	5 31	19 0	2 44	31 0	1 35	82 0	0 8
4 35	10 39	9 35	5 28	19 10	2 43	31 30	1 33	83 0	0 7
4 40	10 29	9 40	5 25	19 20	2 41	32 0	1 31	84 0	0 6
4 45	10 20	0 45	5 23	19 30	2 40	32 30	1 30	86 0	0 4
4 50	10 11	9 50	5 20	19 40	2 38	33 0	1 28	88 0	0 2
4 55	10 2	9 55	5 18	19 50	2 37	33 30	1 26	90 0	0 0

Dip of The Horizon.

Height of the Eye.	Dip of the Horizon.	Height of the Eye.	Dip of the Horizon.
ft.	′ ″	ft.	′ ″
1	0 59	19	4 17
2	1 24	20	4 24
3	1 42	21	4 31
4	1 58	22	4 37
5	2 12	23	4 43
6	2 25	24	4 49
7	2 36	25	4 55
8	2 47	26	5 1
9	2 57	27	5 7
10	3 7	28	5 13
11	3 16	29	5 18
12	3 25	30	5 24
13	3 33	31	5 29
14	3 41	32	5 34
15	3 49	33	5 39
16	3 56	34	5 44
17	4 4	35	5 49
18	4 11	38	6 4

Dip at Different Distances.

Miles.	Height of the Eye in Feet.					
	5	10	15	20	25	30
	′	′	′	′	′	′
¼	11	23	34	45	57	68
½	6	12	17	23	28	34
¾	4	8	12	15	19	23
1	3	6	9	12	15	17
1¼	3	5	7	10	12	14
1½	3	4	6	8	10	12
2	2	4	5	7	8	10
2½	2	3	4	6	7	8
3	2	3	4	5	6	7
3½	2	3	4	5	6	6
4	2	3	4	5	5	6
5	2	3	4	4	5	6
6	2	3	4	4	5	5

Table Of Corrections

To be applied to the Rising and Setting of the Sun, Moon, and Planets, when viewed from elevations above the sea level—Subtract from Rising, add to Setting.

ft	s.	ft.	m.s.	ft.	m.s.
5	16	50	0 51	120	1 [illegible]
10	23	60	0 56	140	1 [illegible]
15	28	70	1 1	160	1 [illegible]
20	30	80	1 5	180	1 [illegible]
30	38	90	1 8	200	1 [illegible]
40	46	100	1 10	300	2

ight Ascensions, and Declinations, and Semi-diurnal Arcs,

FOR LATITUDE 54° 10′,

Of the Principal Fixed Stars

NAMES.	Magnitude.	Right Ascension. H. M. S.	Annual Variations ″	Declination. ° ′ ″	Annual Variations ″	Semi-diurnal Arcs. H. M.
Andromedæ	2	0 1 15	+ 3·08	N 28 19 42	+19·90	9 19
Pegasi (Algenib)	3·2	0 6 8	+ 3·08	14 24 58	+20·03	7 27
Cassiopeæ	Var.	0 32 42	+ 3·36	55 46 48	+19·81	sets not
Ceti	2	0 36 39	+ 3·01	S 18 44 41	+19·82	4 12
Ursæ Minor.(Polaris)	2	1 8 40	+18·84	N 88 34 26	+19·18	sets not
Eripani (Achernar)..	1	1 32 34	+ 2·24	S 57 56 19	+18·43	rises not
Arietes.	2	1 59 24	+ 3·36	N 22 48 29	+17·25	8 27
Ceti	2·3	2 55 4	+ 3·13	3 32 45	+14·38	6 23
Persei	2	3 14 29	+ 4·24	49 21 59	+13·22	sets not
Tauri	3	3 39 17	+ 3·55	23 40 31	+11·50	8 34
Tauri (Aldebaran) ..	1	4 28 0	+ 3·43	16 13 43	+ 7·67	7 39
Aurigæ (Capella)....	1	5 6 30	+ 4·42	45 51 11	+ 4·22	sets not
Orionis (Rigel).. . .	1	5 7 54	+ 2·88	S 8 21 51	+ 4·50	5 17
Tauri	2	5 17 34	+ 3·79	N 28 29 13	+ 3·50	9 21
Orionis	2	5 24 57	+ 3·06	S 0 24 17	+ 3·02	6 1
Leporis	3	5 26 39	+ 2·64	17 55 25	+ 2·92	4 10
Orionis	2	5 29 13	+ 3·04	1 17 36	+ 2·68	5 57
Columbæ	2	5 34 39	+ 2·18	34 8 58	+ 2·22	sets not
Orionis	Var.	5 47 42	+ 3·25	N 7 22 40	+ 1·08	6 45
Argus (Canopus) .. .	1	6 20 53	+ 1·33	S 52 37 17	− 1·82	rises not
Canis Majoris (Sirius)	1	6 39 4	+ 2·64	16 31 47	− 4·62	4 27
Geminorum (Castor)	2·1	7 25 47	+ 3·84	N 32 11 14	− 7·40	10 13
Canis Minoris (Proc.)	1	7 32 4	+ 3·14	5 34 33	− 8·87	6 35
Geminorum (Pollux)	1·2	7 36 52	+ 3·68	28 21 22	− 8·28	9 20
Hydræ.....	2	9 20 48	+ 2·95	S 8 3 44	−15·37	6 49
Leonis (Regulus)....	1·2	10 1 1	+ 3·20	N 12 38 25	−17·40	7 17
Ursæ Majoris.....	2	10 55 11	+ 3·77	62 29 42	−19·34	sets not
Leonis	2·3	11 6 46	+ 3·20	21 16 45	−19·66	8 16
Leonis....	2	11 42 1	+ 3·06	15 20 36	−20·09	7 34
Ursæ Majoris.....	2·3	11 46 33	+ 3·19	54 27 43	−20·02	sets not
Crucis	1	12 18 56	+ 3·26	S 62 19 59	−19·94	rises not
Corvi	2·3	12 27 8	+ 3·13	22 38 0	−19·98	3 44
Virginis(Spica).. ...	2	13 17 56	+ 3·15	10 26 24	−18·95	5 5
Centauri	1	13 54 7	+ 4·15	59 42 18	−17·69	rises not
Bootis (Arcturus)....	1	14 9 22	+ 2·73	N 19 54 9	−18·93	8 5
Centauri.....	1	14 30 16	+ 4·03	S 60 15 39	−15·06	rises not
Bootis	2·3	14 38 58	+ 2·62	N 27 39 28	−15·42	9 13
Libræ	2·3	14 43 15	+ 3·30	S 15 27 58	−15·24	4 34
Ursæ Minoris.....	2	14 51 9	− 0·26	N 74 43 9	−14·75	sets not
Libræ	2	15 9 35	+ 3·22	S 8 52 17	−13·60	5 14
Coronæ Borealis	2	15 28 51	+ 2·54	N 27 10 52	−12·36	9 8
Serpentis	2·3	15 37 28	+ 2·95	6 51 44	−11·63	6 42
Scorpii (Antares)....	1·2	16 20 57	+ 3·67	S 26 7 20	− 8·44	3 15
Trianguli Australis ..	2	16 34 5	+ 6·27	68 46 5	− 7·44	rises not
Herculis	Var.	17 8 21	+ 2·73	N 14 33 1	− 4·44	7 29
Draconis.....	3·2	17 27 19	+ 1·35	52 24 17	− 2·85	sets not
Lyræ (Vega)	1	18 32 16	+ 2·03	38 39 26	+ 3·10	sets not
Lyræ	Var.	18 44 59	+ 2·21	33 12 16	+ 3·88	10 31
Aquilæ..... ...	3	19 39 42	+ 2·85	10 16 46	+ 8·45	7 2
Aquilæ (Altair).....	1·2	19 44 3	+ 2·93	8 30 24	+ 9·17	6 51
Aquilæ	4	19 48 32	+ 2·94	6 3 53	+ 8·66	6 37
Pavonis	2	20 14 43	+ 4·80	S 57 10 22	+11·08	rises not
Cygni	2·1	20 36 44	+ 2·04	N 44 47 20	+12·66	sets not
Cephei....	3·	21 15 17	+ 1·44	62 0 5	+15·10	sets not
Aquarii	3	21 24 17	+ 3·16	S 6 10 35	+15·60	5 29
Cephei....	3	21 26 52	+ 0·80	N 69 57 19	+15·70	sets not
Aquarii	3	21 58 42	+ 3·08	S 0 59 20	+17·29	5 58
Gruis	2	21 59 31	+ 3·82	47 37 37	+17·16	rises not
Piscium Australis....	1·2	22 50 1	+ 3·33	30 21 10	+19·95	2 29
Pegasi (Markab)	2	22 57 53	+ 2·98	N 14 27 49	+19·30	7 27

General Tide Table,

By which the times of High Water may be CORRECTLY FOUND *on* ANY *Day.*

N.B.—ADD to the time of High Water in the Table in this Almanack, the Hours and Minutes in the Column opposite the Place required.

ENGLAND	H.	M.
Alderney Pier.	7	35
Alne River	3	35
Barnstaple Bar .. .	6	20
Berwick	3	8
Blakeney	7	40
Blythe	3	35
Boston..	8	5
Bridgewater	7	35
Bridlington..	5	20
Bridport	6	50
Carlisle	0	50
Chatham	1	44
Christchurch . ..	9	40
Dartmouth..	6	55
Exmouth Bar . ..	7	15
Falmouth	6	20
Flamboro' Head ..	5	20
Flatholm	7	18
Fowey	6	20
Gravesend	2	20
Guernsey (Eng.Chan)	7	20
Hartlepool	4	35
Hull	6	50
Humber River	6	20
Ilfracombe	6	20
Ipswich	0	50
Jersey (En. Ch.) ..	7	0
Land's End	5	20
London Bridge	2	57
Longships	5	20
Lyme Regis	7	20
Needles Point .. .	10	35
Newcastle	4	50
Penzance	5	20
Plymouth Dock.. ..	6	20
Poole	9	50
Portsmouth Dock ..	0	30
Ramsgate	0	36
Robin Hood's Bay ..	4	35
Scarborough	5	15
Scilly Islands	5	0
Sheerness	1	29
Shields	3	50
Southampton	0	30
Spithead	10	20
St. Ives	5	20
Sunderland	3	50
Tees River	4	20
Torbay..	6	50
Tynemouth Bar ..	3	40
Weymouth..	7	20
Whitby	4	35
Wisbeach	8	20
Yarmouth Roads ..	9	30
Yarmouth, IsleWight	10	20

WALES.	H.	M.
Aberdovey	8	20
Aberystwith	8	20
Barmouth	8	45
Bardsey Island	9	5
Burrey Harbour.. ..	6	50
Cardiff	6	50
Cardigan Bar	7	50
Caermarthen Bar ..	7	0
Carnarvon Bar . ..	9	50
Denbigh	3	5
Fisgard Bay	7	20
Milford Haven.. ..	6	35
Newport	7	35
Pembroke	6	54
Skerries	10	35
Smalls and Swansea..	6	40
Strumble Head	7	5

IRELAND.		
Arklow	10	5
Baltimore	4	35
Bantry Bay	4	36
Broadhaven .. .	6	50
Cork Harbour	5	20
Crookhaven	4	20
Donaghadee.	10	5
Donegal Bar	5	55
Downing Bay	6	10
Dungarvon..	5	20
Foyn's Island	4	50
Galway Bay	5	20
Kinsale..	5	20
Limerick	6	50
Lough Swilly	8	20
Londonderry . ..	6	50
Malbay	4	50
Newry	0	50
Port Rush	6	35
Saltees..	6	30
Shannon	4	35
Skerries	5	35
Sligo Bay	5	35
Tory Island..	6	50
Tralee Bay..	4	35
Valentia Harbour ..	4	20
Waterford	6	40
Wexford	8	20
Wicklow	9	50
Youghal	5	50

SCOTLAND.		
Aberdeen	2	2
Banff	0	20
Buchanness	0	50
Burnt Island	3	20
Cromarty	0	3[illegible]
Dee (River)	1	3[illegible]
Dunbar	2	5[illegible]
Dundee	3	[illegible]
Eyemouth	3	[illegible]
Leith Pier	3	1[illegible]
Montrose	2	3[illegible]
Tay Bar	2	5[illegible]
Wick	10	[illegible]

SHETLANDS.		
Balta	3	5[illegible]
Brassa Sound	10	5[illegible]
Lerwick Harbour ..	10	3[illegible]
Westra	0	5[illegible]

ORKNEYS.		
Cairston	9	5[illegible]
Fair Isle	10	5[illegible]
Pomona	3	5[illegible]
Ronaldsha	10	3[illegible]

FOREIGN PORTS.		
Amsterdam	3	5[illegible]
Antwerp	6	5[illegible]
Bahia, Brazil	5	[illegible]
Bilboa, Spain	4	[illegible]
Biscay, Spain	5	2[illegible]
Bonny River, Africa..	5	5[illegible]
Bordeaux	3	5[illegible]
Bremen, Germany ..	6	5[illegible]
Brest, France . ..	4	3[illegible]
Cadiz, Spain . ..	3	2[illegible]
Calabar, Africa .	5	5[illegible]
Calcutta	3	5[illegible]
Carthagena, S. Amer	2	5[illegible]
Charleston Bar, U.S.	7	5[illegible]
Charante, France ..	4	5[illegible]
Cape Coast, Africa..	4	2[illegible]
Cape Good Hopetown	3	1[illegible]
Fort St. John, N.A..	9	5[illegible]
Funchal, Madeira ..	1	5[illegible]
Hamburg	6	5[illegible]
Rio Janeiro, Brazil..	3	3[illegible]
St. John's, N.Foundl.	8	4[illegible]
Lisbon	4	5[illegible]
L'Orient, France .	4	2[illegible]
New York E. River..	9	4[illegible]
Oporto, Portugal ..	4	5[illegible]
Panama, S. A.	3	5[illegible]
Pernambuca, S. A ..	8	5[illegible]
Philadelphia, U. S..	3	5[illegible]
Quebec, Canada ..	7	3[illegible]
Rotterdam . ..	3	5[illegible]
Santa Cruz, S.A. ..	9	3[illegible]
Whampoa, China ..	3	2[illegible]

The Tides at the following places are nearly the same as the Tide-Table:—

Ardglass,	Chester	Dublin	Hastings	Mull of Galloway	St. Helen
Arran Island	Conway	Dumfries	Kingstown	Newhaven	Strangford
Bangor	Cowes	Dundalk	Killough	Pargate	Stromness
Balbriggan	Copeland Island	Dundrum	Kirkcudbright	Preston	Troon
Belfast	Deal	Folkstone	Lancaster	Pentland Frith	Warren's Point
Beaumaris	Dover	Glasgow	Liverpool	Ramsgate	Ulverston, and
Carlingford	Downs	Greenock	Maryport	Rothsay	Whitehaven.
Carrickfergus	Drogheda	Harwich	Margate	Roseness	

ISLE OF MAN INFORMATION.

Manx Legislature

The Hon. Francis Pigott, Lieut.-Governor
Sec. to his Excellency.... James Burman

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Thomas Arthur Corlett.... Vicar General
James Burman ..... Clerk of Council

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John M. Jeffcott ..... Castletown
Ridgway Harrison..... Douglas
William Harrison ..... German
W. F. Moore .. .. Cronkbourne
William Haslam ..... Ballaglass
William Farrant ..... Ballamoore
J. S. Goldie Taubman..... Nunnery
Edward Faulder..... Ellerslie

Committee of the Legislature

FOR REGULATING ALL MATTERS RELATIVE TO HIGHWAYS, BRIDGES, &c.

W. Callister, E. C. Farrant, F. Matthews, Ridgway Harrison, and J. M. Jeffcott.

Surveyor-General, R. Anderson, Douglas

Constituted Authorities

HIGH BAILIFFS.

Senhouse Wilson ..... Douglas
James Gell..... Castletown
Frederick Tellett..... ..... Ramsey
Robert J. Moore ..... Peel

Coroner-General for holding Inquests of Death.... W. W. Christian, Andreas
Registrar of Deeds .. S. Wilson, Douglas
Registrar General of Births and Marriages ...James Burman, Castletown
Deputy Registrars do.—R. Harrison, Douglas; James Gell, Castletown; Robert J. Moore, Peel; F. Tellett, Ramsey
Episcopal Registrar, Rev. J.B. Kelly, M.A.
Deputy Episc. Registrar ..... — Teare
Archdeacon's Registrar.. R. H. L. Brown
Archdeacon's Official ..... T. A. Corlett
Seneschal ..... L. Adamson, Douglas
Crown Solicitor .. A. W. Adams, Douglas
Visiting Magistrate for Gaol of Castle Rushen ..... James Gell, Castletown
Regulator of Weights and Measures .. F. L. Gelling, Castletown
Agent for Woods and Forests ...F. C. Skrimshire, Douglas
Tithe Agent.....S. Harris, Douglas
Southern Deemster's Clerk, R. Harrison
Northern Deem. do., ...F. B. Clucas

Magistrates

The Members of the Council....
The High Bailiff of Castletown..
The High Bailiff of Douglas ....
The High Bailiff of Ramsey ....
The High Bailiff of Peel ..... } For the time being.

Thomas Moore ..... Ballown
Mark H. Quayle, C.R. ..... Castletown
Wm. Watson Christian ..... Ballacurry
James Campbell ..... New Zealand
Samuel Pollock .....Strathallan House
Evan Gell ..... Whitehouse
Richard Quirk .... Rheaby
Cesar Bacon ....Seafield
William Callister..... Thornhill
Ewan Cameron..... Ballatessen
Clarence Horatio Cary ....Beach House
John Frissell Crellin ....Orrisdale
Edward Moore Gawne.... ...Kentraugh
Alexander Taubman Goldie . ..Douglas
John Berkely Harrison ....Douglas
Richard Simpson .....The Cliff
J. G. Bennett.. ..... Williston
P. T. Cunninghame .....Ballanorris
William Farrant ....Ballamoar
John Gell..... .....Kennaa
William Haslam .. . .Ballaglass
F. Matthews ....Glenmoore
W. F. Moore .....Cronkbourne
G. H. Newton ....Westham
J. S. Goldie Taubman.....Nunnery
Samuel Harris.....Marathon

CLERKS—James Spittall.....Douglas
Henry C. Gill....Castletown
F. J. D. Lamothe..Ramsey
John Kelly .....Peel

Members of Manx Bar

* Members of the House of Keys.

William Corlett..... . ...Ballamona
Thomas Arthur Corlett .....Ramsey
Frederick Tellett, H.B.....Ramsey
Frederick L. Gelling .. ..Castletown
James Quirk ....Douglas

William W. Christian ..... Andreas
William Clague ..... Peel
Mark H. Quayle, C.R..... Castletown
George Wm. Dumbell ..... Douglas
* Frederick J. D. Lamothe .. . . Ramsey
Henry B. Watts ..... Douglas
J. C. Stephen, Deemster ..... Ramsey
Frederick B. Clucas ..... Ramsey
John D. Gelling ..... Castletown
Edward H. Frizelle ..... Peel
Senhouse Wilson, H.B. ..... Douglas
Robert J. Kelly ..... Ramsey
* Robert J. Moore, H.B .. .. Peel
Thomas C. Howard..... New Zealand
*John M. Jeffcott ..... Castletown
Laurence Craigie ..... Douglas
Edward C. Fleetwood ..... Douglas
*Ridgway Harrison ..... Douglas
Samuel Harris ..... Douglas
Edward Callow ..... Manchester
Charles J. Stewart ..... Lancashire
Chas. R. Ogden..... Liverpool
John Kelly ..... Peel
Thomas C. Callow ..... Douglas
James Gell, H.B..... Castletown
Daniel F. Wilson ..... Ramsey
J. G. M'Hutchin ..... Australia
James Spittall ..... Douglas
Alfred Walter Adams ..... Douglas
Frederick Call ..... Australia
James Burman ..... Castletown
A. N. Laughton ..... Douglas
Thomas A. Corlett, jun. ..... Ramsey
Laurence W. Adamson ..... Douglas
Henry C. Gill ..... Castletown
J. C. Tobin Harrison ..... Douglas
Richard Tuton ..... Peel
John Thomas Clucas ..... Castletown
Arthur Bluett ..... Douglas
Richard Sherwood ..... Douglas
Alured Dumbell ..... Douglas
Henry Evans Gelling..... Castletown
Henry T. Lamothe..... Ramsey

Notaries Public

DOUGLAS.—John Moore, Henry B. Watts, J.C.T. Harrison, Senhouse Wilson, James Spittall, Ridgway Harrison, T. C. Callow, A. N. Laughton

CASTLETOWN.—Frederick L. Gelling, H. C. Gill.

RAMSEY.—Fred. B. Clucas, Robt. J. Kelly, D. F. Wilson

PEEL.—J. Kelly, R. Tuton

Commissioner

To take Affidavits for Courts of Queen's Bench, Exchequer, and Common Pleas, Ireland—R. J. Kelly, Ramsey

Coroners

Glenfaba ..... W. Quayle
Michael ..... John Stephen
Garff..... J. Kerruish
Ayre ..... J. Christian
Middle ..... William Clifford
Rushen ..... J. Cosnahan

Sumners

Sumner-General ..... S. Harris
Kirk Maughold ..... John Bridson
—— Lonan ..... Jas. Cannon
—— Onchan ..... John Moore
—— Braddan ..... John Moore
—— Marown ..... T. Christian
—— Santon..... Wm. Corlett
—— Malew ..... Wm. Corlett
—— Arbory ..... Robert Shimmin
—— Christ Rushen..... John Hodsun
—— Patrick ..... P. Clucas
—— German ..... Robert Kewin
—— Michael ..... Edward Cannell
—— Andreas ..... Matthias Curphey
—— Bride ..... John Kneale
Ballaugh ..... John Stephen
Jurby ..... J. Moughtin
Lezayre ..... John Cain

Chief Constables

John Sayle ..... Douglas
James Martin ..... Castletown
Claude Bennett ..... Ramsey
Matthias Collister ..... Peel

Officers of Customs

PORT DOUGLAS.

Collector ..... R. T. D'Ousely
Collector's First Clerk .... N. W. Walker
Collector's 2nd Clerk and Assistant Landing-waiter ..... } G. A. M'Cammon
Searcher, Landing-waiter & Coast-wtr. } John Smith.
Tide Surveyor ..... R. J, Weaver
Locker and Weigher .. Terence Carroll
Tide Waiters and Boatmen.. Wm. Kirkbride, J. Quine, R. Quine, John Kelly R. Gelling, and G. Wainman.

PORT RAMSEY.

Collector ..... A. Macdonald
Landing-waiter, Searcher, Coast-waiter, and Tide Surveyor .. } G. A. Adams
Tide Waiters and Boatmen.. Thos. Corlett, S. Farrington, and J. Quayle

DERBYHAVEN.

Principal Coast Officer .... R. Q. Crellin
Tide Waiters and Boatmen, W. Archer, J Watterson, W. Bell, and Jas. Lawson

PEEL.

Principal Coast Officer .. Leslie Lockhart
Tide Waiters and Boatmen .. J. Cowley and J. J. Corlett

Customs Brokers

H. Johnson .... Market Place, Douglas
W. Berey ..... North Quay, Douglas

Vice Consuls

Danish ..... W. F. Moore
Swedish and Norwegian .. H. B. Noble

Harbour Masters

Douglas..... { .... John Clague
Deputy, Robert Gelling
Ramsey .... Charles Teare
Castletown . ..... J. Caveen
Peel .... R. Kerruish
Port St. Mary ..... Thomas Qualtrough

Commissioners of Harbours

R. Quirk, Receiver General

R. S. D'Ousely
James Gell
R. J. T. Quayle
Henry Graves
John Smith
James Corlett
Robert J. Moore
William Callister
William F. Moore

Douglas Town Commissioners.

R. Sherwood, G. Torrance, W. Cannell, J. Mylrea, R. Gell, J. Kelly, N. S. Moore, W. Gell, T. Kewley.

C. Craine, Clerk to Commissioners.

Receiver of Droits of Admiralty

R. D'Ousely. .... Douglas

Agents for Lloyd's

Southern District, William Berey, Douglas
Also for the Underwriters of Glasgow and Liverpool
Northern District .. Hugh Brown, Ramsey

Bankers

Bank of Mona, Douglas—(Draw on Prescott, Grote, & Co., London) — J. S. Jackson, Manager
Douglas and Isle of Man Bank—(Draw on Glynn, Mills, & Co., London)—Dumbell, Son, & Howard.
Bank for Savings, Thomas-st, Douglas —J. Spittall, Secretary

Law Courts

COMMON LAW.—*Castletown*, Feb. 11.—May 6—July 1—October 7—*Ramsey*, Feb. 18—May 13—July 8—October 14.

CHANCERY AND EXCHEQUER.—At Castle Rushen, on the first THURSDAY in each month; the months of Jan., August, and Sept. excepted; besides which, SPECIAL COURTS are held as occasion may require.

ADMIRALTY, OR WATER-BAILIFF'S.—At Castletown, weekly.

DEEMSTERS' SUMMARY.—At Castle-Rushen, Douglas, Ramsey, and Peel, every fortnight.

VICAR'S GENERAL.—At Douglas, Castletown, Peel, and Ramsey once monthly.

CHAPTER.—Half-yearly, in Spring and Autumn.

HIGH BAILIFFS'.—At Castletown, Douglas, Peel, and Ramsey, weekly.

BARON.—Held in April and October.

MAGISTRATES'.—Fortnightly.

Isle of Man Post-Office

Atholl Street, Douglas.... Miss Macadam

SUB-POST-OFFICES & RECEIVING HOUSES.

Duke Street, Douglas ..... Mrs. Carran
Pillar Letter Box, Osborne Terrace, Douglas
Shore Road, Douglas..... J. Clague
Crescent, Douglas ..... Geo. M. Jones
Ballaughton, near Douglas.... J. Aspell
Ballasalla ..... H. Caugherty
CASTLETOWN .... George Duck
Wall Box, the Green, Castletown..
Port St. Mary ..... Miss Harley
Union Mills .... W. Dalrymple
Crosby ..... R. Kelly
St. John's ..... Mary Quayle
PEEL..... John Morrison
Onchan ..... J. Lewin
Laxey ..... J. Kinley
RAMSEY .... John Hampton
Wall Box, Sandy Road, Ramsey ..
Kirk Andreas..... ..Fred. Radcliffe
Sulby ..... W. H. Ward
Ballaugh ..... J. C. Bishop
Michael..... .....J. Cannan
Jurby ....A. Joughin
St. Mark's..... ..... . P. Mylrea
Foxdale ..... E. Buzzo
Glenmay .... W. Quayle
Maughold ..... D. Kinrade
Bride .... R. Pass
Colby .... H. Moore
Port Erin ..... H. McComb

LIVERPOOL INFORMATION.

Pilot Boat Stations.

NOTICE.—From the Liverpool Pilot Boats is shown a single Light at the Mast Head.

The boat having the turn to board displays a red and white Flag at the masthead by day; by night, a white light, and exhibits a flare-up light every 15 minutes; the other boats a white light only.

The TWO western boats cruise off Point Lynas, and as far to the westward as the Middle Mouse, and to the eastward until Priestholm Island bears S.S.W.

The THIRD western boat cruises from Point Lynas to S.S.W. off west end of Great Ormshead, to board any vessels that may pass the first and second boats.

The FOURTH western boat cruises from eastern limit of third boat's station, and eastward to N.N.E. from west end of Bar Land.

The FIFTH, or first Hoylake boat cruises to the westward so as to keep sight of the Northwest Light-Ship from the deck.

The SIXTH, or second Hoylake boat, to board vessels after they pass the line of the Northwest Lightship and Point of Air, when the first boat is not within a reasonable distance, and after high water to take pilots from vessels outward bound.

Rates of Pilotage

For British Vessels trading Foreign.

INWARD. PER FOOT.

	s.	d.
From the length of the west end of the Great Ormshead, bearing S. by W., or before Penman Bachan be shut in with the Great Ormshead, at the rate of	9	0
From the eastward of the Great Ormshead, as above	8	0
From the only house now on Great Hilbre Island, bearing S.S.W. by the compass, or shall be piloted from the road of Hoylake only, or from the Buoy of the Fairway in Formby Channel	4	0

OUTWARD.

	s.	d.
Whether through the Rock or Formby Channel	4	0

No British vessel, trading to Foreign Parts, inward or outward bound, is to refuse a Pilot; but if such vessel has passed the Brazil Buoy in the Rock Channel, or the Middle Patch Buoy in Formby Channel, or if a Pilot-boat falls in with a vessel in the narrows of the Channels in stormy weather, that she cannot board her without eminent danger, the pilot shall then lead the way, and in either case be entitled to such Pilotage as shall be awarded by the Committee at their next meeting.

For Alien Ships and Vessels.

INWARD.

	s.	d.
From the length of the Great Ormshead, as above, at the rate of....	12	0
From the eastward of the Great Ormshead, as above	11	0
From the only house now on Great Hilbre Island, &c., as above	5	6

OUTWARD.

	s.	d.
Whether through the Rock or Formby Channel	7	0

An Alien vessel, inward or outward bound, is not to refuse a Pilot, as circumstances are described for English Foreign vessels as above.

For coasting Vessels, and those trading to and from Ireland, the Islands of Faro or Ferro, Jersey, Guernsey, Alderney, Sark, and Man.

INWARDS.

	s.	d.
From the length of the Great Ormshead, as above, at the rate of	4	6
From the eastward of the Great Ormshead, as above	4	0
From the only house now on Great Hilbre Island, &c., as above	2	0

OUTWARD. PER FOOT.

	s.	d.
Whether through the Rock or Formby Channel	2	0

No coasting vessel to pay for less than eight feet of water, nor any vessel to pay for odd inches under half a foot. No coasting vessel, inward or outward bound of the burthen of one hundred tons or upwards, (unless she be in ballast,) is to refuse a Pilot, as the master or owner, &c. must pay the full Pilotage, if one is offered. No vessel to be deemed a coaster unless she has been six months in that trade.

EXTRA PAY PER DAY.

	s.	d.
For every day of attendance whilst in the River, except the day of going to sea with such ships or vessels as shall be outward bound, and the day of returning from sea and the day of docking for such as shall be inward bound	5	0
And if the attendance of a Pilotboat be requested	42	0

Though the Pilot or boat be not employed a whole day, to be paid for a day.

CHARGES ON THE MERSEY.—For taking a vessel from one dock to another, £1; from Liverpool to Birkenhead, £1 10s.; from Liverpool to Garston, £2, and vice versa.

Pilots' Rules and Regulations.

Any person acting as Pilot without a license, to forfeit £20.

Pilots refusing to conduct or assist ships in distress, to forfeit £10, and license.

Masters of vessels forcibly taking Pilots beyond the limits of port, to forfeit not more than £20, nor less than £5.

Pilots misbehaving to have their license recalled, and if they act afterwards the same penalties as if they were not Pilots.

Vessels liable to pay pilotage coming into port, to display signal for a Pilot, under a penalty of £5.

Reward for Pilots assisting ships in distress to be settled by the Committee.

Compensation to be made to Pilots for taking vessels out of port which have been forced back, to be fixed by the Committee.

When in stormy weather, a vessel cannot be boarded with Pilots' small boat, the vessel should be steered with the wind on the quarter, the yards braced bye, when the large boat sheers under the lee quarter and the Pilot jumps on board.

Pilot Boats, Masters, &c

No.	Names.	First and Second Masters.
1,	Queen (schooner)..	Wm. Hughes, Fairfield-crescent, Fairfield R. Taggert, 26, Queen's Road, Breck Road.
2,	Leader (schooner)..	Joseph Powell, Stafford-st.; John Currin, 173, Duke-st.
3,	The Duke (schooner)	J. Williams, Liscard, Cheshire; Thomas Parry, Field-st.,
4,	Auspicious (cutter)	J. Shepherd, 40, Wesley-st.; C. Christie, Upper Warwick-st.
5,	Victoria and Albert.	Isaac Williams, 29, Roscommon-street; Peter Dickinson, Lower Mersey View, North-shore
6,	Pioneer (schooner).	T. Parry, 18, Stafford-st.; T. Davies, 133, Field-st.
7,	George Canning ..	W. Rowlands, Gt. Mersey-st. North; T. Thompson, 9, St. Vincent Street East.
8,	Albert Edward, Prince of Wales	John Bark, Stanley-crescent, North-shore; John Blackley, Sidney-road, Tranmere
9,	Liver (cutter)....	T. Crane, 3, Gt. Oxford-st.; W. Lancaster, Rock View, Bootle
10,	Criterion (sch.) ..	J. Wilson, 146, Falkner-st.; H. Williams, 16, Percy Street.
11,	Mersey (cutter)..	Richard Parry, Cazneau-st.; R. Williams, 102, Field-st.
12,	Perseverance (cut)..	H. Woodward, Woodside, Cheshire; G. Bark, 37, Bevington Hill

Superintendent of Pilots, Robert J. Simpson, Holt Hill, Cheshire.

The Pilot Committee meet for the transaction of business, every Monday, at 12 o'clock, at the Committee Room, South End of Prince's Dock.

Life-Boats

All masters and others, entering or quitting the port, and requiring the assistance of the Life Boats are requested to hoist the Distress Signal, in order that they may be dispatched to their assistance as soon as possible. vessels aground on the Banks, and not hoisting the Distress Signal, will be supposed not to require the assistance of the Life Boats.

Life Boat Stations

At Liverpool, on the North Landing Stage, and on the North Pier of the Prince's Basin, two boats; the key kept at the Marine Surveyor's Office, Custom-house, at the Dock Master's Office, Waterloo Dock, and at the Life Boat Master's house, Pownall Street. Magazines, two boats; the key kept at the Life Boat Master's house. Hoylake, one Boat; the key kept at the Lower Hoylake Light-house. Point of Air, two Boats; the key kept at the Master's house. Formby, one boat; the key kept at the Life Boat House by the keeper. Hilbre Island, one boat.

Bidston Hill Signals

Signals of Distress.—For vessels in distress or on shore in the Rock Channel, or about Hoyle—Coming in: On the oblique pole to the southward of the lighthouse—for every ship, a ball with a flag half-mast; for every snow, a cone, broad end up and a flag half-mast; for every brig or small vessel, a cone small end up and a flag half mast. Going out; the same as above, but a broad pendant instead of a flag.

N.B. For vessels in distress to the southward, when on shore to the main, the ball or cone to be put on the outside of the flag or pendant; but if on shore on Hoyle Bank, then the ball or cone to be put on the inside of the flag or pendant.

In Formby Channel.—The same signals to the northward of the Lighthouse.

Mersey Docks and Harbour Board

Officers.

Mr. John North, Solicitor.—Office, Dock Office.
Mr. John Bernard Hartley, Engineer of the Docks, &c.—Office, south side of Coburg Dock.
Mr. Daniel Mason, Secretary.
Mr. J. G. Jefferson, Treasurer.
Lieut. M. T. Parks. R.N., Marine Surveyor.—Office, Dock Office.
Mr. G. Hamlin, Water Bailiff.—Office, George's Pier.
Mr. Wm. Marrow, Receiver of Duties on Tonnage.
Mr. John Evans, Receiver of Duties on Goods Inwards.
Mr. Wm. Laidlau, Receiver of Duties on Goods Outwards.
Mr. T. L. Burgess, Receiver of Duties on Goods Coastwise.
Mr. Richard Jones, Receiver of Duties at Runcorn.
Mr. R. Cowan, Superintendent of Albert Dock Warehouses.
Mr. W. D. Turner, Superintendent of Stanley Dock Warehouses.
M. J. Ayre, Superintendent of Wapping Warehouses.
Mr. W. H. Sloman, Superintendent of Birkenhead Warehouses.

OFFICERS CONTINUED.

Thomas Hodgson, Harbour Master.—Office, George's Dock Passage.

Henry T. Cox, North Assistant Harbour Master.
John Garniss, South ditto ditto
James Hookey, ditto ditto, Birkenhead.

Dock Masters

Canada.....Alexander Douglas
Huskisson ....Hugh Ross
Sandon.....H. T. Barnes
Wellington & Half-tide ..Shad. Williams
Nelson & Bramley-Moore..R. H. Eustice
Salisbury, Collingwood, and
Stanley ....Edward Carey
Clarence Half-tide, Clarence,
and Trafalgar .....Thomas Stirzaker
Waterloo and Victoria ..... .Henry Rea
Prince's.....William Ashbridge
George's.....Charles Purnell
Canning and Half-tide....Thos. Prenton
Albert and Salthouse Docks, and
Wapping Basin .....William Foyle
King's and Wapping .....Joseph Curry
Queen's and Half-tide ....Joseph Wood
Coburg ....John Curry
Brunswick.....J. H. Henrichson
Toxteth and Harrington ..Thomas King

The Dock Master's Offices are at the entrance of the respective Docks.

Dock and Basin Signals

All vessels are allowed to enter the docks, when signals are not hoisted at the respective pierheads. All owners, masters, and consignees are, however, recommended to register their vessels as expeditiously as possible, in order the better to secure their right of turn to accommodation at the dock quays.

DOCK SIGNALS.

HUSKISSON—Flag on N. pier of Sandon Basin entrance.

SANDON—Flag on N. side of gateway.

WELLINGTON AND HALF-TIDE—Flag on S. pier of Sandon Basin entrance.

NELSON AND BRAMLEY-MOORE—Flag on N. pier of Salisbury Dock entrance.

SALISBURY, COLLINGWOOD, AND STANLEY—Flag on S. pier of Salisbury Dock entrance.

CLARENCE AND HALF-TIDE—Flag on N. pier of Clarence Half-tide entrance.

TRAFALGAR—Flag on S. pier of Clarence Half-tide Dock entrance.

WATERLOO AND VICTORIA—Flag on N. pier of Prince's Basin entrance.

PRINCE'S, NORTH ENTRANCE—Flag on S. pier of Prince's Basin entrance.

PRINCE'S, SOUTH ENTRANCE—Flag on N. pier of George's Basin entrance.

GEORGE'S—Flag on S. pier of George's Basin entrance.

CANNING AND HALF-TIDE—Flag on N. pier of Canning Half-tide entrance

ALBERT AND SALTHOUSE—Flag on S. pier of Canning Half-tide entrance

KING'S—Flag on N. pier of King's and Queen's Basin entrance

WAPPING—Flag on N. end of the King's Parade

QUEEN'S—Flag on S. pier of King's and Queen's Basin entrance

COBOURG—Flag on S. pier of Cobourg entrance

BRUNSWICK—Flag on S.side of entrance

TOXTETH—Flag on N. side of entrance

HARRINGTON—Flag on S. side of entrance

BASIN SIGNALS.

SANDON—Ball on the north side

PRINCE'S—Ball on S. pier of entrance

GEORGE'S—Ball on S. pier of entrance

Abstract of Dock Laws

Goods causing obstruction on the Dock quays, may be removed by the Trustees at expense of owners.

Such a quantity of cargo or ballast to be kept on board each vessel as to enable it to be safely removed; penalty £50.

Harbour and Dock Masters may remove vessels in dock, or from one dock to another, at owners' expense; penalty for obstructing them disobeying their orders, or using abusive or offensive language to them, £10.

Vessels on which dues, &c, are owing, may be detained until such are paid.

Shipowners have a lien for freight and all other lawful claims on goods discharged into dock warehouses.

Manifest of all goods imported or exported to be delivered at the dock Office within 14 days after the discharge inwards or clearance outwards; penalty £20.

Collector, &c., not to receive entry of any vessel until the dock and light duties are paid; penalty £20.

No ballast to be thrown into the docks; penalty £2.

After ballast is discharged to be carted away as the trustees of the docks shall appoint; penalty £2.

Vessels not to come into dock under sail; penalty £5.

Persons wilfully & maliciously damaging docks, &c., adjudged guilfy of felony.

Water-bailiff empowered to remove vessels lying in the river; penalty for obstructing him, £10.

Persons firing cannon, &c., within the port, (except signal guns of distress) to forfeit £10 for every offence.

Width of the various Dock Entrances at Liverpool and Birkenhead, with the Depth of Water at their respective Sills below the Old Dock Sill.

Names of Docks, &c.		Width of Entrance.			Sill below Old Dk. Sill		
		ft.	in.	pts.	ft.	in.	pts.
Canada Dock Gates (500 feet Lock)		100	0	0	7	9	0
Ditto, South Entrance	East Gates	50	0	0	6	6	0
Ditto ditto	West Gates	80	0	0	6	6	0
Huskisson Dock	East Lock Gates	80	0	0	6	6	0
Ditto	West Lock Gates	45	0	0	6	0	0
Sandon Dock Gates		70	0	0	6	6	0
Wellington half-tide Dock	East Gates	70	0	0	6	9	0
Ditto	West Gates	50	0	0	6	6	0
Wellington Dock Gates		70	0	0	6	0	0
Bramley Moore Dock	North and South Gates	60	0	0	6	0	0
Nelson Dock	South Gates	60	0	0	6	6	0
Stanley Dock Gates		51	0	0	5	8	0
Collingwood Dock Gates		60	0	0	6	9	0
Salisbury Dock	North Gates	60	0	0	6	1	0
Ditto	South Gates	50	0	0	6	11	0
Clarence Graving Dk. Basin	North Gates	45	0	0	4	19	0
Ditto	South Gates	45	0	0	4	6	0
Ditto half-tide Dock	West Gates	50	0	0	5	6	0
Ditto Dock Gates		47	0	0	3	2	0
Trafalgar Lock	North and South Gates	45	0	0	6	7	0
Ditto Dock	South Gates	45	0	0	4	1	0
Victoria Dock	South Gates	40	0	0	4	11	0
Waterloo Lock	North Gates	45	0	0	6	15	0
Ditto	South Gates	45	0	0	6	8	0
Prince's Dock	North Gates	45	0	0	5	1	0
Ditto	South Gates	44	1	0	5	11	0
George's Dock	North Gates	41	11	0	4	16	0
Ditto	South Gates	40	11	0	4	6	0
Canning Dock	West Gates	45	0	0	6	3	0
Ditto half-tide Dock	North and South Gates	45	0	0	6	4	0
Albert Dock	North Gates	45	0	0	6	4	0
Ditto	East Gates	45	0	0	6	9	0
Salthouse Dock	North Gates	45	0	0	6	0	0
Ditto	South Gates	50	0	0	6	0	0
Wapping Basin	West Gates	40	0	0	6	0	0
Ditto Dock	North and South Gates	50	0	0	6	0	0
King's Dock	East Gates	50	0	0	6	0	0
Ditto	South Gates	42	0	0	5	0	0
Queen's half-tide Dock	North Gates	70	0	0	6	9	0
Ditto	South Gates	50	0	0	6	9	0
Queen's Dock	West Gates	50	0	0	6	0	0
Ditto	South Gates	60	0	0	6	6	0
Cobourg Dock	West Gates	70	1	0	6	0	0
Brunswick Dock	North Gates	60	0	0	6	6	0
Ditto	West Gates	42	0	0	5	6	0
Ditto half-tide	West Gates	45	0	0	6	0	0
Toxteth Dock Gates		40	0	0	5	0	0
Harrington Dock Gates		29	9	0	1	2	0
BIRKENHEAD DOCKS.							
Morpeth Dock	East Gates	50	0	0	5	0	0
Ditto	West Gates	70	0	0	5	0	0
Egerton Dock	West Gates	70	0	0	5	6	0

GRAVING DOCKS.	Width of Entrance. ft.	in.	Sill below Old Dock Sill ft.	in.
Canada (500 feet Lock)	100	0	7	9
Huskisson Lock	80	0	6	6
Sandon, No. 1, East	60	0	3	6
Ditto No. 2,	70	0	3	6
Ditto No. 3,	60	0	3	6
Ditto No. 4,	70	0	3	6
Ditto No. 5,	45	0	3	6
Ditto No. 6,	45	0	3	6
Brunswick, Nos. 1 and 2	42	0	2	6

GRAVING DOCKS.	Width of Entrance. ft.	in.	Sill below Old Dock Sill ft.	in.	pts
Queen's, No. 1,	42	0	1	8	0
Ditto No. 2, Bottom	42	0	1	8	0
Ditto No. 2, Top	70	1	1	8	0
Canning, No. 1,	35	9			
Ditto No. 2,	35	9	0	0	7
Clarence, No. 1, Old Part	45	0	3	0	0
Ditto No. 1, New Part	45	0	0	6	0
Ditto No. 2, Old Part	45	0	3	0	0
Ditto No. 2, New Part	32	10	0	6	0

The Sill of Canning Graving Dock, No. 1, is 1ft. 8in. 8pts. *above* the Old Dock Sill.

Sill.

Extent of the Liverpool Docks

Total Water Area of the Liverpool Docks and Basins ..... 225 Acres, 4274 yards
Total Quay Space .... 16 miles, 1732 yards

Graving Dock Rates

FOR	Vessels under 60 tons. £	s.	60 and under 100. £	s.	For every progressive 50 tons. £	s.
2 Tides, the tide in & next tide out	1	16	2	2	0	6
3 ——, includ. going in & coming out	2	2	2	9	0	7
4 ——	2	8	2	16	0	8
5 ——	2	14	3	3	0	9
6 ——	3	0	3	10	0	10
7 ——	3	6	3	17	0	11
8 ——	3	12	4	4	0	12
9 ——	3	18				
10 ——	4	4				
11 ——	4	10				
12 ——	4	16				
2 Neaps	12	0	16	0	2	0
3 ——	18	0	24	0	3	0
4 ——	24	0	32	0	4	0
5 ——	30	0	40	0	5	0
6 ——	36	0	48	0	6	0
7 ——	42	0	56	0	7	0
8 ——	48	0	64	0	8	0

Latitude and Longitude of Liverpool

N. Lat. of Observatory .... 53°24′ 47″·8
W. Lon. ditto .... 0h 12m 0s·11

A Tide-Guage Table for the Entrance of the Mersey,

Adapted to shew the *Height of Water* above low-water level of ordinary Spring Tides, at any required period.

When it is High Water at or near either of the following times.	H. W.	Last ½ h. flood, or first ½ h. ebb.	5 hours' flood, or 1 hour's ebb.	¾ flood, or ¼ ebb.	4 hours' flood, or 2 hours' ebb.	3½ hours' flood, or 2½ hs.' ebb	Half-Tide.	2½ hours' flood, or 3½ hs ' ebb.	2 hours' flood, or 4 hours' ebb.	¼ flood, or 3¼ ebb.	1 hours' flood, or 5 hours' ebb	1st ½ h. flood, or last ½ h. ebb	L. W.
hour.	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*
12 o'clo	30	29	27	25	22	19	16	13	10	8	5	3	2
11 or 1	29	28	27	25	22	19	16	13	10	8	6	4	3
10 or 2	27	26	25	24	21	19	16	13	11	9	7	6	5
9 or 3	26	25	24	23	21	18	16	13	11	9	8	7	6
8 or 6	25	24	23	22	20	18	16	14	12	10	9	8	7
7 or 5	24	23	22	21	20	18	16	14	12	11	10	9	8
6	23	22	21	20	19	18	16	14	13	12	11	10	9

Computed Distances from George's Dock Pier-head to several parts of the River, &c.

	Miles.	Yds.
Magazines	2	1050
Rock Perch..	3	150
Northwest Buoy ..	14	0
Floating Light	15½	0
Woodside.....	0	1500
Hoylake	9	0
Tranmere	1	900
New Ferry	3	0
Egremont	Miles.	1½
Eastham		6
Weston Point		16
Runcorn		18

CUMBERLAND INFORMATION.

Members of Parliament, &c.

WHITEHAVEN—George Lyall, Esq, 17 Park Crescent, Regent's Park, London, W.C.

COCKERMOUTH—John Steel, Esq, 13 Bury Street, London. Lord Nass, 79 Eccleston Square, Palmerston House, London

EASTERN DIVISION—Hon. Chas. W. G. Howard, Naworth Castle; 56 Park-street Grosvenor Square, London. W. Marshall Esq, Paterdale Hall; 85 Easton Square, London

WESTERN DIVISION—General Wyndham, United Service, 4 Grosvenor Place. H. Lowther, Esq. 21 Wilton Crescent, London

CARLISLE—Sir James R. G. Graham, Netherby, 46 Grosvenor Place, London S.W. Wilfred Lawson, Esq., Braytow, Boodles, London, S.W.

Lord Lieutenant ..... Earl of Lonsdale
Clerk of the Peace .. T. H. Hodgson, Esq
County Treasurer, Mr. Dobson, Carlisle.
Gov. of Gaol.. Mr. T. H. Redin, Carlisle.
County Coroners.. { Wm. Carrick, Esq. / W. Lumb, jun., Esq.

Quarterly Sessions

Easter, in the first week after 31st March
Midsummer, first week after 24th June.
Michaelmas, first week after 11th Oct.
Christmas, first week after 28th Dec.

The Easter, Midsummer, Michaelmas and Christmas Sessions for Cumberland are held at Carlisle.

Post Office, Whitehaven

JOHN GIBSON, POSTMASTER.

ARRIVALS.—*Week days.*—London and all parts, 9h. 25m. a.m., 8h. 30m. p.m. *Sundays.*—London and all parts, 10h. 40m. a.m.

DESPATCHES.—*Week days.*—Local parts, 10h. 15m. a.m.; North mail, 2h. 35m.

and South and North at 6h 15m p.m. *Sundays*—Local parts at 11h 30m a.m. London and all parts 7h 50m a.m., and 5h p.m.

The deliveries by letter-carriers commence during the week at 10h 15m a.m. and 8h 45m p.m.; and on Sundays at 12h 45m p.m

For ten minutes after the box is closed for the despatch of the Mails, letters bearing one additional stamp will be forwarded. No Postage or fee in money can then be taken.

POST OFFICES IN CONNECTION WITH THE WHITEHAVEN POST OFFICE.

* Empowered to grant and pay Money Orders.

Beckermont	J. Gilliot,	Receiver
Bootle	William Smith,	ditto
Calderbridge	Mary Moore,	ditto
Cleator	Jos. Harkness,	ditto
*Cleator Lane End, Cleator Moor		ditto
Distington	John Bell,	ditto
* Egremont	Grayson Selkirk,	ditto
Eskdale	William Russell,	ditto
Gosforth	Peter Leech,	ditto
* St. Bees	William Finlinson,	ditto
Hensingham	Jos. Sumpton,	ditto
Holm Rook	J. Birkett,	ditto
Parton	E. Lightfoot,	ditto
* Ravenglass	Henry Jackson,	ditto
Sandwith	J. Fisher,	ditto
Waberthwaite	J. Woodall,	ditto
Wasdale	O. Pharoah,	ditto

Bankers

WHITEHAVEN.—The Whitehaven Joint Stock Banking Company, Peter Cameron, Manager.—London Joint Stock Bank, 5, Prince's Street.

Bank of Whitehaven, G. W. Brown, Manager.—Price, Marryat, & Co., 54, King William Street, City.

J. M. Head & Co.'s (of Carlisle) Branch Bank, W. Miller, Manager.—Masterman & Co., 35, Nicholas Lane, London.

Savings Bank.—Open Saturdays from 6 to 8, p m,—F. J. Lowes, Sec.

WORKINGTON. — Cumberland Union Banking Company, W. B. Gordon, Manager.—Barclay, Bevan, & Co., 54, Lombard Street.

MARYPORT.—Branch of the Cumberland Union Banking Company; William Ostle, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

COCKERMOUTH.—Branch of the Cumberland Union Banking Company, Jonathan Cooper, Agent.—Barclay, Bevan, & Co., 54, Lombard Street.

WHITEHAVEN AND WEST CUMBERLAND BENEFIT LAND AND BUILDING SOCIETY.—Public-office, Lowther Street; open on Saturdays from six to eight, p.m.—S. Armstrong, Secretary.

The Whitehaven and Furness Junction Railway

Trains leave Bransty Station four times daily (Sundays excepted) for Ravenglass, Broughton, Fleetwood, Preston, Manchester, Liverpool, &c. This is the nearest route to Preston, Manchester, Liverpool, &c.—(*See West Cumberland Railway Guide.)*

The Whitehaven and Maryport Junction Railway

Trains leave Bransty Station four times daily (Sundays excepted) for Workington, Maryport, Wigton, Carlisle, and Cockermouth; three times daily for Edinburgh, London, Birmingham, Liverpool, Manchester, Preston, Newcastle, York, and Darlington.—(*See West Cumberland Railway Guide.*)

The Whitehaven, Cleator, and Egremont Railway

Trains leave Whitehaven three times daily (Sundays excepted,) for Cleator Moor, Frizington, Woodend, and Egremont.—(*See West Cumberland Railway Guide.*)

Steamers and Traders

LIVERPOOL.—The Whitehaven Steam Navigation Company's powerful and commodious first-class steamer sails regularly with goods and passengers.—Fares: Cabin, 8s., Deck, 4s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle. Dalston, and Wigton, to Liverpool at a through fare. Those from Carlisle, &c., arrive at Whitehaven by the last train before the steamer's sailing, and those from Liverpool being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and Second class, 10s.; Deck and Third class, 4s. Agents—Carlisle, Edward Jobling; Liverpool, Fisher, Wilson, & Co.; Whitehaven, J. and J. Hodgson.

BELFAST. — The Whitehaven Steam Navigation Company's steamer sails regularly with Goods and passengers.—Fares: Cabin, 10s., Deck, 3s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Belfast, at a through fare, Those from Carlisle, &c.,

arriving in Whitehaven by the last train before the steamer's sailing, and those from Belfast being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and Second class, 12s., Deck and Third class, 5s. Agents—Belfast, R. Henderson and Son, Donegal Quay; Carlisle, Edward Jobling; Whitehaven, J. & J. Hodgson.

DUBLIN.—The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers. Fares: Cabin, 15s., Deck, 6s. Passengers and goods are conveyed between Carlisle, Dalston, and Wigton, to Dublin, at a through fare, arriving in Whitehaven by the last train before the steamer's sailing, and those from Dublin being forwarded by the first train after the steamer's arrival in Whitehaven. Agents—Allen Nicholl, Dublin; Whitehaven, J. & J. Hodgson.

DOUGLAS.—The Whitehaven Steam Navigation Company's steamer sails regularly during the summer months to Dublin, calling at Douglas, Isle of Man, to land and receive passengers (weather permitting). Fares: Cabin, 6s., Deck, 3s. Agents—William Berey, Douglas; J. & J. Hodgson, Whitehaven.

RAMSEY, ISLE OF MAN.—The steamer "Manx Fairy," sails regularly once a week during the summer months, and once a fortnight during the winter months between Whitehaven and Ramsey—Fares Saloon, 4s.; Fore Cabin, 2s. 6d.—Agents, John Kitchen, Whitehaven; W. Crennell, Ramsey,

LONDON.—The Whitehaven steam Navigation Company, in connection with the Belfast Screw Steam Crmpany, sail a vessel once a week. Agents—Belfast, Robert Henderson; London, Ogilbey & Moore, Ingram Court, Fenchurch Street; Whitehaven, J. & J. Hodgson.

DUNDRUM. — The "Annsbro'," and "Robert Burns," screw steamers, sail regularly between Dundrum and Whitehaven. Agents—Chas. Fisher & Co., 36. King Street, Whitehaven.

DOUGLAS, ISLE OF MAN.—The smack "Black Diamond," Capt. Joseph Skelly, sails regularly once a week with goods between Whitehaven and Douglas.

Carriers

Leave Whitehaven for Harrington, Workington, Cockermouth, Keswick, and Egremont, every Tuesday, Thursday, and Saturday; for Wigton, every Wednesday; and for Gosforth, every Tuesday, Thursday, and Saturday.

Rates for the Steam Tug "Prince Albert"

Vessels employed in the Coal or Coasting Trade, shall pay every voyage, on clearing for sea, one half-penny per Ton Register. Vessels arriving from a Foreign Port, or from a Discharging Port, one penny per ton register.

Vessels engaged in the Coal or Coasting Trade, pay an additional half-penny per Ton when they require the use of the Steam Tug, Outward, and the same, Inwards.

Forergn Vessels as above, one penny per Ton.

That the limits for towing vessels into, and out of the harbour for one half-penny and one penny per Ton respectively, be as follows, viz.:—say a line drawn from St. Bee's Head to Mickleham Pit, on the Hill north of Parton, and two lines intersecting the above, from Rednest Point and Tom Hurd Rock, bearing N.W. by N. and S.E. by S. by compass.

If the vessel first in turn be not afloat, or not ready for the Tug Boat, then she is to take the first that is.

Vessels wanting the use of the Steam Tug, are to hoist the Union Jack on the Main Top Gallant Mast Head.

Harbour Boat Rates

A boat is stationed at the Old Quay Watch-House to attend on vessels entering the Port, and also to give assistance to those outward bound, charges are as follows, viz.:—

	s.	d.
Vessels of 100 waggons and upwards	5	0
Vessels from 90 to 100	4	0
Vessels from 50 to 90	3	6
Vessels from 30 to 50	3	0
Vessels from 20 to 30	2	6
Vessels from 15 to 20	2	0
All vessels less than 15	1	6
FOREIGN LADEN VESSELS.		
Under 120 tons	5	0
Above 120 tons	7	6

The Harbour Boat to be paid as above by all vessels entering the port; but if not employed by those leaving it, no charge to be demanded.

Rates for the Gridiron

Every vessel previous to going on, must be entered at the Harbour Office, and payment made according to the established rates, for which she may remain on four tides, counting the tide going on and the tide coming off.

		s	d		s	d
Vessels not exc. 100 tons	On Entry.	5	0	Every Tide above four	1	0
Above 100 & not exc. 150		7	6		2	0
.. 150 200		10	0		2	6
.. 200 250		15	0		3	9
.. 250 300		20	0		5	0
.. 300		26	0		7	0

MISCELLANEOUS INFORMATION.

Eclipses, 1862

In the year 1862, there will be three Eclipses of the Sun, and two of the Moon. Greenwich time as follows.

First—A total Eclipse of the Moon on the 12th June, the middle of which will occur at 20 minutes past 6 in the morning. Invisible here, the Moon being below the horizon.

Second—A partial Eclipse of the Sun on the 27th June, at 42 minutes past 6 in the morning; visible in the Southern Ocean, Madagascar, and part of Australia, and at the Cape of Good Hope.

Third—A partial and very small Eclipse of the Sun on the 21st November, at 29 minutes past 6 in the evening. Visible only in the Southern Ocean.

Fourth—A total Eclipse of the Moon on the 6th December, the first contact with the Earth's dark shadow 45 minutes past 5 in the morning; first total emersion 54 minutes past 6; middle of the Eclipse 40 minutes past 7; end of total Eclipse 26 minutes past 8; last contact with the shadow 35 miuutes past 9. At Douglas the Moon will set at 29 minutes past 9, Greenwich time.

Fifth—A total Eclipse of the Sun on the 21st December, the middle of which will occur at 35 minutes past 4 in the morning. This Eclipse will be visible in Asia generally, but invisible to the whole of western Europe.

Quarters of the Year.

Spring Quarter commences on the	20th March,	at 8h. 45m. evening	—⊙ enters ♈
Summer Quarter ,,	21st June,	at 5h. 20m. evening	—⊙ enters ♋
Autumnal Quarter ,,	23rd September,	at 7h. 28m. morning	—⊙ enters ♎
Winter Quarter ,,	22nd December,	at 1h. 20m. morning	—⊙ enters ♑

Chronological Notes

Lunar Cycle or Golden Number	1	Septuagesima Sunday	February 16
Epact	30	Lent begins	March 5
Solar Cycle	23	Easter Day	April 20
Dominical Letter	E	Rogation Sunday	May 25
Roman Indiction	5	Trinity Sunday	June 15
Julian Period	6575	Advent Sunday	November 30

The Revolutions, Distances, &c., of the Planets

Names.	Periodical Revolution.	Mean distance from Sun.	Diameter.	Time of Rotation upon their Axis.	Inclination of Axis to Ecliptic.	Hourly motion in their Orbits.
	Yrs d h m s	English miles.	Eng.miles	d h m s	° ′ ″	Miles.
Sun	.....	.....	887,076	25 7 48 0	.....	.....
Mercury	0 87 23 15 44	36,890,000	2,950	1 0 5 28	.....	111,256
Venus	0 224 16 49 8	68,770,000	7,900	0 23 21 8	.....	81,398
Earth	1 0 5 48 48	95,298,260	7,912	0 23 56 4	23 28 0	75,222
Moon	0 27 7 43 5	95,268,260	2,160	27 7 43 5	1 43 0	2,335
Mars	1 321 22 18 27	145,205,000	4,500	1 0 37 20	28 42 0	56,121
Jupiter	11 315 14 39 2	495,917,000	88,780	0 9 55 21	3 22 0	30,358
Saturn	29 164 7 21 50	909,026,000	77,230	0 10 16 1	30 0 0	22,351
Uranus	83 294 8 39 0	1,828,071,000	35,000	.....	.....	15,846

Population of the United Kingdom according to the Census of 1861.

	Population Enumerated.		Increase, 1861.		Decrease, 1861.	
	1851.	1861.	Persons.	Rate per cent.	Persons.	Rate per cent.
England & Wales	17,927,609	20,061,725	2,134,116	12	—	—
Scotland	2,888,742	3,061,117	172,375	6	—	—
Ireland	6,552,385	5,764,543	—	—	787,842	12
Islands in the British Seas	143,126	143,779	653	—	—	—
Total of the United Kingdom	27,511,862	29,031,164	2,307,144		787,842	

Net increase 1,519,302, or 6 per. cent.

Isle of Man Fairs

JANUARY.—5. St. Mark's, Malew.

FEBRUARY.—2. Greeba—12. Kirk Bride. —27. Baldwin.

MARCH.—17. St. John's.—25. Ramsey. 28. Peel.

APRIL.—5. Jurby.

MAY.—1. St. John's.—3 Sulby Claddagh.—10. Laxey.—12. St. Mark's.—15 Ballaugh.—26. Kirk Santon.

JUNE.—4. Sulby.—16, Kirk Michael.

JULY.—5. St. John's.—23. Sulby.

AUGUST.—5. Laxey.—12. Ballasalla.—26. Ballaugh.

SEPTEMBER.—29. Ballasalla.

OCTOBER.—10. Michael.—28. Arbory.

NOVEMBER.—1. St. John's.—8. Ramsey. —12. Douglas.—18. St. John's.

DECEMBER.—6. Colby, Kirk Arbory.—11. Kirk Andreas.

Those falling on Saturday, Sunday, or Monday, to be held on the following Tuesday—except the Tynwald Fair, which must be held on the 5th July, unless that day fall on a Sunday.

Cumberland—Abbey-Holme, Tuesday before Whitsunday, Oct. 29.—Alston Moor, last Thursday in May, Friday before 27th Sept., 1st Thur. in Nov.—Arclecdon Ap. 24, 1st Friday in June, 17 Sep.—Bootle, April 5, 26, August 3, Sept. 24.—Brampton, April 22, 2nd Wed. after Whit. 2nd Wed. after 15th Sept.—Carlisle, Sat. next Whit., Aug. 26, Sept. 16, Sat. nearest 11th Nov.—Cockermouth, Feb. 18, Mon. before Easter, 1st and 3rd Wed. in May, Oct. 10.—Egremont, Feb. 18, 3rd Frid. in May, Sept. 13.—Ennerdale, 2nd Tues. in Sep.—Eskdale, 2nd Mon. in Sep. Garrigill, 3rd Fri. in May. 1st Fri. in Sep.—Gosforth, April 25, Oct. 18.—Hesket Newmarket, every alternate Fri. from May till Whit., last Thur. in Aug., 2nd Thur. in Oct.—Ireby, Feb. 21, Oct. 18—Keswick, 3rd Thursday after 1st May, Oct. 11, Sat. after 29th Oct.—Kirkoswald Thur. before Whit. Sun., Aug. 5.—Longtown, Thur. before Whit. Sun., Thur. before Sep. 30.—Nether Wasdale, 1st Mon. in Sep.—Newlands, 1st Fri. in Sep. —Penrith, March 1, April 24, 25, 3rd Tues. in Oct., Tues. after Nov. 11.—Ravenglass, May 6, June 8, Aug. 5.—Rosely Hill, Whit Mon., and every alter. Mon. till Michael.—Skinburnness, June 24.—Threldkeld, 1st Thur. in Sept.—Uldale, August 22.—Ulpha, Mon. before Easter. July, 5.—Whitehaven, Aug. 12.—Wigton, Feb. 20, April 5.—Workington, Wed. before Holy Thursday, Oct. 18.

Cheshire—Altringham, Ap. 22, Aug. 5, Nov. 22.—Budworth, Feb. 13, Ap. 5, Oc. 2.—Congletown, May 12, July 5. Nov. 22. —Chester, Feb. 23, April 27, July 5, Oct. 2, Nov. 24.—Knutstord, Whit. Tues. July 10, Nov. 8.—Macclesfield, May 6, June 22, July 11, Oct. 4, Nov. 11.—Malpas, Ap. 5, July 25. Dec. 8.—Middlewich, Holy Th., Aug. 6.—Nantwich, Feb. 4, Mar. 15, Sep. 4, Dec. 11.—Northwich, August 2, Dec. 6.—Over, May 16, Sept. 25.—Sandbach, East. Tues., Tues. after Sept. 10.—Stockport, March 4, 25, May 1, Oct. 23.—Tarporley, May 1, last Monday in Aug., Dec. 11.—Winsford, May 8, Nov. 25.

Lancashire — Blackburn, Easter-Mon., May 12, Oct. 17, every fortnight on Wed. from Feb. till Oc.—Bolton-le-moors 1st Mon. after Jan. 5, and every Mon. fortnight till May 12, July 30, 31, Oct. 13, 14.—Burnley, March 6, East. Eve., May 6, 13, July 10, Oct. 11.—Broughton-in-F., Aug. 1.—Bury, March 5, May 3, 2nd Thursday after Whit. S., Sept. 18.—Cartmell, March 22, Whit. Mon., Oct. 24, Nov. 5.—Chorley, March 26, May 5, Aug. 20.—Clithero, March 24, 25, August 1, 2, the 5th Thur. and Fri. after St. Michael's Day.—Conistone, 3rd Saturday in Sept.—Darwen Holy Thurs. 1st Thurs. in Oct.—Dalton, April 28, June 6, Oct. 23.—Great Harwood, Mar. 3, Aug. 21.—Haslingden, May 8, July 1, Oct. 10.—Hawkshead Mon. before Holy Thurs., Whit Mon. Oct. 2.—Inglewhile, Oct. 5.—Kirkham, June 24.—Lancaster, May 1, July 5, Aug. 11, Oc, 10. —Liverpool, July 25, Nov. 11; Horse fair every alternate Wednesday.—Longridge, May 13, Nov. 6.—Manchester, Whit Mon. Oct. 1, Nov. 6.—Middleton, Thurs. after March 11, Thurs. after April 15, 2d Thur. after Sept. 29.—Newburg, June 21.—Newbury, June 21.—Newchurch, April 29, Sept. 30.—Newton, May 17, July 15, and every Mon. fortnight, Aug. 12.—Oldham, May 2.—Ormskirk, Whit Mon., Sept. 8.—Poulton, Feb. 6, Ap. 13, Nov. 3.—Prescot, June 12, Aug. 24, 25, Nov. 1.—Preston, 1st Satur. after Jan. 6, March 27, Aug. 25, lasts 10 days, Nov. 7.—Rufford, May 19. —Radcliff Bridge, April 29, 30, Sep. 21, 2. - Rochdale, May 14, Whit Tues., Nov. 7. —Ulverstone, March 22, October 27.—Warrington, July 18, Nov. 30, each lasts 10 days; every Wed. fortnight.—Wigan, Holy Thursday, June 27, Oct. 28.

Irish Fairs—Antrim

Ahoghill, June 4, Aug. 26, Dec. 5, Antrim, Jan. 1, May 12, Aug. 1, Nov. 12. Armoy, Jan. 25, Feb. 25, Mar. 29, May 25, Aug. 16, Nov. 12, Dec. 25. Ballinagaboh, July 26. Ballinderry, second Monday in Feb., May, Aug, and Nov. Ballintoy, June 3, Sep. 4, Oct. 14. Ballacary, 2nd Mon. in Jan., 3rd Mon. in April, August, and Nov. Ballycastle, Easter Tues., last Tues. in May, Aug., Oct., and Nov., July 26. Ballyclare, last Tues. in Jan., 2nd Tues. in May, July, and Nov. *o. s.* Ballymena, July 26, Oct. 21. Ballamoney, May 5, July 10, Oct. 6. Ballanbernice, 1st Tues. aft. 12th Jan. and Feb. Ballynure, May 15, Sep. 4, 2nd Tues. in Oct. *o. s.* Belfast, 1st Wed. in each month, Aug. 12, Nov. 8. Broughshane, June 17, Sept. 1, Bushmills, March 28, June 28, August 24, Oct. 21, Dec. 12. Cairnlough, Feb. 10,

Mon., June 12, Aug. 10, Oct. 12, 2. Carnmoney, 1st Tues. May and). s. Carrickfergus, May 12, Nov. 1. h, May 5, July 5, Sep. 5, Nov. 22, before Christmas. Connor, Feb. 1, , Aug. 2. Craigbilly June 26, Aug. rumlin, 1st Mon. in month. Cush- , Feb. 14, March 17, May 14, June ug. 14, Sep. 29, Nov. 14, Dec. 22. ndon, first Wednesday of Feb., June, Aug., Oct., and Dec. Der- Jan. 12, Feb. 23, May 16, June 22, 12, Oct. 27. Drimbar, May 21. adoon, June 9, Nov. 26. Dunlice, 2. Giant's Causeway, August 13. rm, Jan. 26, May 26, Aug. 30, Oct. lenavy, 3rd Mon. Feb. May, Aug., ov. Kells, Jan. 8, March 1, June p. 12. Larne, July 31, Dec. 1. rn, July 21, Oct. 5. Loughgill, 19th ., June, Aug., and Nov. Mosside, 3, May 21, Nov. 21. Mounthill, , Oct. 1. Newtoncrumlin, Feb. 5, 1, Aug. 2, Nov. 5. Oldstone, June ct. 22. Parkgate, Feb. 7, May 7, d Monday in June, Aug. 7, Nov. 4. lenone, 1st Tues. in each month, nd Tues. in May, *o. s.* Randalstown, 6, Nov. 1. Rasharkan, Nov. 16. nfort, 3rd Tues. in May and Nov. *o.s.* , Sep. 4, Oct. 30. Stranocum, Feb. arch 10, April 20, June 16, July 14, 3, Sep. 28, Nov. 6, Dec, 29. Tallaght, , Nov. 9. Templepatrick, May 11, 0, last Tuesday in Oct. Troome, Monday, Dec. 4. Tullamore, 7.

Down

loyne, May 14, Nov. 8. Ardmillan, Jan., April, July, Oct. Balloo, first esday in Jan., Ap., July, & October, nahinch, 3rd Thurs, in each month. walter, June 22, Nov. 8. Banbridge, 2, 1st Monday in Feb. March, April. July, Sep., October, November, and June 9, Aug. 26. Bangor, Jan. 12, , Aug. 1, Nov. 22. Carrodore, 7th)., May, Aug., & Nov. Castlereagh, 5, Oct. 26, Nov. 20. Castlewellan, lon. in Jan., Mar., Ap., July, Aug., 1st Feb., May, June, Sep.; Nov. 13, uesday before Christmas. Clough, 37, July 5, Nov. 22, 3rd Friday in ber, and Friday before Christmas. er, Jan. 5, April 5, June 28, Oct. 19. gar, second Wed. in each month. ghadee, last Wednes. in May, *o. s.*, 16, Oct. 10, last Wednesday in Nov. Donaghmore, 22d of June and Oct. patrick, 1st Satur. in each month. ara, 1st Friday in Feb., May, Aug., v., and 1st Friday after 15th March, Sep., & Nov. Dromore, 1st Sat. in h & Aug., May 12, Oct. 10, and Sat. me before Christmas, Dundrum, 5, Thur. before Candlemas day, *o.s.*, 12, Thursday before Aug. 12, Oc. 10, Dec. 10. Gilford, 2nd Tues. each month, and 21st of June and Nov. Greencastle, 12th Jan. and Aug. Greyabbey, March 28, June 22, Oct. 29, Dec. 4. Hillsborough, 3rd Wed. in each month. Hiltown, 2nd Tuesday in each month. Hollywood, 1st Monday in Feb., May, Aug., and Nov. Kikeel, 1st Wed. in each month. Killileagh, April 10, June 3 & 15, October 11, Dec. 11. Killinchy, 1st Wednes. in Feb., May, Aug., and Nov. Killough, Feb. 15, June 5, Aug. 15, Nov. 15. Kilmore, Feb. 4, March 14, May 1, June 3, Aug. 5, Sep. 29, Nov. 5, Dec. 16. Kircubbin, 1st Mon. in each month, and of 28th April, May, Aug., and Nov. Loughbrickland, Nov. 12, and 3rd Tues. of remaining months.

Dublin

Ballbriggin, 29th April, and September. Carrickmines, Dec. 6, April 14, June 24, Oct. 14. Donnybrook, Aug. 26. Fieldstown, Whit Monday. Garyistown, May 15, Aug. 15, Nov. 1. Kilsallaghan, Ascension day, Sep. 8. Lusk, Easter Monday, May 4, June 24, July 13, Nov. 25. Naul, March 16, April 26, May 21, Sep. 8, Oc. 2. Palmerstown, August 21. Rathfarnham, July 10. Rush, May 1, Sep. 29. Saggard, June 15, Oct. 10, Nov. 8. Skerries, April 22, Aug. 10. St. Margarets, July 30, and 31. Swords, March 17, May 9.

Fish Table

The following Table shows the months in which the undermentioned Fish is IN or OUT of Season.

KINDS OF FISH.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
Brit	in	in	in	in	in	in	in	in	o	o	in	in
Bret	in	in	in	in	in	o	o	o	o	in	in	in
Cod	in	in	in	in	in	in	o	o	o	in	in	in
Cole Fish.	in	in	in	in	in	in	o	o	o	in	in	in
Cockles	in	in	in	in	o	o	o	o	in	in	in	in
Crabs	in	in	in	in	in	in	in	o	o	in	in	in
Dabs	in	in	in	in	in	in	in	in	o	o	o	o
Flounders	o	in	in	in	in	in	in	in	o	o	o	o
Haddock	in	in	o	o	o	o	o	o	o	in	in	in
Herrings	o	o	o	in	in	in	in	in	in	o	o	o
Lobsters	in	in	in	in	in	in	o	o	in	in	in	in
Ling	in	in	in	in	in	in	o	o	o	in	in	
Mackerel.	o	o	o	o	in	in	in	in	o	o	o	o
Oysters	in	in	in	in	o	o	o	o	in	in	in	in
Plaice	in	in	in	in	in	in	in	in	in	o	o	in
Salmon	in	in	in	in	in	in	in	in	o	o	in	in
Soles	o	o	o	in	in	in	in	in	in	o	o	o
Shrimps	in	in	in	in	in	o	o	o	in	in	o	in
Sprats	in	in	o	o	o	o	o	o	o	o	o	in
Skate	in	in	in	in	in	in	in	o	o	o	in	in
Turbot	o	o	in	in	in	in	in	in	o	o	o	o
Whiting	in	in	in	o	o	o	o	o	o	in	in	in
Cong. Eel.	o	o	in	in	in	in	in	in	in	in	o	o

Royal Family of England

Queen VICTORIA I. born 24 May, 1819
Prince Albert . . . . August 26, 1819
Princess Royal . . . November 21, 1840
Prince of Wales . . . . . November 9, 1841
Princess AliceMaude Mary, April 25, 1843
Prince Alfred Ernest Albert, Aug. 6, 1844
Princess Helena Augusta V. May 25, 1846
Princess Louisa Caroline A. March 18, 1848
Prince Arthur Wm. Patrick, May 1, 1850
Prince Leopold Geo. Albert, April 7, 1853
Princess Beatrice Mary. . . April 14, 1857
Geo. Fred. King of Hanover, May 27, 1819
Duke of Cambridge . . . . . March 26, 1819
Duchess of Mecklenburgh, July 19, 1822
Princess Mary of Cambridge, Nov. 27, 1833
Duchess of Cambridge. . . . . July 25, 1797

Sovereigns of Europe

KINGDOMS.	TO WHOM SUBJECT.	WHEN BORN.	BEGAN REIGN
England, &c.	Victoria I. ..	1819	1837
France.	Napoleon III	1808	1852
Russia	Alexander II.	1818	1855
Spain	Isabella II...	1830	1833
Portugal	Don Pedro V	1837	1853
Prussia.	William I ..	1797	1861
Netherlands	William III	1817	1849
Denmark . .	Frederick VII	1808	1848
Sweden.	Charles XV.	1826	1859
Austria	Franc. Joseph	1830	1848
Belgium	Leopold . .	1790	1831
Popedom . . .	Pius IX . . .	1792	1846
Greece	Otho I	1815	1833
Italy	Victor E. II.	1820	1861
Ottoman Em.	Abdul A. Khan	1830	1861
Hanover	George V. ..	1819	1851

Her Majesty's Ministers.

THE CABINET.

First Lord of the Treasury . . . . . Viscount Palmerston.
Lord High Chancellor. . . . . Lord Westbury.
Chancellor of the Exchequer. . . . . Right Hon. W. E. Gladstone.
Lord President of the Council .. . . . . Earl Granville, K.G.
Lord Privy Seal. . . . . Duke of Argyle, K.T.
Home Secretary.. . . . . Sir George Grey.
Foreign Secretary.. . . . . Earl Russell.
Colonial Secretary . . . . . Duke of Newcastle.
War Secretary . . . . . Sir G. Cornewall Lewis.
Indian Secretary . . . . . Sir C. Wood, Bart.
First Lord of the Admiralty . . . . . Duke of Somerset.
Postmaster General. . . . . Lord Stanley of Alderley.
President of the Board of Trade . . . . . Right Hon. Milner Gibson.
Chancellor of the Duchy of Lancaster . . . . . Mr. Cardwell.
President of the Poor-law Board. . . . . Mr. C. P. Villiers.

NOT IN THE CABINET.

Lord-Lieutenant of Ireland .. . . . . Earl of Carlisle.
Chief Commissioner of Works . . . . . Mr. W. F. Cowper.
Attorney-General . . . . . Sir W. Atherton.
Solicitor-General. . . . . Mr. Roundell Palmer.
Attorney-General for Ireland . . . . . Mr. R. Deasy.
Solicitor-General for Ireland . . . . . Sergeant O'Hagan.
Secretary for Ireland . . . . . Sir Robert Peel.
Secretaries of the Treasury .. . . . . Mr. F. Peel. / Mr. Brand.
Secretary to the Admiralty . . . . . Lord Clarence Paget.
Civil Lord of the Admiralty . . . . . Mr. Whitebread.
Judge Advocate-General . . . . . Mr. T. E. Headlam.
Secretary to the Poor-law Board. . . . . Mr. Gilpin.
Vice-President of the Privy Council for Education. . . . . Mr. Lowe.
Under Secretaries of State:—
Home. . . . . Mr. G. Clive.
War . . . . . Lord Ripon.
Foreign. . . . . Mr. Layard.
Colonial . . . . . Mr. C. Fortescue.
India. . . . . Mr. Thomas Baring.
Lords of the Treasury. . . . . Sir W. Dunbar, Bart. / Mr. Hugessen. / Mr. J. Bagwell.

THE ROYAL HOUSEHOLD.

Lord Steward . . . . . Lord St. Germans.
Master of the Horse.. . . . . Marquis of Aylesbury.
Master of the Buckhounds . . . . . Earl of Bessborough.
Mistress of the Robes . . . . . Duchess of Sutherland.

Descriptive List of Principal Lights—Scotch Coast

Name of Light.	Situation.	No. Light	Appearance.	distance vsible	Points of Compass within which visible.	North latitude		West longitu.	
INCHKEITH	Summit of Island, Fifeshire	One	Revolving once every minute	—21—	All round the Compass	56°	2′	3°	8′
ISLE OF MAY	Isle of May, in Fifeshire	Two	Fixed. Bear from each other N.N.E. ¼ E. & S.S.W. ¼W., 250 yds.	21&15	All round Compass. The low light only towards the Carr	56	11	2	33
BELL ROCK	A sunk reef, 11¾ miles S. by E. ½E. off Arbroath, Forfarshire.	One	Revolving, shewing alternately a bright & red light every 2 min.	—15—	All round the Compass	56	26	2	23
GIRDLENESS	Girdleness, Kincardineshire.	Two	Fixed Lights, one above the other	20&16	NNEtoWSW½W. byE'ward	57	8	2	3
BUCHANNESS	Buchanness, Aberdeenshire.	One	Flashing once every 5 seconds	—16—	N.bE.toS.W. bW.byE'ward	57	28	1	46
KINNAIRDHEAD	Kinnairdhead, Aberdeenshire.	One	Fixed	—15—	WNW.to SSE¾E.N'ly&E'ly	57	42	2	1
TARBETNESS	Tarbetness, Cromartyshire	One	Visible 2½ min., then eclipsed ½ a min. To W. of the Ness Fixed	—18—	All round the Compass	57	51	3	48
DUNNETHEAD	On the Head, Caithnesshire.	One	Fixed	—23—	From SE½Eto W.by N'ward	58	40	3	22
PENTLAND SKERRIES	On the Island	Two	Fixed. N.N.E. & S.S.W., 100 feet	18 &16	All round the Compass	58	41	2	55
START POINT	East point of Sanda Island	One	Fixed	—15—	All round the Compass	59	17	2	22
SUMBURGHHEAD	On S.W. point of Shetlands.	One	Fixed	—21—	NE byE¼EtoNW byN¼NbyS	59	51	1	16
NORTH RONALDSHAY	On North point.	One	Flashing once every 10 seconds.	—18—	All round the Compass	59	23	2	24
CAPE WRATH	On the Cape, N.W., point of Scotland	One	Revolving, shewing alternately a bright & red light every 2 min.	—23—	From S. ½ E. to S.W. by W. Northerly	58	37	5	0
ISLAND GLASS	N.E.point of Island, Harris Isle	One	Fixed	—17—	W. by S. to E.N.E.½E. by S.	57	52	6	33
BARRAHEAD	Highest point on Bernera Isle, Southern point of Hebredies	One	Intermittent. continuing in view 2½ min., then eclipsed ½ a min.	—33—	From N. by E. to E. N. E. Westerly and Southerly.	56	48	7	38
ARDNAMURCHAN	Ardnamurchan Point, Argyleshire	One	Fixed	—18—	From N.E. by E. ¾ E. to S. W. by S. N'ly and W'ly	56	44	6	13
LISMORE	Mousdale Island	One	Fixed, dark 2¾ point over land	—15—	From E. to N.E. by E.	56	27	5	36
CRINAN CANAL	East side	One	Fixed, red light	— 4—	All round the Compass	56	5	5	33
RHINS OF ISLAY	Oversay Island, off S.W. point of Islay, Argyleshire	One	Flashing once every 5 seconds; disappears ½ a mile off Cul point	—17—	From NNE. to SE. Westerly	55	41	6	29
MULL OF CANTYRE	South western headland of Cantyre	One	Fixed	—22—	From NNE.½E. to S. by W. ¾ W. Westerly	55	19	5	49
SANDA ISLAND	Ship Rock	One	Fixed, red light	—15—	NW½WtoSEbyE½EbySW'ly	54	16	5	35
DEVAR ISLAND	Eastern part	One	Revolves every ½ minute	—17—	N. ¼ W. to E. by S. by N.	55	26	5	32
PLADDA	Pladda Isle, off south east of Arran, county of Bute	Two	Fixed, vertical, 25 feet apart	14 &17	From NW. by W. Southerly to N.E. by E.	55	26	5	7
CORSEWALL	W. side of entrance to Loch Ryan, in Wigtonshire.	One	Revolving, shewing alternately a bright and red light every 2 min.	—15—	From N.E. by E. Northerly to S.W.	55	0	5	9
MULL OF GALLOWAY	Southern extremity of mainland of Scotland, Wigtonsh.	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—23—	From N.E. to N.W. ¼ W...	54	38	4	51

Descriptive List of Lights—Isle of Man

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
POINT OF AYR	A quarter of a mile S.W. of the Point	54 25	4 22	One	R	—15—	Shewing alternately a Bright aud Red Light every 2 min. Visible from S. by W. N. E'ly., to W.by N.
Peel Harbour	East side of entrance	54 13	4 42	One	F	— 8—	
CALF OF MAN	West side of Calf Island	54 3	4 50	Two	R	24&22	Revolving every 2 min. When in one they lead [on the Chicken Rocks.
Port St. Mary	Pier Head	54 4	4 44	One	F	— 9—	
Castletown Harbour	New Pier Head	54 5	4 39	Two	F	— 8—	Red. To be kept on the port hand in entering.
Derbyhaven	Entrance of the Harbour	54 5	4 36	One	F	—11—	Only Lighted during the Herring Fishing Season
DOUGLAS	Douglas Head	54 9	4 28	One	F	—14--	Not visible from Langness Point, but with three miles offing it will be seen N.E. ¼ E.; and the Calf Light, at the same time, N.W. by W. ¼ W.
Douglas Harbour	North Pier-head	54 10	4 28	One	F	--- 6—	
Ramsey Harbour	South side of entrance	54 20	4 23	One	F	—10—	Red Light.
Bahama Bank Light Vessel	A mile off the S.E.tail of the Shoal. Moored in 11 fathoms.	54 20	4 12	Two	F	—10—	A gong is sounded during foggy weather. "Bahama Bank" is painted on her sides. King William Bank Buoy, E. by N. ½ N. nine miles.

Principal Lights—West Coast of England

Lee Scar	On the Rocks	54 52	3 25	One	F	— 6—	On Piles. Base dries 6 feet at low water.
Solway Light Vessel	Robin Rigg Channel	54 48	3 32	One	F	— 6—	Red Light. Moored in 4½ fms. A Black Ball by day; tolls a Bell in foggy weather.
ST. BEES	St. Bees Head	54 31	3 38	One	F	—25—	
WALNEY.	S. Point of Walney Island	54 3	3 11	Two	1 R 1 F	—13—	Every minute. The Fixed Light is Red. N.W. by W. ¾ W. and S.E. by E. ¾ E. 340 yards.
River Wyre	N.E. elbow of N.Wharf Bank	53 57	3 2	One	F	—10—	On Piles. A Bell is tolled in foggy weather.
Fleetwood	High Light in the Town, Low Light on Esplanade	53 56	3 1	Two	F	13 & 9	N. & S. 850 feet. Shown while 9 feet water in the Channel.
River Ribble	On Stanner Point, N. side of entrance	53 45	3 1	Two	F	12 & 9	The upper Light Bright: the Lower Red. The Lighthouse stands about 70 feet high, and bears by compass S.E. by E. ½ E. from Buoy Nelson, 7 miles.
FORMBY	On the Point	53 32	3 4	One	F	—12—	The Light from this tower has been discontinued.
Formby Light Vessel	In the New Channel	53 32	3 11	Two	F	— 8—	Yellow Light. Painted Red; carries Red Ball. In 25 feet at low water. Crosby Lightship S.E. ½ S., 2½ miles. N.W. Mark, E. by N. ¼ N., 3⅞ miles.
Crosby Light Vessel	N.E. elbow of great Burbo Bank	53 31	3 7	One	F	— 8—	Yellow Light. Painted Red; carries Red Ball. In 44 feet at low water.

Principal Lights—West Coast

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
Black Rock	Rock Point, West side of the entrance of the Mersey	53 27	3 3	One	R	—14—	Making a revolution every three minutes, showing two Bright Lights and one Red Light in due succession. A Bell is tolled during foggy weather.
Leasowe	On the shore, between the Mersey and the Dee Rivers	53 25	3 7	One	F	—15—	Bidston Light open E. of Leasowe, and afterward to the W., lead up the Horse Channel.
BIDSTON	Bidston Hill	53 24	3 4	One	F	—23—	Obscured when inward bound, bearing S.bW.½W.
Hoylake	Near Hoylake Church	53 24	3 11	Two	F	13&11	When in one, S. W. by S., you may haul up the Rock Channel.
Liverpool N.W. Light Ship.	Off the Horse and Helbre Channels	53 27	3 17	Three	F	—10—	Moored in 7½ fathoms; exhibits a black Ball during the day.
AIR	Air Point, at low water mark	53 22	3 19	One	F	— 9—	On Piles. A Bell is sounded in foggy weather.
LYNUS	Point Lynus	53 25	4 17	One	Fl.	—16—	Flashing once every ten seconds.
SKERRIES	Highest Island	53 25	4 36	One	F	—16—	
STACK	South Stack Rock, off N.W. Point of Holyhead I...	53 18	4 42	One	R	—20—	Revolving every 2 min. During foggy weather a smaller Bright Light is occasionally shown, 40 feet above the sea, and 30 yards N. of main Lighthouse. [sonnded in foggy weather.
BARDSEY	Bardsey Island	52 45	4 48	One	F	—17—	
Cardigan Bay Li't-vessel	Cardigan Bay	52 22	4 54	One	R	— 9—	Red Light. Revolving every 30 sec. A Gong is
SOUTH BISHOP	South Bishop Rock	51 51	5 25	One	R	—18 -	Revolving every twenty seconds.
SMALLS	Smalls Rock	51 43	5 40	One	F	—13—	Erected upon pillars, 40 feet high.
ST. ANN'S	St. Ann's Point, Milford Haven	51 41	5 10	Two	F	20&18	High Light N. by W.¼W., 609 feet from Low Light. When in one they lead clear of the Crow and Toes Rocks.
CALDY	Caldy Island, Southern part	51 38	4 41	One	F	—20—	
MUMBLES	Mumbles Head	51 34	3 58	One	F	—15—	
NASH	Nash Point	51 24	3 33	Two	F	19&17	High Light, S.E. by E.¼E. and N.W. by W.¼W., 1000 feet from Low Light. The Lights in one lead a cable's length Southward of the Nash Sand.
USK	W. side of entrance of River	51 32	3 0	Two	F	—11—	Red. A Red Light is also shown up the river.
FLATHOLM	Flatholm Island, South point	51 23	3 7	One	F	—18—	
LUNDY	On the ridge of Lundy Island	51 10	4 40	Two	1 R 1 F	—31—	The Low Light (fixed) is only visible from the Westward, between N. N. W. and W. S. W. The Revolving Light flashes every two minutes. [one.
TREVOSE HEAD	On north-western part	50 33	5 1	Two	F	20&17	The lower Light is 50 feet in advance of the high

Descriptive List of Principal Lights—South and East Coasts of Ireland

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather	Remarks.
FASTNET	Summit of Rock..	51 23	9 36	One	R	—18—	Attaining its greatest brilliancy every 2 min.
KINSALE	South Point of Old Head..	51 36	8 32	One	F	—21—	Red Light is shown in a line to the Horse Rock in Courtmacsherry Bay, Bright to Seaward.
CORK HARBOUR or Queenstown	Roche Point, E. side of entrance ..	51 48	8 15	One	F	— 4—	Red towards the sea to the Harbour Bright.
	East elbow of Spit Bank, in 9 feet..	51 51	8 16	One	F	— 8—	Red. From N.N.E.½E. to S.E.byE.½E. round by E.
BALLYCOTTIN ..	Outer Island, West side of Bay ..	51 49	7 59	One	Fl.	—18—	Every 10 secs. From E.¼N. round S. to W.¼N.
MINEHEAD	South side of Head	52 0	7 35	One	Int.	—21—	Bright 50 sec., obscured 10 sec. From E.N.E ½N. [to W. ¾ S.
HOOK TOWER	East side entrance Waterford.. ..	52 7	6 56	One	F	—16—	
SALTEE'S LIGHT VESSEL	Off Coningbeg Rock, the Southernmost of the Saltee Islands	52 2	6 40	Two	F	—10—	Carries a Ball. Moored in 32 fathoms. During foggy weather a Gong is sounded.
TUSKAR	Tuskar Rock	52 12	6 12	One	R	—15—	Every two minutes. Two sides Bright, one Red. During foggy weather a Bell is tolled every half-minute. Red Light seen 10 miles. [weather.
ARKLOW LT.-VESSL.	S. end of Arklow Bank, in 22 fath.	52 42	6 0	One	R	—10—	Carries a Ball. A Gong is sounded in foggy
WICKLOW	Wicklow Head	52 58	6 0	Two	F	21&16	The Lights bear from one another N.W. by W. ¾ W. and S.E. by E. ¾ E., 540 feet. When in one they lead between the India and Arklow Banks.
DUBLIN BAY. KISH LIGHT VESSEL . ..	Off N. Point of Kish Bank. Moored in 10 fathoms	53 19	5 56	Three	F	—10—	The Lights are triangular. Carries a Ball. A Gong is sounded during foggy weather.
Kingstown.. ..	Centre of East Pierhead of Kingston Harbour, ...	53 18	6 8	One	R	— 9—	Revolving every half-minute, shewing a Bright and Red Light alternately. During foggy weather
	West Pierhead			One	F	— 2—	A small Red Light. [A Bell is tolled.
POOLBEG.. ..	End of S. Wall, at the entrance to the river Liffey..	53 20	6 9	Two	F	—12—	The Lower Light, which is much fainter than the Upper, is exhibited from half-flood to half-ebb. A Ball is hoisted, at the same period, during day-time.
	End of N. Wall, or N. Quay, Dublin	53 21	6 14	One	F	—10—	
BAILEY .. .	S.E. Point of Howth Peninsula ..	53 22	6 3	One	F	—15—	During foggy weather a Bell is tolled.
CARLINGFORD.. ..	Haulbowline Rock	54 1	6 5	Two	F	—15—	The Lower from half-flood to half-ebb. A ball is hoisted during the same period by day; and in foggy weather a Bell is tolled every half-minute.
DUNDRUM BAY ..	St. John's Point..	54 13	5 40	One	Int.	—12—	Red Light. Every minute. 45 secs. red, & 15 secs.
SOUTH ROCK	On the Rock	54 24	5 25	One	R	—12—	Every minute and a half. [obscured.
COPELAND.. .. .	Small Copeland Island	54 42	5 32	One	F	—16—	

MARINERS' GUIDE

TO THE

Principal Ports and Harbours

IN THE

BRISTOL AND ST. GEORGE'S CHANNELS,

THE IRISH SEA,

AND THE NORTH CHANNEL;

CONTAINING A SERIES OF CLEAR AND CONCISE

SAILING DIRECTIONS

FOR THE

WEST COASTS OF ENGLAND, WALES, AND SCOTLAND, THE ISLE OF MAN,

AND THE

EAST, SOUTH-EAST, NORTH-EAST, AND NORTH-WEST COASTS OF IRELAND;

WITH

Tables of the Magnetic Bearings and Distances

OF DIFFERENT

HEADLANDS, HARBOURS, AND LIGHTS

ON THOSE COASTS.

*** The Bearings and Courses in these Directions are those by compass, and the Distances are nautical miles, of 60 to a degree.

MARINERS' GUIDE.

ISLE OF MAN.

The **ISLE OF MAN** lies in a N.E. by E. and S. W. by W. direction, and is about 30 miles in length and 11 in breadth. The Northernmost Point of Ayre is in lat. 54 deg. 27 min. N., and long. 4 deg. 20 min. W. The

Calf Island,

At the S.W., is in lat. 54 deg. 3 min. N. and lon. 4 deg. 50 min. W. On this Island are TWO Lighthouses, 187 yards distant from each other, bearing N.E. ½ E. and S. W. ½ W. The *higher* Light bears from the dangerous sunken rocks called the *Chickens* N.E. ½ E., distant about a mile and a quarter: when the Lights are in one they lead on the Chickens. These Lights are DOUBLY revolving, without color, making their revolution in 2 minutes, and becoming gradually fainter during that time, until, at a distance, they appear totally obscured. At their brightest period they may be seen seven leagues off, resembling a planet. Between the Chickens and Calf is a passage about a mile broad, through which the tide sets from the W. round the Calf Point *very strong* outside of the EYE Rock, and also through the passage between the Island and S.W. Point of Man. There has been erected in the Sound of the Calf, on the "Thusla Rock," a Large Oblong Beacon. 2½ miles to the east is PORT ST. MARY, where there is good anchorage behind the Pier, which has been lately very much improved, but a dangerous rock called Carrick, lies about ¾ of a mile S.S.E.½E. from the Village. This harbour has about 9 or 10 feet water at neap tides, and 14, 15, 18, &c. at spring tides. In running for it, keep Scarlet Head to the S. of Castletown, a good sail's breadth open, to avoid the Carrick Rock. On entering, take the quay as close as circumstances will admit. A LIGHT is exhibited throughout the year, on the larboard hand on entering the harbour. Five miles E. from the Chickens and 2¼ from Port St. Mary, is Scarlet Head, the westernmost point of

Castletown Bay.

The bottom towards the entrance is generally rocky, and there are three shoals or rocks dry at low water, the largest of which, Lheeahrio, is a quarter of a mile long and 500 feet wide, and is marked on the east end by a large Black Buoy. A RED stationary light, to be kept on the larboard hand on entering, is erected on the new pierhead, which lies 80 yards outside the old pierhead, in a S.S.E. direction therefrom. The Buoy on Lheeahrio Rock is placed in five fathoms at low water, having Langness Point, by compass bearing S. ¾ E., and the lighthouse on the pierhead, N. ¾ E. On entering the Bay, be careful to leave the Buoy on the *larboard* hand, and in working into the Bay from the Westward, you must not bring the Buoy to the Southward of E.S.E.; nor open Spanish Head to the Northward of the Stack of Scarlet until Eastward of the Buoy, or until the lighthouse on the pierhead bears N. ½ E., then steer for the harbour. The anchorage is sheltered from N.W. round by N. to S.S.E., the marks for which are, Spanish Head just open to the Southward of the Stack of Scarlet; the Steeple of Castletown Chapel in line with the Eastern part of a Gap in the Mountain bearing N. by W., and King William's College N.E. by N., where there are 9 fathoms at low water, spring tides, and safe anchorage.

Langness Point,

An isthmus running out from the main land, 2 miles to the S.W., has a turret on the point to identify its situation. There are SUNKEN rocks all about it, and the tide sets like a race upon the Point from the Chickens, at the rate (spring tides) of 6 miles an hour, and runs E.N.E. from 2 to 5 or 6 miles from the land, diminishing in strength to Maughold Head. To avoid the inset between the Chickens and Langness Point, it is advisable for strangers on no account to come within 3 or 4 miles of the land. On the E. side is

Derbyhaven,

Affording anchorage for large merchant ships, and sheltered from all winds except E. to S.E. The best ANCHORAGE is on the N. side of St. Michael's Island, in 3 or 4 fathoms, the castle (or fort) on it bearing S.E. by S. Small vessels may run further up. There is a LIGHT at the entrance of the harbour, which is lighted only during the herring fishing season. The stream, or rather eddy, along the E. side of Langness runs 10 hours S., from 2 hours of flood to the last of ebb on the shore. About 3 miles to the E. of Derbyhaven is St. Ann's Head, from which to

Douglas Head,

E. is about 2 miles, upon which a LIGHTHOUSE has been erected, the light from which is STATIONARY, and appears like a star of the first magnitude at the distance

of 14 miles. The Bearings of the light are as follows:—From CLAY HEAD, W. by S. ¼ S., 4 miles; from LANGNESS POINT, E. by N., 7½ miles. The light will not be visible from Langness Point; but with an offing of 3 miles from that Point, the light will be seen bearing N.E. ¼ E., and the Calf Lights at the same time bearing N. W. by W. ¼ W. Vessels running for Douglas, between E. by N. ½ N. to W. by S. ½ S., will see the light at 5 miles' distance. Blowing fresh from the W. and bound for the bay, a vessel should keep pretty close to Douglas Head, or she will be thrown to leeward of St. Mary's Rock, by the strong and variable gusts off the high land to the S.W., where she will be exposed and in bad anchorage. On this rock a TOWER has been erected, the appearance of which in the night is like a square-rigged sloop under sail. Anchor in the bay between St. Mary's and the S. shore, 3 or 4 cables East of the pierhead, where there is a LIGHT exhibited throughout the year, to shew ships into the Harbour; to enter which keep close to the pierhead. Four miles E.N.E. from Douglas Head is

Clay Head,

Round which is Laxey Bay, where there is good anchorage in 6 fathoms depth. From Clay Head to Maughold Head the course is N.E. ½ E. 7 miles, and round the latter to

Ramsey,

N.W. N'ly. 2½ miles. To the E.S.E. of the town is Port Lewague. There is excellent anchorage and shelter from 1 to 1½ miles opposite the town, as the bottom is good stiff clay; but there is generally a heavy sea and hard riding in it with winds from S. to E.N.E., to all of which it is open. The harbour, which is a dry one, will admit vessels drawing 17 or 18 feet water at spring tides, and 11 or 12 feet at neap tides. There is a lighthouse on the quay, a stationary light, of a RED colour, is exhibited throughout the year. In the bay the stream runs nine hours N. and three hours S., beginning at 2 hours' flood. There are three banks off this bay that deserve notice. The BAHAMA BANK, or RIG, bears N.E. 2 leagues from Ramsey town, and is about 6 miles in length from S.S.E. to N.N.W., with only 6 feet depth of water at the S. end, differing in other parts from 9 to 12 feet, and is rather more than ½ a mile broad. The BAHAMA FLOATING LIGHT, exhibiting TWO BRIGHT FIXED lights, is moored a mile off the S.E. tail of the shoal, in eleven fathoms, low water, spring tides, and with the following compass bearings:—King William's Bank Buoy, E. by N. ½ N. nine miles; Point of Ayre lighthouse, N. by W. ½ W.; Maughold Head, W. by S.; Clay Head, S. W. by W. ¼ W. WHITESTONES BANK, so called from its composition, lies S.S.E. 1½ miles from the extreme Point of Ayre, with a good passage between them; it bears N.N.E. from Maughold Head, and is ½ a mile in length N. and S. and a ¼ in breadth E. and W., with 6 feet at low water spring tides. POINT OF AYRE BANK is a ridge extending ½ a mile from the Point to the distance of 1 mile E., and thence circularly to the S. and E., always with a considerable ripple, nearly in a line with the BAHAMA BANK. KING WILLIAM'S BANK is 8 miles in length from S.E. to N.W., and ½ a mile broad: the N. W. end is E. 6½ miles from the Point of Ayre, and N.E. 11 miles from Maughold Head, from which the S.E. end bears E. N.E. ½ E. 13½ miles, and from the Point of Ayre, E. S.E. 12 miles distant. The least depth of water on it is 18 feet. The

Point of Ayre Lighthouse

Bears N.N.E. ½ E. from Maughold Head, distant 8 miles, and the lantern is 106 feet above the sea. It is REVOLVING, showing alternately a BRIGHT and RED coloured light, becoming from a star-like appearance gradually stronger, until the attainment of the utmost brilliancy every TWO MINUTES. The light of the common colour is to be seen 4 or 5 leagues off; but the RED one is not distinct at so great a distance. Maughold Head prevents the light being seen by a navigator S. of it, as does Rue Point when he is W. of it. N. by W. ½ W. 1½ miles from the Point of Ayre is STRUNAKILI BANK, bearing from Jurby Point E. by N. 5 miles; it is 1½ miles long E.S.E. and W.N.W., and nearly ½ a mile broad. There are 3 fathoms on the shoalest end, but the sea breaks and the tide sets strong upon it; keeping WITHIN 1½ miles of the land will clear the whole.—From the Point of Ayre to Jurby is 7 miles to the W., and hence to the Peel Light, S.W. ½ W. 11 miles; 4 miles from Jurby W. ½ N. and about 3 miles from the land abreast, is a BLIND ROCK, and from

Peel Light,

N.E. by E., 9 miles. This light is stationary, is exhibited throughout the night, and is visible at a distance of eight miles in clear weather. The harbour at Peel is a dry one. Between Jurby and Peel, off Ballabui, lies a shoal 1½ miles from the land, and 3½ miles N.E. ½ E. from the light. A vessel may ride in the bay with the Castle bearing from S.S.W. to S.W. in 6 or 7 fathoms' depth of water. On entering the Harbour, keep the point of the Jetty close on board on the starboard hand and run in, keeping the light on the pierhead on the larboard hand. The Mull of Galloway light adds to the convenience of this Harbour, being visible from the Castle, and only distant N. by E. 26 miles. The Peel Light

is about 300 yards S.S.W. from the N.E. point of the Castle. The streams of flood that come to the E. from along the S. coast, and along the N. coast of Ireland, meet about a mile W. of Contrary Head, so called from this circumstance, and there divide into two branches, one of which runs N.E. to the Point of Ayre, and on to Maughold Head, the other S.W. to the Calf; one proceeding round the Calf at 6, the other round the Point of Ayre at 4 miles an hour, meeting off Maughold Head. From Contrary Head to abreast the Calf Lights the course is S.W. 10 miles; and 4½ miles from the W. end of that Isle is

Port Erin,

a sheltered little creek, surrounded by very high land, easy of access, and affording shelter against all E. winds. At the entrance, between the headlands, there is a depth of about 15 fathoms water; here the tide runs very strong at the rate of 6 miles an hour. In the Sound of the Calf the stream runs W. 2 hours before high water on the shore, and continues 6, i.e., two hours before it ebbs on shore. Keep the Calf Lights well open when passing Langness Point.

TIDES.—On the full and change days, it is high water on the shore at Peel at 10h. 48m.; in the Calf Sound, 10h. 57m.; at Douglas, 10h. 48m.; at Ramsey, 10h.; and at the Point of Ayre, 10h. In the Isle of Man, spring tides rise 18 or 20 feet perpendicular; neap tides 9 or 10.

Magnetic Bearings & Distances,

FROM THE HEADLANDS OR HARBOURS IN THIS ISLAND, TO OTHER HEADLANDS OR HARBOURS IN THE CHANNEL.

FROM DOUGLAS HEAD TO		MILES.
St. Bees Light	E. by N.	42
Ravenglass	E. by S.	40
Lancaster Channel	S.E. ¾ E.	54
Liverpool Floating Light, S. by E.	½E.	59
Chester Bar	S. by E.	60
Great Ormshead	S. ¼ W.	54
Skerries Light	S.W. by S.	46
Langness Point	S.W by W.	8
FROM THE POINT OF AYRE TO		
Maughold Head	S.S.W. ½ W.	8
St. Bees Light	E.S.E. ¼ E.	26
Whitehaven	E.S.E. ¾ E.	28
Maryport	E. ¼ N.	37
Ross Light, Kirkcudbright	N.E. ½ E.	24
Burrow Head	N.N.E.	16
Mull of Galloway	N.W. by N. ¾ N.	21
Copeland Light, Belfast	N.W. ½ N.	44
Liverpool Floating Light	S. ¼ E.	70
FROM MAUGHOLD HEAD TO		
Skerries Light	S.W. ½ S.	56
Great Ormshead	S. by W.	60
Liverpool Floating Light	S. ¾ E.	63
Lancaster Channel	S.E. ½ S.	50
St Bees Head	E.	27
Ravenglass	E.S.E.	32
Whitehaven	E. ¼ N.	31
FROM THE CALF OF MAN TO		MILES.
Langness	E.S.E. ½ S.	7
Mull of Galloway	N.N.E.	38
Copeland Light	N. ¼ W.	48
South Rock Light	N. by W. ¾ W.	31
Strangford Lough	N.N.W. ½ W.	31
Carlingford Lough	W.N.W.	45
Drogheda	W. ¾ N.	55
Howth Head	W.S.W. ¾ W.	60
Kish L'ship, Dublin Bay	W.S.W. ¼ W.	60
Holyhead	S.S.W.	41
Great Ormshead	S. by E.	54
Liverpool Floating Light	S.S.E. ⅝ E.	65
Skerries Light	S. by W. ¼ W.	38
Point Lynas	S. ¼ E.	42
FROM PEEL TO		
Mull of Galloway Light	N. by E.	26
Copeland Light	N.N.W. ¼ N.	40
Strangford Lough	N.W. ½ W.	29
Maidens Light	N. by W. ¼ W.	57

Free Harbours

No tolls are exigible on vessels entering any of the Harbours in the Isle of Man.

Abstract of the Bye-Laws for regulating the Harbours.

1. Any vessel, through mismanagement, injuring the quays, &c., such injury to be repaired, under penalty of double the value of the damage.

2. No chain cables to be used for mooring vessels, under penalty of £2.

3. No ballast to be discharged without a port sail, under penalty of £2.

4. Vessels heaving ballast or stones into the harbours, penalty £2 per ton.

5. That no person heave stones, dung, &c., into the harbours, under the penalty of £2; and if not removed when ordered, a further penalty of £2.

6. Masters of vessels not obeying Harbour Masters in mooring vessels, penalty £2: all expenses incurred by the Harbour Master in mooring vessels to be paid by master or owners of said vessel. Any person obstructing Harbour Master in executing his duty, penalty £5.

7. No person to make a fire on the quays without permission, penalty £3.

8. No clog fenders to be used, under penalty of £1, unless hung lengthways.

9. Any person throwing off ends or cutting hawsers, besides paying the damage to the owners, to forfeit £5.

10. That all gunpowder be landed immediately after arrival, under penalty of £10 for every 24 hours it remains on board; and no fire or light to be kept on board while such gunpowder remains in the vessel, further penalty £20.

11. Any dock made for repairing vessels in harbour to be filled up in 24 hours after removal of the vessel, under penalty of £5 for every 24 hours it lies open.

12. No vessel to unload ballast at night under penalty of £10.

13. That no timber, iron, &c. (unless for repairing vessels) be left on the quays longer than two days, on penalty, for every day longer than the said two days, after notice given by the Pier Master, of £1.

14. That no vessel be allowed to take ballast from another, penalty £1, unless by leave of the Harbour Commissioners.

15. Ballast not to lie on the quay longer than 24 hours, under penalty of 5s. per day.

16. All vessels unloading merchandize to have preference of berth in turn.

17. Vessels taking in goods to have any unoccupied berth, but to give it up on the arrival of a loaded vessel.

18. & 19. One person at least to be on board every vessel when afloat, in harbour or bay, under penalty of £2.

20. & 21. No person to act as pilot without commission, under penalty of £10. No vessel compelled to take a pilot.

22. Proprietors of lime-kilns to screen their lights, if liable to be mistaken for harbour lights, under penalty of £5.

23. Persons firing on pier, &c., (except on days of public rejoicing,) penalty 10s.

24. Boats plying for passengers without licence, penalty £2; and owners to be accountable for breach of harbour laws by any of the crew.

25. No person to erect stalls on the quays to cure fish, or deface the quays, &c. under penalty of £2 for every offence.

26. No person to enforce higher rates for pilotage than as follows, which include attendance of boat and four men:

Vessels of 40 Tons	£0	5	0
Vessels above 40 and under 60	0	7	0
Vessels above 60 and under 100	0	13	0
Vessels 100 Tons and larger	1	0	0

27. Vessels must allow ropes or warps of other vessels to be made fast to them, under penalty of £2.

28. All vessels in harbour must keep in their jib and mizen booms, under penalty of £2.

29. No lumber to remain on the quays or steps, under penalty of £1.

30. No conveyance having wheels shod with iron, allowed on Douglas pier, under penalty of £2.

WEST COAST OF ENGLAND.

RIVER RIBBLE TO SOUTHERNESS LIGHT.

The River Ribble. — PORT OF PRESTON.—The entrance to the River Ribble and Port of Preston is indicated by a large buoy at sea called *Nelson*, which should be observed by vessels bound for the river. It is a large Black Buoy with a Cage-Ball at the top, stands 26 feet out of the water, and may be seen in clear weather 10 miles. *Nelson of Preston* is painted upon it. The true bearings and distances from this Buoy are—Liverpool N.W. Lightship, S. ½ W., 17 miles; Pile of Foudry Light, N., 18 miles; St. Bees Head, N.N.W. ½ W., 50 miles; Calf of Man, W. by N. ½ N., 57 miles; Point Lynas Light, S.W. by W. ½ W., 41 miles; Douglas Head, W.N.W. ½ N., 50 miles; Maughold Head, N.W. by W. ½ N., 52 miles; Blackpool, N.E., 8 miles. Having observed the Nelson Buoy, the entrance to the River may be made by the North Channel or the Gut. The entrance to the North Channel is northward, and to the Gut southward of Nelson Buoy. The North Channel is buoyed by 10 buoys, numbered 1 to 10, and marked with the letter N.; the Gut by 5 buoys with cages on the top. The buoys are placed in the deepest parts of the Channels. The Gut joins the North Channel at No. 8 buoy, nearly opposite Lytham Lighthouse. The outer buoys of both Channels are placed in 3 fathoms water, their bearing and distances are marked upon Nelson Buoy, and from them the other buoys can be seen, From No. 10 buoy to the commencement of the stone embankments, about 3 miles east of the town of Lytham, the Channel is marked by small buoys and perches placed upon the north side of it, and from there to Preston by perches on the stone embankments on both sides of the Channel. Between buoys 4 and 6 in the North Channel vessels drawing 14 feet of water may lie at anchor afloat at low water. Lytham Lighthouse stands on the shore, in latitude 53° 44′ 33″, and west longitude 3° 1′ 29″. It exhibits two fixed lights, the lower one being red, and bears E., 7 miles from Nelson Buoy. Both lights are visible all round from the Blackpool to the Southport shores. On the north shore of the Ribble, and 3 miles east of the lighthouse, is the town of Lytham, before which there is a small tide light. Here also is a dock, where vessels can lie in safety, and to which a branch of the

Lancashire and Yorkshire Railway extends, connecting it with the main line. Vessels drawing 12 to 14 feet can go up to Preston Quays at spring tides. The quays are connected by a branch with the Railways leading to Manchester, Bolton, Blackburn, Accrington, Bury, and the various other manufacturing towns of Lancashire and Yorkshire, and the Wigan and Burnley coal fields. Mr. W. Allsupp's two Steam Tug Boats ply upon the River for the purpose of towing vessels to and from Preston, at the following rates per register ton:—No. 1 buoy to Preston and back 1s. 4d.; No. 1 buoy to Preston, or Preston to No. 1 buoy, 1s.; No. 1 buoy to Lytham, or Lytham to No. 1 buoy, 6d.; Lytham to Preston and back, 8d.; Lytham to Preston, or Preston to Lytham, 6d. Masters of vessels requiring a pilot or tug-boat, and not meeting with one outside the channels, should signal in sight of the lighthouse. A pilot will also, if required, go to any port to conduct vessels into the river on a letter being addressed to Captain Ashburn, Harbour Master Lytham.

Morecambe Bay.—In sailing towards this bay, which is about 8 leagues from Formby Point, keep full 4 miles from the shore, on account of the flat shoal water, known by the name of the Oyster Grounds; these begin nearly abreast of the "Red Banks," and extend to the S. side of Lund Deep. The western edge of these grounds is steep-to, and there are on some parts of the Oyster Grounds not more than 6 and 9 feet at low water. The entrance to Morecambe Bay is known by the name of Lune Channel, and is 2½ miles wide. On the southern side is the Point of Rossall, and on the northern side is the Island of Walney; on the former is a conspicuous beacon or landmark, and on the latter is a lighthouse, which bear from each other nearly north and south, distant 8 miles. The Point of Rossall is low land, and the beacon, when seen at the distance of about 5 miles, has the appearance of a vessel under sail. Morecambe Bay is encumbered with numerous large sandbanks, many of which dry at low water, and some at half-ebb. The general direction for the mariner, if bound to Lancaster, will be to attend particularly to his soundings, taking care to get into the deep water of the Lune Channel, and to remain there until he obtains a pilot. When in 24 and 25 fathoms, you will perceive the ends of the rock weeds floating, and the water of a darker blue than when you are over any of the banks.

The **River Wyre.**—The following are the directions for entering the Port of Fleetwood:—On coming from sea, keep the westernmost part of Walney Island to the eastward of Blackcombe until Rossall Landmark bears S.E.: here you are entering the deep water of Lune, where you will have 28 fathoms at low water. The shoals to be avoided on approaching Wyre are, Shell Wharf, North Wharf, and King's Scar Ridge. A large red buoy is laid down nearly on the point of the Ridge, to which a good berth should be given; it also marks the southern side of the Lune deep. A black perch is placed on North Wharf, about three-quarters of a mile S.E. by S. from the King's Scar Buoy. On the north side of Lune deep a black buoy, with globe on the top, and marked "Danger Patch," is placed a few fathoms westward of a shoal patch bearing that name. Between these buoys is the Lune deep or channel. Rossall Landmark is a large wooden structure (of a conical shape) built on the shore of Rossall point, and denotes the southern limit of Morecambe Bay. Walney Island, on which is a revolving light, is the northern limit. Shell Wharf extends to the westward of Rossall Landmark and North Wharf. If in hazy weather you fall in with low land, and not knowing whether it is Walney or Rossall land, your lead, which should never be neglected, will at once inform you; for 4 or 5 miles off Walney, you will have 8 or 10 fathoms, but at the same distance off Rossall only 4 or 5 fathoms. After passing the Danger Patch and King's Scar Buoys, you will observe the Fairway Buoy to Fleetwood channel. It is a vertically striped black and white buoy, and lies half-a-mile N.N.W. from the Screw Pile Lighthouse. Enter the channel between the Fairway Buoy and the lighthouse, leaving the lighthouse on the starboard hand, and running up for the chequered buoy on the Little Ford, leaving that buoy on the port hand. You will now have come up with the red buoy on the Big Ford; leave that on the starboard hand; then leaving all the black buoys, which mark the eastern side of the channel, on the port hand, and the red buoys and perches (the latter having red globes on the top) on the starboard hand, round close-to the Steep Breast, on the edge of which stands the Lower Shore Lighthouse, and where the tides run very strong: you then enter the Harbour. There are large red buoys for mooring ships to. Sail between the buoys and the shore, letting go your anchor when you reach the upper part of the Canshe Hole; but be careful not to foul the moorings of the buoys, as they run in various directions across the harbour. Strangers visiting this port should always hoist signal for a pilot, several of whom are constantly on the look-out. There are three pilot cutters (numbered 1, 2, and 3) with pilots for any of the ports in

the bay, and are generally cruising off the bay. The Screw Pile Light is a Fixed Bright Light, seen 8 or 10 miles in clear weather. There are also two Fixed Shore Lights, lighted from half-flood to half-ebb. By day, a black ball hoisted on a pole at the Screw Pile Light and Lower Shore Lighthouses, denotes the same interval of tide. A bell, tolling three strokes per minute in foggy weather, is sounded from the Screw Pile Lighthouse, and may be heard at the distance of two miles. There is good anchorage off North Wharf, anywhere between the King's Scar Buoy and the Lighthouse, in such water as the state of the tides and a vessel may require. A green buoy is placed near a wreck on the Bernard Sand, about half-a-mile N.E. of the Screw Pile Lighthouse; but your vessel should never be that far to the eastward, as the tides generally run across there, and will set you ashore.

The **River Lune.**—SUNDERLAND, GLASSON, and LANCASTER.—Sunderland harbour is at the mouth of the River Lune, and is dry. Large vessels may go in after half-flood, and lie on clean ground below the houses, and with neap tides, ships of 12 feet water may ride afloat in the pool, off the westernmost houses in the village. It is not safe riding in the pool with spring tides, because of the rapidity of the stream, which runs there about 4½ miles an hour when strongest. The channel leading into Sunderland is buoyed, and there is a Lighthouse on the south side, over against the point of Sunderland. Bernard's Wharf, the westernmost bank, begins to dry at half-ebb. At the easternmost buoy there is a patch of sand that dries with spring tides only. To come up with the outer or westernmost buoy of the channel of Lune River, take half-flood, and stand no nearer the North Wharf Bank than 8 fathoms water; or keep Lancaster Church Steeple a small sail's breadth open to the southward of the Bluff End of Highfield—a long hill under the same high land, which terminates in a remarkable Bluff Point, a little to the northward of the Church Steeple. This mark will bring you up to the Outermost Buoy, clear of North Wharf and Bernard's Wharf; or, when this mark cannot be seen, keep the westernmost part of Walney Island to the eastward of Blackcombe, until the Landmark bears about S.E. In this situation you are entering the deep water of the Lune, where you will have 28 fathoms at low water, and the Outermost Buoy bearing about east from you; and should you be forced in by strong gales, or night coming on with a flood-tide, that you cannot keep an offing, you may bring your vessel safely to an anchor to the southward of the buoy.—If in dark hazy weather you should fall in with low land, bearing E.N.E., &c., and not know whether it is Walney or Rossall land, your lead will at once inform you; for at the distance of 4 or 5 miles from Walney, in that direction you will have 8 or 10 fathoms water, but at that bearing and distance from Rossall, only 4 or 5 fathoms.—*To avoid the Shoals on the north side of the Bay:*—Near low water come no further in, with a vessel of considerable draft of water, than where Walney Lighthouse is open to the eastward of the highest part of Blackcombe, when the Landmark bears S.E., as you are here to the westward of the Stony Patches on the north side of the Lune, where you may safely stand off and on for a pilot.—*To avoid the Shoals on the south side of the Bay:*—Shell Wharf extends W. by N. to W. by S. from the Landmark, therefore you must take care about low water to keep the Landmark to the southward of E.S.E., and when you steer for the buoy at the proper time of the tide, and having fallen into the deep water of the Lune, you must allow for North Scar and North Wharf, a high bank, which runs out 2 miles northward of the Landmark, and covers about half-flood. About high water, you may venture in the day time to stand over any part of the bay from Pile of Foudry to the Outermost Buoy in the Lune; but in the night or thick weather, keep further out to the westward, taking care to keep the lead constantly going, and watch every opportunity to take the bearings of the marks before mentioned, until you obtain a pilot.—The *First*, or Outermost Buoy, lies in 6½ fathoms at low water, neap tides, with Pile Castle bearing N.N.W. ½ N.; Lighthouse on Walney, N.W. by N. ½ N.; North End of North Wharf, W. by S.; Landmark on Rossall Point, S.W.; Foot of Wyre Lighthouse, S.W. by W.; Lancaster Church Steeple, a little open with Highfield, E. by N.; Second Buoy, E.S.E. The First Buoy must be passed on the south side. If too early of the tide, or too late in the evening to proceed up the river, you have good anchorage one cable's length to the eastward of the Second Buoy, under Bernard's Wharf, where you will have 3 fathoms at low water, and little current; but you must not proceed up the river with a vessel of considerable water draft until after half-flood. The *Second* Buoy lies in 3 fathoms, with Outermost Buoy bearing W.N.W.; Third Buoy, S.E. by S. The *Third* Buoy lies in 5 feet, with Second Buoy bearing N.W. by N.; Fourth Buoy, S.E. by E. The *Fourth* Buoy lies in 5 feet, with Third Buoy bearing N.W. by S.W.; Fifth Buoy, E.by N.½N. The *Fifth*, or Innermost Buoy, lies in 5 feet, with Fourth Buoy bearing W.byS.½S.; Lighthouse on

Abbey Scar, E. by S. Keep the Upper and Lower Lighthouses in a line, and guard against the flood-tide setting strong to the southward, up Cocker. Soon after you have passed the Lower Lighthouse, keep Basil Barn a little open to the southward of Overton Chapel, which will take you clear of Thornbush Fishery and Town's Skear, to Sunderland, where you may obtain a pilot. The deepest water is on the south side of all the Buoys, and the River Buoys are placed on the north side of the channel.—GLASSON is about 5 miles before you reach Lancaster. Upon the pier is a harbour light, shown at tide time. The tide flows at the dock gates the same time as at Liverpool; adding two inches to every foot of water at Liverpool, will give the height at Glasson. Every vessel going into the dock must clew up her sails, and (if the wind be any way to the northward) let go an anchor before coming into the Dock Gut, to prevent her anchor bills running through her bows and destroying the works. If the wind be from the westward, and a flowing tide, she may safely touch on the west side, and be veered alongside the pier-head, by a line from the westward; but on no pretence whatever is any vessel to attempt going in under ever so easy sail, as several serious losses have already been sustained thereby; and no steam-vessel is to use her paddle wheels either in going in or out of dock, but to let off steam before doing so. Masters of vessels offending in these particulars are liable to a penalty of £5, besides having to repair the damage.—From Glasson to LANCASTER the Channel is irregular, variable, and shallow; the shallowest part of it having no more than 7 feet water at high water with neap tides, and 12 or 14 at high water with spring tides. Pilots, legally appointed to conduct vessels to and from the quays at Lancaster, may be obtained at Snatchems, near Sunderland.

Morecambe Harbour.—This harbour is situate at the terminus of the North Western Railway, and is connected with the Midland, and Lancaster and Carlisle Railways. A new stone pier has recently been constructed, and superior accommodation provided for the transhipment of passengers and merchandise between the railway trains and steamboats. The dues levied on vessels in respect of lights and buoys are 2d. per ton on vessels from ports in the United Kingdom, and 3d. per ton on vessels from ports beyond, but when such dues have been paid three times in one year by any vessel, they are then reduced to 1d. per ton on the same vessel for the remainder of the year. There are no other dues or port charges on vessels.—The sailing directions for Fleetwood or Lancaster must be adhered to until the Screw Pile Light at the foot of Wyre bears south, then, if flood tide, haul up N.E. by N., and if ebb, N.E., which course leads to the New Screw Pile Light at the entrance of the Channel to Morecambe Harbour. This Lighthouse is upon the same plan, and is similar in appearance to the Foot of Wyre Lighthouse, but exhibits a *Red Light*, visible at a distance of 6 miles, and with the following compass bearings:—Walney Light, N.W. ¾ W., 6¼ miles; Wyre Light, S.W. ½ S., 4⅜ miles; Morecambe Harbour Pier Head Light, E. ½ N., 5½ miles. The Light is masked to the extent of one-fourth of the circle facing Heysham Lake and Lune Estuary. A Ball by day, and a small *Green Light* by night, on the west side of the house, indicate when not less than 8 feet water in the Channel up to the Harbour. A Bell is tolled during foggy weather or snow.—Seven Buoys define the Channel leading to Morecambe Harbour, namely:—No. 1 *Red* Buoy, on the Western Point of Clark's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W.; Morecambe Harbour Pier Head Light, N.E. ½ E.; Walney Light, N.W. ½ N.; No. 2 Red Buoy, E. ½ N.; No. 2 Black Buoy, E. by N. ¼ N. No. 1 *Black* Buoy, on the Western Point of Yeoman's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W. ½ S.; Morecambe Harbour Pier Head Light, E. ¼ S.; Walney Light, N.W. ¼ N.; No. 2 Red Buoy, E. by S. ¼ S.; No. 2 Black Buoy, E. ¼ S. These two buoys define the mouth of the channel; they are about a sea mile apart, and have a depth of about 9 feet between them at dead low water. No. 2 *Red* Buoy, on the north side of Clark's Wharf, the compass bearings being—No. 2 Black Buoy, N.E. ¼ N.; No. 3 Red Perch Buoy, E.N.E. No. 2 *Black* Buoy, on the south side of Yeoman's Wharf, the compass bearings being—No. 3 Red Perch Buoy, E. ½ N. No. 3 *Red* Perch Buoy is placed on the western point of Low Scare, and may be passed on either hand. It is larger than the others, and has a circular cage on the top; it rolls very heavily during the strong current of flood or ebb tide. Vessels approaching the Harbour at low water may anchor either above or below this buoy, where there is excellent holding ground in a depth of not less than 5 fathoms at dead low water, spring tides, and remain there until a Black Ball by day is exhibited at the end of the Pier, and at night until half-flood, when there will be a depth of 8 feet in a clear course between the No. 3 Black Buoy, and No. 4 Ked Buoy up to the harbour. The compass bearings from this buoy are—No. 4 Red and No. 4 Black Buoys, E. ¼ S. No. 4 *Red* Buoy is on the

end of the Old Scare, and No. 4 *Black* Buoy is on the end of Stone Scare. A Lighthouse is erected on the New Pier, which exhibits a *White Light* from sunset to sunrise; in the daytime a Black Ball is hoisted when there are 8 feet water between the No. 4 Red and No. 3 Black Buoys.—*Vessels running in at low water must keep the lighthouse on the port hand; the best water being near the No.* 1 *lted Buoy.*

Pile of Foudry.—Pile of Foudry is a harbour near the south end of Walney Island, where large merchant ships may ride in good shelter near the west or south-west side of Roe Island, in from 3 to 5 fathoms water. Small vessels commonly lie aground in the bight, on the east side of Pile of Foudry Island, about a cable's length from high water mark, when the house bears S. by W. In the anchorage near Roe Island the streams of flood meet; one from the north, the other from the south, and make it troublesome to keep the anchor clear. The stream here runs abont 3 miles an hour when strongest. On the south end of Walney Island is a stone lighthouse, exhibiting a revolving light 70 feet above high water, flashing every minute, visible in clear weather 3 or 4 leagues; there is also a small fixed light of a red colour. On the north side of this channel is Walney Island, which is low land, and on the south side are several sandbanks or stony ledges; the most dangerous of these is the Stony Patch, which lies to the westward of all the others, distant from the lighthouse on Haw's Point about four miles; to clear it to the westward, bring the Old Castle on Pile Island just open to the eastward of the lighthouse. The lead should be kept constantly going, and if coming from the southward, bring Blackcombe Hill on with the north end of Walney Island, and keep them so until Walney Lighthouse comes E.N.E., and the ruin upon Foula Island touches Haw's Point. The Helpsford Sand is on the S.E. side of Walney, within a mile of the shore, to clear which, you must bring the dwelling-house near the lighthouse a sail's breadth open of the southernmost sandhills, or the lighthouse just clear of the eastern chimney of the same house, bearing N.E. by E.; then, as you advance, bring the ruin of the house on Foula, before mentioned, on with Haw's Point, and these marks will lead you in. Upon the bar is 15 feet water at 2 hours' flood, and the rise of tide is sometimes 29½ feet. The strength of the flood tide is 2½ knots an hour, and the ebb nearly the same. In leading to the anchorage with a flood tide, and the wind scant, you may stand along the southern part of Walney about a mile from the shore, and have regular soundings. In dark weather, should you fall in with land bearing E.N.E., and uncertain whether it is Walney Island or the land adjacent to Rossall Point, then you must be guided by your lead, for at the distance of 5 miles from the former are 7 and 8 fathoms, but at the same distance from Rossall there are only 4 or 5 fathoms; allowance must be made for the rise and fall of the tides, making high water full and change at 11 o'clock. In running for the Pile of Foudry anchorage at half-flood, give Haw's Point a berth of half a cable's length, and keep off Pile Castle Point a similar distance, then, should your vessel draw 10 feet water, anchor in the bight below the house on Pile Island, or near to Roe Island, in 5 fathoms, with the lighthouse open to the starboard of Pile Castle. The breadth of the anchorage above Roe Island is nearly 2 cables. Here the ground holds well; as the tide ebbs you become quite landlocked and may shorten your cable, to enable you to swing clear of either side at low water in 3 fathoms.—Vessels bound from Pile to Barrow should leave Roe Island Pier Lighthouse on the starboard hand, when they will fall in with the Fairway Buoy for Barrow, painted black and white. Further on they will find *Six Red Buoys.* Nearly in a line by keeping them on the starboard hand will lead vessels up to Barrow Pier, where they will have 18 feet water spring tides, and 10 feet neaps. A strong flashing light from the Iron Works lately erected at Windpool, 1½ miles north of Barrow, may be seen bearing from Walney Island Light N. ¼ W.; Hilp's Ford N. N. E. ¼ N.; Cockspeck Scar, W., and may be seen 15 miles seaward.

Ravenglass is a dry harbour, where three rivulets, the Esk, Mite, and Orte, unite about 12 miles to the southward of St. Bee's Head. There is a buoy placed a little within the mouth of the channel, in the middle, near the Fish Wear, which marks the entry. At this buoy, and in most parts of the channel, the depth is 3 fathoms at high water, with neap tides. The best part for vessels to lie aground on is, half a cable's length from the west end of the town of Ravenglass, on the south side of a perch which stands on the point of a sand there. At this anchorage, in the mouth of the river Esk, and also at the meeting of the other rivers, there are 3 fathoms at high water with spring tides, and 10 feet with neaps. To sail into Ravenglass Harbour, take 4 hours of flood, keep above a mile from the coast to avoid Selker and Drig Rocks (till Ravenglass town bears E.N.E.); steer in that course till you see the buoy bearing east, and then steer right for it, keeping within a ship's length of it on either hand; when you are just past the buoy, steer E.N.E., or keep Ravenglass a sail's breadth open to the north of your stern, till you are

about half a mile from the east end of the sandy hillocks; hook the small bay, which begins there; keep near a cable's length from the point at the end of the small bay, and anchor half a cable's length from the west end of the town, or off the perch, in the meeting of the three rivers. When the buoy in the entrance bears E., it is also in a line with the south shoulder of Newton Knot Hill, which is a small hill half a mile south of Ravenglass. The tide flows here, full and change, at 11 o'clock; and off the Bar runs as follows: the last half-flood and the first half-ebb set Northward, at the rate of 2 miles per hour, spring-tides; and the last half-ebb and first half-flood Southward at the same rate. There is a foot of water more on the Bar than shown by this Tide Table.

St. Bees Head.—To the Northward of Ravenglass Harbour, distant 13 miles, is St. Bees Head. On its summit is a LIGHT-HOUSE, the light from which is *stationary*, appearing like a bright star at the distance of 6 or 7 leagues in clear weather. From the entrance of Formby Channel to this Head, the course and distance are N. by E. 20 leagues. In sailing along from Walney Island to St. Bees Head, keep 2 or 3 miles from the shore, and you will clear every danger. Vessels in moderate weather, may stop a tide any where along the coast, for the stream seldom runs more than a mile an hour.

Whitehaven.—About 3 miles E.N.E. from St. Bees Head is the town of Whitehaven: the harbour is dry, and divided into basins by strong quays, which break off the sea. Within the second basin is the best place for vessels drawing above 10 feet water. Here you will find 20 to 22 feet water spring-tides, and 12 to 14 neap. The HARBOUR LIGHTS are upon the outer and inner Pierheads. The inner Light is *stationary*, of a RED colour, and is lighted while there are 9 ft. water between the Pierheads. The outer Light *revolves*, is lighted all night, and is seen at a distance of 3 or 4 leagues in clear weather. The light appears in its brightest state once every 2 min., and gradually becomes less luminous, till eclipsed. In the day a *Flag* is hoisted on a pole at the top of the old Lighthouse, while there are 9 feet water in the harbour, on entering which, keep both lights on the starboard hand.—A Blue Light is shown from a lighthouse on the end of the north pier, which has been extended 352 yards.

Harrington Harbour is 4 miles Northward of Whitehaven. A *Lantern* is hoisted upon a pole on the starboard side of the entrance, while there are 8 feet of water in the harbour, and in the day a Red Ball, at the inner end of the pier, during the same interval of tide.

Workington is 2 or 3 miles north-eastward of Port Harrington. A red ball is hoisted upon a pole on St. John's pier when there are 8 feet water in the harbour; and at night a light is exhibited on the pier-head, which answers a like purpose, and can be seen in clear weather at about 3 leagues from any point seaward. The channel into this port is along the south shore, its entrance bearing from St. John's pier nearly E. by S. by compass. It is formed by red buoys on the south side, and black buoys and perches on the north side, the deepest water being midway between. The outer perch has a cask upon it, painted black, which must be kept on the port side in entering. Steer in between the perches and red buoys, giving St. John's pier-head a berth of about 100 feet on the starboard side. After passing St. John's pier a perch with a white board upon it is the leading mark for the channel by day; and, by night, the southernmost of the blast furnaces on the north side kept right a-head, until an inner light which is on a wooden pier bears about S. E. $\frac{1}{8}$ S.; then steer S.E. $\frac{1}{2}$ E. for the entrance to the harbour, keeping the light upon the wooden pier on the starboard side, and passing a perch with a small black cask upon it by about 10 feet on the larboard side, when the harbour boat will be in attendance.

Maryport, situate about 5 miles N.E. of Workington, is easy of access, free from sand banks, and has a capacious dock, in which vessels are kept constantly afloat, as well as its original tidal harbour and basin. Depth of water in ordinary spring tides, 21 ft. 6 in., neap tides, 13 ft. 6 in.; or by adding 3 ft. to the water shewn in Holden's Liverpool, and the Manx tide tables, a near approximation for each tide will be obtained. A fixed bright light is exhibited on the outer pierhead all night, and another on the inner stone pier whilst there are 8 feet in the harbour; both lights are on the starboard side in entering, and are visible at sea from E.N.E. to W.S.W., the former at a distance of 15 miles, and the latter 10 miles. A Red Ball near the inner lighthouse denotes 8 feet in the day time. The jetty on the south side is distinguished by a Red light, and the north tongue by a Green one. Steam tugs are in readiness every tide, and when required by vessels at night, two lights must be shown one above the other; or by day a union jack at the main. There is good anchorage in stiff clay, about 1$\frac{1}{2}$ miles off shore, the outer lighthouse bearing S.E.

Solway Frith.—The entrance to Solway Frith may be considered to commence abreast of Workington, on the English, and at Abbey Head on the Scottish shore, the distance between which is 5 leagues. On the eastern side of the

Frith of Solway, about 10 miles north-eastward from Maryport, is

Port Silloth.—This place is daily increasing in importance, being connected by railway with Carlisle, Newcastle, and Edinburgh, the rails of which are laid on the quays. It contains a wet dock, with entrance gates 60 feet wide, and a jetty from the dock entrance 1000 feet outwards to low water mark. The dock is fitted up with Hydraulic Machinery, by which vessels are discharged and loaded with the greatest possible dispatch. The dock sill is 3 feet 6 inches above low water mark; and, by adding 5 feet to any tide in this tide table, the depth over the sill will be given for high water. A Yellow Light is shown in the Lighthouse at the outer end of the jetty from Sunset to Sunrise; except during the time the gates are open, when the Yellow Light is discontinued and a Green Light exhibited in its place. A Red Ball is hoisted on a Pole at the Lighthouse during the time gates are open by day. In Silloth Bay (between Lee Scar Light and the jetty) there is excellent anchorage in from 4 to 6 fathoms at low water, clay bottom. There is also good anchorage all the way from the fairway buoy to Siloth, with the Red Light a sail's breadth open north of Lee Scar. It is high water here, full and change, 11h. 35m.; spring tides rise 26 feet and neaps 20 feet. The fairway course, from about a mile off Workington to the Light Vessel at the entrance of the channel, is N.E.; and to avoid the tail of Robin Spit, care should be taken not to bring the vessel to the eastward of E.N.E, on which bearing the bright Light on Lee Scar will be in one with it. This Light Vessel is in the middle of the channel, in 3¾ fathoms at low water, and exhibits a fixed Red Light at 25 feet above the water, visible six miles. From it Maryport Outer Light bears S. by W.½W., 4¼ miles; Southerness Light, N. ¼ E., 5½ miles; and Lee Scar Light, E. N. E., 6 miles. It has a black ball at the mast-head during the day, and in fogs a bell is tolled. Having passed the Light Vessel, continue to run on N.E. ¼ N. 1¾ mile, which will lead you up mid-channel in 3½ to 4 fathoms at low water. Close to the Black Nun Buoy No. 2, where the bright Light on Lee Scar comes in one with the Cott Red Light, bearing E. by N. ½ N., alter your course to that direction, which will carry you up the fairway as far as Lee Scar in a depth of 2¼ to 5 fathoms. On passing Lee Scar Lighthouse keep a good cable's length to the northward of it. Silloth Harbour is about half a mile above Lee Scar. When following the preceding instructions, it is necessary to bear in mind that, as far as Silloth Bay, the black nun buoys should be kept on the port, and the red can buoys on the starboard hand. The black and white striped buoy marked F, in the fairway off Beckfoot, is passable on each side. The shoalest part of the channel, on which there are 2¼ fathoms at low water, is about half a mile below this latter buoy; thence to Silloth the depth is from 3 to 5 fathoms. The harbour expenses, including light charges, are—Coasting vessels 6d.; Foreign vessels 9d. per register ton. Branch Pilots for Silloth may be had (if required) off Maryport; charge, 1s. 9d. per foot.

Port Carlisle, a dry harbour, 10 or 11 miles up the Frith from Silloth Bay, is connected with Carlisle by railway, the rails of which run on the quays. It is high water here, full and change, at 12h. 10m.; springs rise 18 feet, and neaps 11 feet; the flood runs 3 hours. Vessels running up from sea and bound to Port Carlisle should alter course for the North Channel at the second black buoy above the Lightship (that is, the Perch Buoy D 1), and haul across N.E. ½ N. 1¾ miles to Black Can Buoy marked N 1, from which N.E. leads up to Buoy N 2, thence N.E. ¼ E. to Buoy N. 3, from which N. E. ¾ E. leads to Perch Buoy in Powfoot Channel. Vessels in the anchorage at Silloth bound up, after half-flood, may take the South Channel, after leaving the Bay N.E. ¾ N. will lead up past buoys Nos. 1 and 2, and up to to the White and Black Buoy, thence N.N.E. will lead over the bar to Perch Buoy in Powfoot Channel, afterwards follow the buoys up, which are all placed in the fairway. The harbour expenses, including light charges, are—coasting vessels, 4d., and foreign vessels, 9d. per register ton. Pilots may be had off Maryport; charge, 3s. 6d. per foot.—At Annan Foot there is a bright tide-light, and 2 perches on the western side of the entrance; the light is shown from half-flood to half-ebb. There is also a tide-light on the end of the jetty at Port Carlisle, 3 miles above Annan Foot, on the opposite or southern side of the channel; this light opens off Knockcross Point, on a S. E. by E. bearing. After passing Annan, soundings should be taken of the English side of the channel up to Port Carlisle.

Magnetic Bearings & Distances

FOR THE WEST COAST OF ENGLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

BUOY NELSON, OFF PRESTON (Lat. 53 43 N., Long. 3 11 14 W.) MILES.

To Beaumaris entrance.... W. by S. 39
Dundalk Bar..... N.W. by W. 112
Douglas Head Light N.N.W. ¾ W. 50
Ross Light, Kirkcudbright.... N. 71

WYRE LIGHT, FLEETWOOD (Lat. 53 57 14 N., Long. 3 1 46 W.)

To Great Orms Head.. S.W. by W. ¾ W. 45
Dundalk Bar.... N.W. by W. ¾ W. 112

WYRE LIGHT, FLEETWOOD — MILES.
To Wicklow Head Light .... W. ¼ S. 118
Calf of Man L'ts. N.W. by W. ½ W. 65
Walney Light .... N. by W. ½ W. 8
WALNEY LIGHT (Lat. 54 2 56 N., Long. 3 10 32.)
To Wyre Light ..... S. by E. ½ E. 8
N.W. L'tship, L'pool. . S.W. by S. 35
Kish Lightship ..... W. ¼ N. 104
Calf of Man .... N.W. by W. ¾ W. 57

ST. BEES' HEAD (Lat. 54 30 50 N., Long. 3 18 W.) — MILES.
To N.W. L'tship, L'pool S. by W. ½ W. 65
Tuskar Rock Light S.W. by W. ½ W 162
Douglas Head Light .. . W. by S. 42
WHITEHAVEN (Lat. 54 33 N., Long. 3 26 2 W.)
To Beaumaris entrance .. S.W. ¾ S. 76
Skerries Light .. . ... S.W. ¾ W. 65
Bahama Lightship ..... W. by S. 24½

WEST COAST OF SCOTLAND.

SOUTHERNESS LIGHT TO THE MULL OF CANTYRE.

Southerness Light, at the west side of Solway Frith, is chiefly useful as a direction to the harbour of Dumfries. It shows a fixed bright light, from N.E. seaward to W., which can be seen at the distance of 11 miles in clear weather.

Little Ross Island—A Lighthouse has been erected upon this Island, which lies off the entrance of Kirkcudbright bay and harbour. It bears a fixed and flashing light, producing 12 bright flashes in a minute, visible from N. by E. to N.W. by W. Southerly, at the distance of 6 leagues.

Kirkcudbright is formed by the Points Balmae and Torrs to the E., and the Island of Little Ross to the W. There are two Towers on Little Ross bearing S.W. from each other, which being kept in one lead over the Bar in the best water to the First Perch on the S.E. shore; thence running N.E. about 300 yards, passing a Red Buoy on the point of the bank on the larboard hand; thence N.N.W. passing the Perch on the point of St. Mary's Isle on the starboard hand; thence direct to the lower Fish-house, where is a Pool a vessel can ride afloat at spring ebbs. Abreast and above the upper Fish-house there is excellent lying on soft mud, moored to rings on the rocks, and no stream of tide. On the bar of Kirkcudbright River there are about 7 feet water at half-flood. Vessels running for this place, and not having water over the Bar, will find good anchorage in the Ross Roads in from 2 to 3 fathoms at low water, in good clay ground. Should the wind be Southerly, blowing hard, a vessel should bring up on the W. side of the beach just as the sound begins to open, the closer to the beach the better, as it is very steep-to and quite out of the sea. At half-tide she can trip and run up the lake to the Lake or Fish-house, or waiting 4 hours' flood may run up for the Perch off St. Mary's, and proceed to Fish-house or the town. The coast from Kirkcudbright to Belcarey Bay and River Urr is a bold rocky shore, with neither beach nor harbour.

Belcarey Bay, about 8 miles to the E. of Abbey Head, is formed by the High Lands of Aairds to the W., and Heston Island to the E.; entrance ½ a mile wide. The Heston Island is also high, and highest in the middle: this is an excellent place and too little known. Vessels running for it should keep close past the Aairds, and keep close up till they come above the first salmon weir opposite the large house in the bight, when they may go as far in as water will admit, as it is all clean ground, and quite landlocked from all weathers. The tide sets strong E. and W. past all these places, till a vessel comes within the points mentioned.

Wigton Bay lies to the westward of Kirkcudbright Bay, and has a spacious entrance, with several places where vessels may stop in moderate weather, or when the wind blows off the shore. The river channel at the north-west or upper end of the bay, leading to the town of Wigton, is intricate, and only fit for small vessels who know the place. Vessels may stop with good anchorage in 7 or 8 fathoms water, about a mile to the northward of Stein Head, and half a mile from the shore, where the bottom is clean sand.

Garlieston. — This is a safe and sheltered dry harbour in the north-west corner of Wigton Bay, with a convenient quay, against which small vessels lie on an even and soft bottom. The outer bay has shelter from W. winds, and good anchorage between Criggleton Point and Eagerness Point. There is a small ship yard, and a town with good supplies at Garlieston. When desired a light is shown from the pier-head, which has been recently extended 250 feet, and where are at springs, 18 to 20 feet, and 11 to 12, neaps. From the pier-head the Ross Light bears S.E. by E. In taking the harbour, keep the perch off the break-

water on the larboard hand. Port charges, 1d. per ton; harbour boat, 3s. to 6s.

Whitehorn.—To the southward of Stein Head and near Burrow Head is Whitehorn Island, between which and the coast is Whitehorn harbour, in which vessels drawing 12 feet water cannot be neaped above twice a year at the quay. It is well sheltered from all winds. The only danger is the Screen's Reef, a rocky ledge, marked by a perch, extending from the west point, upon which the tide sets very strong. Going into the harbour from the west, if Stein Head be kept open of Kairnharrah Hill it will clear the rocks on the west side.

Glenluce Bay.—To the westward of Burrow Head is the bay of Luce, within which and near to the Mull of Galloway lie the Scar Rocks, always above water. There are no shoals near them; but off the Little Scar are two or three rocks, which the sea sometimes washes over. In moderate weather, with W. and S.W. winds, vessels may stop anywhere on the west side of the bay of Luce.

Mull of Galloway.—On the Southern point of the Mull of Galloway, a Lighthouse has been erected, and bears, by compass, from the largest of the Scar Rocks, W. ½ N., 6 miles; from Burrow Head, W. by N. ¼ N., 18 miles. The light is intermittent, 2½ minutes bright, then eclipsed ½ a minute; is visible seaward 23 miles from N. E. to N. W. ¼ W.; but the high lands of Dramore shut the light from the view of the mariner in coasting along the Port Patrick shores. After rounding the Mull, which is a rocky shore, you will soon reach

Cromack Point, about 4 miles from which is

Port Nessic Harbour, fit only for small craft; but a vessel drawing not more than 6 or 7 feet, may find shelter from N. or N. W. winds, by running aground near the pier head. Seven and a half miles further is

Port Patrick, a small and dry harbour open to the westward. Small vessels must go in at high water, and run aground on the N. side of the creek, or within the pier, so as to be out of the reach of the sea, in case the wind should blow from the W. or South-westward.

Point Corsewall is about 14 miles to the northward of Port Patrick, and is the north-west point of entrance to Loch Ryan; between are some rocks, but they lie close in shore, and are mostly above water. On the rocks off Laggan Point called Ebbstone Rocks, which dry at low water, is a red beacon consisting of a pyramid of iron pillars, 40 feet high, with a cylindrical open cage on the top. From it Corsewall Lighthouse bears N.E. by E.; the highest point of Ailsa Craig, N.E. ¾ N.; and Laggan Point, S.S.E. ½ E. On Corsewall stands a Lighthouse, exhibiting a white and red light alternately; these lights revolve, and attain their greatest brilliancy every 2 minutes. They may be seen, like a star of the first magnitude, at the distance of 5 or 6 leagues, and are visible from N.E. by E. northerly, to S.W.

Loch Ryan is capacious, of easy access, well sheltered, with good holding ground, and depth sufficient for large vessels. The only danger to be avoided is the Scar, a tongue of sand on the western side of the Loch, and about 3 miles up the harbour, which extends 1½ miles south-eastward from Kirkholm Point. There is a large Red Nun Buoy on the S. end of the Scar, which distinctly shews its position. The best anchorage is about ½ a mile to the southward of Cairn Point, in 6 and 7 fathoms. On this point is a tower, exhibiting a fixed light of the natural appearance, serving to lead to the anchorage. Opposite the Lighthouse Tower is a small Red Buoy, to mark the eastern edge of the Scar. Fourteen miles N.N.E. from Loch Ryan is the

Craig of Ailsa, a rock 940 feet high, with deep water all round it, serving as a beacon to guide ships to the entrance of the Clyde.

The **Frith of Clyde** makes a fine open entry to several rivers, having no danger more than a quarter of a mile from the shore, excepting the Brist Rock, which lies three-quarters of a mile W. ½ S. from Turnberry Point; it dries at half-ebb, and is about half-a-mile from shore.

Ayr.—Ten miles from Turnberry Poin is the Town of Ayr, with a lofty Spire seen from a considerable distance. Here is a commodious harbour, fit for vessels drawing 12 to 14 feet water. The bar, at low water, has from 4 to 6 feet water over it, and with spring-tides at high water there are from 13 to 15 feet, and with neap from 11 to 12 feet over it; with fresh southerly winds there will be a foot more; for S. and S.W. winds raise the tides in all the rivers of the Frith of Clyde, and N. and N. E. winds have a contrary effect. On the north side of the harbour is a light-house exhibiting two lights; the upper bright, having a star-like appearance, and the lower red. There is also a tide-light (red) shown when 8 feet water are on the bar. The distance between the lights is 850 feet; and they bear from one

another S.E. by E. ¼ E., and N.W. by W. ¼ W., and are leading lights for entering the harbour, and when kept in one lead over the bar in the deepest water. The upper or bright light may be seen 12 miles off; the red 9 miles; and the tide light 4 miles off. Vessels drawing 7 feet water may make directly for the bar so soon as the tide-lamp is lighted. A flag is hoisted in day-time at half-flood, and continues to be so until half-ebb. About a cable's length S.W. of the south pier lies St. Nicholas Rock, which dries with spring tides only; you will avoid it by keeping the two red buoys on the starboard hand coming into the harbour, the breakwater being on the larboard hand. There is an iron steam tug for towing vessels in and out; and the bar and harbour are being further deepened by means of a powerful dredging machine.

Troon Harbour has an extensive pier and breakwater, with 4000 feet of quayage room, and an average depth of 12 feet at low water; at the outer pier the rise and fall of the tide is from 8 to 11 feet. About 1 mile S.S.W. of Troon Pier is the Lady Isle, a large patch of rock with a large and small Beacon on it. These Beacons are not leading marks, and there is plenty of water inside the Isle. At the distance of half-a-mile N.E. from the pier, is a half-tide shoal, on which is a red buoy. Here are exhibited two Lights; one, on the inner end of the Pier, intermittent, 40 seconds bright and 20 obscured; the other on the Pier-head, red. They bear from each other N.E. ½ N. and S.W. ½ S. 350 yards; and are visible, respectively, 9 and 6 miles. This harbour is perfectly safe, and may be run for in any weather by vessels of moderate draught of water, as there are no dangers but what are to be seen, and pilots are always in attendance. An extensive open wet dock or basin, 400 feet long by 300 wide, with 20 feet at low water tides, and capable of admitting the largest ships or steamboats, adds to the importance of this port. A branch of the Glasgow and Ayr Railway comes down to the harbour, as does also the Railway of the Duke of Portland from Kilmarnock. There is also an extensive ship-yard, with one of the finest graving docks in the west of Scotland, capable of receiving ships of the largest size. The magnetic bearings and nautic distances are as follows:—From Troon pier head to Ayr Harbour, S. by W., 5 miles; Dunure Point, S.W., 9 miles; Beacon on Lady Isle, W. by S., 2½ miles.

Irvine.—Four miles and a half from Troon are the town and harbour of Irvine; and nearly midway, is Lappock Rock, upon which was erected, in 1843, a beacon about 40 feet above the level of the sea, bearing S.W. Southerly, distant about 2 miles from Irvine bar. There are now from 12 to 13½ feet water on the bar at high water spring tides; ordinary tides, 12 feet; and at low water 4 feet. There is a red warping buoy placed in the *fairway* of the river, about two cables' length from the bar perch, which perch must be kept on the starboard hand on going in. There are also pawls all the way up the river on both sides. Vessels running in should keep the middle of the river, and run right up till they come to the end of the stone quay, where they can either beach or anchor. There is a steam tug for vessels frequenting this harbour.

Ardrossan. — At about a mile to the N.N.W. of Saltcoats are the spacious wet dock and harbour of Ardrossan, in which 100 sail of coasters can lie with ease. The pier and breakwater completely shelter the harbour from southerly and westerly winds; and Horse Isle, with the other rocks, protect it from the N.W. The greatest depth at low water in the Inner Tidal Harbour is 10 feet, and in the Outer Harbour 18 feet. The entrance loch to the wet dock is 160 feet long and 40 feet wide; and at average tides there is a depth of 18 feet over the sill of the lock. The railway trains come alongside all the berths in the wet dock and harbour. There are a graving dock and patent slip attached to the wet dock. —In place of the two previously existing harbour lights, a new lighthouse, exhibiting a red light, has been erected at the extremity of the Breakwater. This light illuminates an arc of from 15° to 20° in the direction of the open channel leading into the harbour, and bears from the middle of this channel E. and by N., on which bearing it is brightest. A vessel running for the harbour should steer the usual course from Pladda towards Cumbray Light, and when about 14 miles past the former, and 7 miles from the latter light, the Ardrossan Light will be seen, in favourable states of the weather, on the starboard, at the distance of about 5 miles, and bearing E. by N. In running into the harbour the light should never be closed; but the vessel must be kept within the illuminated space in which there is nowhere less than 22 feet at lowwater. A black can buoy marks the north side of the channel by day, which is on the west Grinan Rock, and there is a perch on the Grinan Rock, both to be kept on the larboard hand.

THE **River Clyde** is remarkable for the ease and safety with which it may be navigated. It is provided with numerous well sheltered harbours, and spacious arms of the sea, of easy access, and capable of containing the largest fleets. In ap-

proaching it, there are neither rocks, nor shoals, nor rapid tides to be feared. Ailsa is a high mountainous rock in the mouth of it, conspicuous at more than 10 leagues' distance, and serves as a remarkable beacon to direct ships to it; there are 4 Light Houses to direct mariners farther up, and to good shelter in the night; and there is hardly one opening to be seen but what a stranger, without chart or pilot, might venture safely to run for in the day time, and find good anchorage within it On coming up the S. or St. George's Channel, and passing Ailsa Rock at 2 miles' distance, the course by compass for Cumbray Head is N.N.E. ½ E. nearly, and will carry you clear of Holy Island, which forms the harbour of Lamlash. If at night, the LIGHTS will be seen on Pladda, a small low Island off the S.E. of Arran Isle. The distance between Ailsa Rock and Pladda Lights is about 11 miles, and from Pladda Lights to the Light on Cumbray Island 18½. There are very large Furnaces of Iron Works between Troon and Ardrossan, which shew for a long distance at night, and might mislead a stranger, unless aware of what they are. It would, however, be advisable for strangers to keep between the Rock Ailsa and the Island of Arran, till daylight. When coming in the NORTH Channel, particularly during the winter months, with a N.W. gale, ships should never run to leeward of Arran during the night, but as soon as they pass the Island of Sanda, inside the Mull of Cantyre, they should haul by the wind, on the larboard tack, with the ship under easy sail, standing 2 hours each way. By this you keep in smooth water, and when daylight comes, can act according to circumstances. Should you run to the leeward of Arran, the wind, which was N.W. will be found at N.W. by N. and sometimes N.N.W. blowing heavy, with very heavy gusts, Keeping to windward, should the gale increase or continue long, you have Loch Ryan under your command; its entrance about 17 miles S.½W. from Ailsa; but once getting to leeward you can never regain your ground. On approaching the Cumbray Islands, 3 entrances appear before you: the middle one is the main ship channel. In clear weather you cannot mistake the Cumbray Island, being distinguished by an old Light Tower on its highest part, a little to the southward of the present Light-house, which is low down on the hill side. There is a good ship channel to the eastward of the Cumbray Island, but strangers never should attempt it without a pilot. The part of the Island of Cumbray on which the Light stands, is bold and steep close to. Opposite to it lies the Island of Bute, the nearest point of which is Garroch Head, distant about 3 miles. Entering between these 2 head-lands, with the Cumbray Light on your starboard hand, when in mid-channel your course to the Light on the Point of Clough is N.E. ½ E., 12 or 13 miles. In proceeding on this course, a little more than half distance, you will see a REVOLVING LIGHT on your larboard hand, situated on the Point of Toward, which forms the starboard side of the entrance of Rothsay Bay. The Clough light stands on a bold shore. On the opposite side is the town of Dunoon, off which lies a ledge of half-tide rocks, called Gantocks. The position of these rocks is marked by a large stone obelisk, which can be seen from a considerable distance. The river afterwards inclines a little to the eastward, until you get opposite to Gourock, in a small bay on your starboard side. Opposite the middle of this bay is good anchorage; and here it is advisable to anchor till a pilot comes on board. The mark, the centre of the bay with the Clough Light on with Kempuck.

Greenock, which is the chief port for large vessels in the Clyde, has three fine basins adjacent to each other. They are known as the west, the east, and the Victoria harbours. Between the pier-heads, at the entrance of the west harbour, there are about 20 feet at high water, spring tides, and from 10 to 12 feet at low water; alongside the quays is a depth of from 17 to 19 feet. The east harbour contains about the same depth of water, but is more spacious; on the quay is a crane capable of raising 50 tons. The custom-house stands between these two basins. On the eastern side of the east basin is the Victoria harbour, opened in 1851. It has an area of 6 acres, is 563 feet long, and 458 feet wide, with a uniform depth of 26 feet at high water, and 14 feet at low water, spring tides. On the quay is a large crane of 70 tons lift; there is also a steam crane of 15 tons lift, for loading coals. Connected with the east and west harbours are graving docks, the widths of their respective entrances being 34 and 38 feet. There are two lines of Rails all round the Victoria and East Harbours, in connection with the Caledonian Railway. A large Coal Shoot has been erected at the East Harbour, from which a great quantity of Coals are shipped daily. A small light is placed on the quay, in front of the custom-house, as a guide to the shipping, and lights of a red colour are exhibited at the several entrances of the port. In the roadstead are warping buoys; but in order to avoid the shoal off the custom-house, care must be taken to anchor as close as possible *outside* the line of buoys. The best anchorage for small vessels is off Albert Quay, in 4 fathoms water. About a mile N. N. W. of the

custom-house are two fixed red lights, visible at the distance of two leagues: when in one, bearing W.S.W. ¾ W., they lead to the anchorage below the "Tail of the Bank."—COCKLE BANK reaches from the east end of the town of Greenock to the *Old Castle of Newark* at Port Glasgow.

Port Glasgow.—The channel from Greenock to Port Glasgow is narrow and intricate as far as *Garville Point*, and should not be attempted without a pilot; about a ¼ of a mile N. from Garville Point is a buoy on the south edge of the *Cockle Bank*. Keep that buoy on the larboard hand, and run about a cable's length from it. Near the E. side of Garville Point is a beacon, which pass on the starboard hand, keeping not less than 2 ships' length from it, nor more than half a cable, to avoid the Cockle Bank. Between this last-mentioned beacon and *Inch Green* is first a buoy and then a beacon; keep both on the starboard side, sailing at the distances before directed. There is also a beacon near the quay of Port Glasgow, which you must pass at 2 ships' length on the starboard side, and enter the harbour about high water. At the quay there is water for small craft only. At low water it is dry, and with spring tides is capable of containing vessels that draw 10 and 11 feet water; the ground is soft and easy to lie on, and a good place for graving ships' bottoms is made here. A light is exhibited on the pier to direct the steamers; and at the entrance of the harbour is a light of a red colour on the west quay. About four miles from Port Glasgow is

Dumbarton, a creek in the mouth of the river Leven. Vessels drawing not more than 8 or 9 feet may go in at high water. If pilots cannot be had, the following directions may be useful. Weigh anchor and sail from Port Glasgow at half flood; keep a cable's length from shore at the Old Castle of Newark; from thence steer eastward between Audoch and Dumbarton Castle, about 2 miles, until you come abreast of Finlayston; then steer south-eastward for the western buoy off Dumbarton Castle; there anchor until it is high-water. Leave that buoy to the larboard, and the other on the starboard, and stand in for the entry, keeping that side close until you have passed the Castle.

Between Port Glasgow and Bowling Bay are three Lights: at Auchenleck, the Garmoyle Floating Light, and the third about a mile above Dumbarton: all to be left on the starboard hand in going up the river.

Glasgow.—On the lower or western extremity of Broomielaw Quay, and larboard hand going up the river, a light, of star-like appearance, is placed for the direction of shipping.

Isle of Bute.—To the westward of the Isles of Cumbray is the Isle of Bute, on the eastern side of which, directly opposite Great Cumbray, is Killichattan Bay, where vessels may anchor in from 11 to 16 fathoms. To the northward is the Bay of Rothsay, the ground good and clean, and well sheltered: you may anchor in any part on the E. side of the Bay: but the most convenient place is 2 cables' length N. of the pier-head, in order to be clear of the tract of the numerous steamers plying from the pierhead to all parts of the Clyde.

Kyles of Bute.—The channels between Bute and the Main are termed the Kyles of Bute: their access is easy, and well sheltered, the bottom is extraordinarily good, and the depth sufficient for the largest ships. They are distinguished by the names of the East and West Kyles.

Island of Arran lies to the southward: at its S. E. extremity lies the ISLAND OF PLADDA, upon which a LIGHT HOUSE is erected, 3 miles north-easterly of which is the ISLAND OF LAMLASH. This island lies right in the front of the bay and forms a good and well-sheltered anchorage: the N. side of it is shallow about 2 cables' length from the shore, but the best parts to ride in are off the houses in Holy Island, in 9 or 10 fathoms, or about 2 cables' length E. by N. or E.N.E. from the pier at the town of Lamlash. A red buoy (called Fergusson's) is placed on a rock, with 14 fathoms water in the south entrance to Lamlash. You can go either side; but the Island side is best. At the north entrance on the mainland side is Hamilton's Rock, for which, in thick weather, a good look out should be kept, though it is scarce a ¼ of a mile from the shore and never quite covers. The lighthouse on Pladda exhibits two bright fixed lights, and may be seen from N.W. by W. southerly, to N.E. by E.; the upper at 17 and lower at 14 miles' distance. At the northern extremity of Arran Island is

Loch Ranza, the ground in which is very good, and water sufficient for large ships, but the place being narrow renders it fit for small vessels only. On the east side of the entrance there is a rocky ledge, dry at low water, which extends near one-third over to the opposite side; to avoid this ledge, keep in the middle of the channel. Anchor abreast of the houses of Ballino, in 5 or 6 fathoms water, nearest the E. side of the Bay, about a cable's length north of the Old Castle, which stands quite at the bottom of the Bay.

Loch Fyne.—After passing Ardlamont Point the entrance to Loch Fyne is

open, and is about 7 miles wide from Skipness Point to the north end of Arran, with an arm of the sea running in of upwards of 40 miles, is an extensive and good place for shipping, but is too deep in the middle for anchorage. Between Ardrishaigh and Ilan Yone there are from 2 to 3 fathoms, and from thence to Inverary the coast is very irregular and soundings very variable, from 30 to 70 fathoms; near either side, therefore, about a cables' length or two from the shore, is the best anchorage for large ships, and the north side is reckoned better than the south. In sailing up Loch Fyne the south shore, from Otter Ferry to Inverary, is the cleanest and boldest, and is the tract used by all large vessels. Opposite Minard Castle about 10 miles below Inverary is a shoal extending across the middle of the Lough, it is marked by beacons, and you can go either side, but the west is the safest: all the middle part dries at low water. There is also two islands, small but high; and Paddy's Rock lies off Castle-lachlan: keep the south shore as directed.—On the west side of Loch Fyne, and about 8 miles below Skipness Point, is the little harbour of EAST TARBIT, much frequented by steamers and sailing vessels. INVERMIEL BAY is also used as an anchorage by large vessels, in 10 fathoms water.—At Ardrishaig Point is the Crinan Canal, where there is a Pier, and good anchorage for vessels bound north or to Loch Gilp Head. The best place is on the north side of Ilan Yone, in 3 fathoms, to enter which sail up to Ardrishaig Pier or Lighthouse, and then cross to Ilan Yone.

Campbeltown Harbour lies about 11 miles south-westward of Point Carradale; it is large, well sheltered, the ground good, and there is very little to be feared in sailing into it. On coming from the S. or S.E., you will first see the Island of Devar and the *blind* sound to the south-west of it, through which is a view of the town. On Otter Buoy, the north-east point of Devar Island, is a light-house, from which is exhibited a bright light every half minute; it is visible from N. ¼ W. to E. by S. by the N., and may be seen in clear weather about 15 miles. This light is a good guide for clearing Paterson's Rock; if kept in sight, it will lead about 3 miles to the eastward of it. In standing in for Campbeltown at night, be careful to keep to the eastward until the light upon Devar Island is fairly open; then stand for it, keeping it on the port hand, and steering about one or two cables' length from the point of the Island, until you open the harbour; then haul up W. ¼ N., or W. by N., still keeping about the same distance from the shore. When abreast of the western end of Devar, a black buoy will be observed on Mullbeg Bank, about 60 fathoms from the island; this must be passed on the port hand. Steering half a point more northerly, you will next pass, on your starboard hand, a red buoy, placed nearly opposite a sandbank, which is always dry, except with spring tides. On this bank is a beacon, painted black. There is also another beacon, painted red, on Trench Flat. Hence the red light on the north pier will be seen, and soon after, on passing Trench Point, the green light shown from Dolintober Quay. Now steer W.N.W., or N.W. by W., and you may come to an anchor in any part of the loch—observing, however, to give the west shore a berth of two cables' length. In the loch inside the beacons, the deepest water is on the north side; a stranger should, however, keep the lead going if working in, and put about the first shoal cast, as the bank is steep on both sides. The harbour has a depth of water of from 5 to 10 fathoms.—Masters of vessels turning in with a west wind at night, must be careful not to shut the light on the Island when standing south, but tack as soon as it becomes obscured by the high land of the Island, for in that case they are close to the South Bank, and the water shoalens at once; but by keeping the light E. by S. they will go clear. At night, however, it will be better to anchor at Black Rock, on the north side, about a quarter of a mile E.N.E. from the red buoy, or when Devar Light bears about S.E., in 4 or 5 fathoms water, good holding ground, and well sheltered, being within Macrinian's Point, which forms the north entrance to the harbour.

Sanda Island—About 9 miles south of the Island Davar is the Island of Sanda, a dangerous island, being surrounded by ledges of rocks. There are several ledges of rocks about the east and west ends extending about a cable's length from shore; and near Gluinmore, which is always above water, there are several rocks that dry at low water, also off the east end around Island Ilanagurach. In the sound, between Ilanagurach and Sanda, is the anchorage, a kind of harbour fit only for small vessels in summer time, or in moderate weather. It is protected by the reefs in the sound—the reef to the west, on which there is a beacon, pointing out the anchorage. Anchor when Fair Head is shut on the end of Sanda in about 10 feet water, close to the houses, off an old quay. No vessel should attempt to pass between Sanda and Island Ilanagurach, the tide being strong and running very irregular. Round Gluinmore and Island Ilanagurach are reefs and sunken rocks with deep water. On the ship rock of Sanda, in lat. 54° 16′ 20″

N., and lon. 5° 34′ 55″ W., a lighthouse, exhibiting a fixed red light, has been erected. It is visible from N.W. ½ W. to S.E. by E. ½ E. by south-westerly, and may be seen at a distance of 5 leagues. It bears by compass from Pladda Light, W. by S. ¾ W., eighteen miles; from Ailsa Craig, N.W. by W. ⅛ W., sixteen miles; from Corsewall Light, N. by W. ¼ W., twenty-two miles; from the Maiden's Rocks Lights, N.E. ¼ N., twenty-one and a half miles; from N.most Point of Rathlin Island, S. E. by E. ⅛ E., twenty-one miles; and from southernmost Point of the Mull of Cantyre, S.E. ¾ E., six miles. From Sanda Light, E. by S., distant one and a half miles, is the Paterson's Rock Buoy, pointing out a dangerous rock, uncovered at low water. When the Mull Head of Cantyre is seen to the southward of Sanda, you are to the southward of this rock; when the Mull Head is to the northward of Sanda, you are to the northward of it. When Gluinmore Rock appears to the west end of Ilanagurach you are to the eastward: and when Gluinmore Rock appears to the east end of Ilanagurach, you will be to the westward of Paterson's Rock. In sailing east along the south end of Sanda keep the light in sight and you will pass south of the rock: the light is shut when you are in a line with the rock, and when the light is seen over the hill on east end you are within the rock.—Tides.—High water inshore 9 a.m.: mid-channel 10 30 a.m.

Tides—The stream of flood within a mile of the Mull Head runs southward, and turns sooner than at a greater distance from the land, so that a vessel keeping near the W. coast of Cantyre, will have the benefit of the stream 2 hours before one above a mile from the land.

Magnetic Bearings & Distances

FOR THE WEST COAST OF SCOTLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

ROSS, OFF KIRKCUDBRIGHT (Lat. 45 46 N., Long. 4 5 1 W.)

		MILES.
To Maryport	SE by E	20
St. Bees' Head Light	S by E ½ E	21½
Rossall Landmark	S ¾ E	61½
Buoy Nelson, off Preston	S	71
NW Lightship, Liverpool	S ¾ W	83
Beaumaris entrance	SSW	85
Bahama Lightship, I. M.	SW by S	26

MULL OF GALLOWAY (Lat. 54 38 9 N., Long. 4 51 20 W.)

To Beggar Scar Rock	E ¾ S	6
St. Bees' Head Light	SE ½ E	43
Point of Ayre, I. M.	SE by S ¾ S	21
Bardsey Island Light	SSW ¼ W	113
Smalls Light	SW ¾ S	180
Tuskar Rock Light	SW	153

POINT OF CORSEWALL (Lat. 55 0 29 N., Long. 5 9 28 W.)

		MILES.
To Larne Loch Light	W ¼ N	24
Fair Head	NW ½ N	37
Mull of Cantyre	NNW	30
Sanda Light	N by W ½ W	26
Pladda Light	NE by N ¼ N	25
Ailsa Rock	NE by N	14½
Cumbray Light	NE ⅝ N	43
Ardrossan Harbour	NE	40

TROON (Lat. 55 33 N., Long. 4 41 W.)

To Heads of Ayr	SW ½ S	8
Corsewall Light	SW ¾ W	36
Copeland Light	SW by W	58
Ailsa Rock	SW ¾ W	22½
Larne Loch Light	WSW	56
Maidens Lights	W by S ¾ S	55
Pladda Light	W	16

ARDROSSAN (Lat. 55 38 27 N., Long. 4 49 28 W.

To Troon	S by E	7½
Ayr Harbour	S	11½
Heads of Ayr	S by W ½ W	13
Loch Ryan	SW ½ S	38
Corsewall Light	SW	40
Ailsa Rock	SW ½ W	26
Copeland Light	SW ½ W	61
Pladda Light	SW by W ¾ W	17

CUMBRAY LIGHT (Lat. 55 43 16 N., Long. 4 58 W.)

To Ardrossan	S ½ E	6
Ayr Harbour	S ¼ E	12
Heads of Ayr	S by W	18½
Turnbury Point	SSW	23
Loch Ryan entrance	SW by W	42
Corsewall Light	SW ⅝ S	43
Ailsa Rock	SW ⅛ S	29½
Copeland Light	SW	64

PLADDA ISLAND LIGHT (Lat. 55 26 N., Long. 5 7 9 W.)

To Cumbray Light, from 1 mile North of Pladda Light	NE	19
Irvine Harbour	E by N	18
Troon do.	E	16
Ayr do.	E by S ½ S	16
Turnbury Point	SE by S	11
Loch Ryan entrance	SSW	24½
Ailsa Rock	SW by S ½ S	11
Corsewall Light	SW by S ¼ S	25
Copeland Light	SW	45
Belfast Loch entrance	SW ¾ W	43
Larne Loch Light	SW by W ⅛ W	42
Maidens Lights	SW by W ¾ W	36

MULL OF CANTYRE (Lat. 55 19 N., Long. 4 49 W.)

To Sanda Light	SE by E ¼ E	5
Ailsa Rock	SE ½ E	24
Corsewall Light	SSE	30
Calf of Man	S ⅓ W	84
Maidens Lights	SSW	24
To Fair Head	W ¼ S	13
Inisterhul Light	NW by W	49
Loch Ryan entrance	SE by S ¼ S	31
Larne Loch do.	SW by S ⅛ S	28
Rathlin Island, N end	W by N ⅛ N	13
Sound of Isla, E. en.	N by E ¼ E	28

MULL OF CANTYRE TO THE NORTH END OF SCOTLAND.

The **Mull of Cantyre** is a high rocky promontory, running to the southward, and approaching within 11 miles of the coast of Ireland. On its south-western extremity is a lighthouse, which exhibits a fixed bright light, visible 22 miles in clear weather, from N. N. E. ½ E. to S. by W. ¼ W. by W. Off Dunimore Head, which is about 5 miles to the northward of the lighthouse, is a rock, lying about a cable's length from the shore, which dries at half-ebb. A rocky shoal, with 3 or 4 feet on it at low water, lies further north, about a quarter of a mile off Usid Point, at the Saltpans: on this shoal the sea always swells, and breaks in the calmest weather.

West Loch Tarbit, on the main of Cantyre; the bay of which is well sheltered, and the depth of water for a mile up sufficient for the largest ships; but the ground, being of soft mud, does not hold well with hard gales, except there is a full cable out. The common places of anchorage are, for large ships, off Ardfarik, in the mouth of the loch; and for small vessels, on the east side of Ilanagalligan. On the S. side of Ilan Trayn are several rocks above ½ a cable's length from the island, or ½ from it, and ⅔ from the starboard side of the entry. There is also a sand bank extending from the E. Point of Corran, nearly ½ over to the N. side of the loch; to avoid which, keep nearest to the N. side, or keep the easternmost extremity of Ilan Trayn in a line with the W. end of the highest hill in Gia Island. About 3 miles up the loch, off Duneturik, nearest to the N. shore, is a small blind rock, having 5 feet water over it. Keep the middle of the loch, and you will avoid it.

Loch Achastil is a fine harbour, and fit for ships of any size; the ground good, and only one rock, about midway, within it, covered only with spring-tides. Ships may anchor in any part of this loch above Castle Swein. The danger to be avoided in sailing toward Achastil is a small rock on the N. side of the two Mackcarmack Islands, which dries with spring-tides only

Jura Island.—To the westward is the Island of Jura; on the S.E. side of which is Loch Daguall, with good anchorage, well sheltered, and water enough for a merchant ship. This anchorage is very convenient for vessels bound to the southward. You will anchor near the middle of the bay, when Gia Island is just shut in by the N. point of the entry, and the northernmost Pap of Jura bears N.W. ½ W. In running either in or out, stand not too near the sides, for on the N.N.E. and N.W. sides of the bay it shoals nearly 2 cables' length from shore.

Sound of Islay is the common track for shipping to and from the N. A Lighthouse has been erected on Rudha Mhail Point showing a Fixed WHITE Light, visible 15 miles in clear weather. A tide or a night is the longest any vessel should stop here except in Macdougal's Bay, where one cable may be made fast to a ring or rock on the shore. In entering Islay Sound from the southward, you are to bring Glashilan Island to bear N., or keep within a cable's length or two from the Islay shore, and you will clear the Skerchray Rock, which lies on the starboard side, W. of the small Island of Frochilan.

Loch Tarbet is filled with small rocks, especially on its southern side, it is therefore hazardous to enter. The anchorage is ¼ of a mile above Guinmore, but the best and safest place is near the mouth of the Loch in Glenaberig Bay. This is easy of access, and has 3 and 4 fathoms water. Keep a cable's length from the point in passing, and anchor the same distance eastward of it. About a mile eastward of this anchorage is a cluster of small rocks above water; on the E. side of these a ship may ride safe in 5 fathoms water, keeping ¼ a cable's length from them in going up.

Loch Indaal.—Having rounded the Mull of Kinho, which is the south-western part of Islay, you will open Loch Indaal. This may be said to be the only place in Islay where vessels in winter time can ride in safety. Here small vessels drawing 9 and 10 feet water may ride, and be well sheltered; larger ships, drawing 15 feet, must ride with the mouth of the loch open, and will therefore not be so safe when the wind blows from the W. or S.W. But the best anchorage is at the further end of the loch called Kilirn Bay, when Bomore House bears S.S.E., lying somewhat nearer to the S. than to the N. side of the harbour, in 3 fathoms, sandy ground. Larger ships anchor more to the westward bringing Bomore House S.E. by E. in 4 fathoms. At the entrance to this harbour are 2 spits of sand; one on the S. side, which never dries, extending from Atturach Point northwards; the other running from the opposite side southward, which dries gradually. These two spits of sand almost enclose the harbour. In the channel between their two points are 2 and 2½ fathoms, low water, spring-tides.

Rhins of Islay Light, on the northern side of the entrance to Loch Indaal, upon the small island of Oversa, bearing by compass from the Mull of Kinho, N. by W. ¾ W., distant 10 miles; and from the STATIONARY LIGHT of the Mull of Cantyre, N. by W. ¾ W., 33 miles. From

the north eastern extremity of the Island of Rachlin, N. ¼ E. distant 25 miles. From the REVOLVING LIGHT of Innistrahul, E., distant 28 miles. From the Revolving Light, producing a bright flash once in every minute, on the Rock of Skerryvore, distant from Hynish Point, in Tyree, W.S.W. ½ W., 10¾ miles, it bears S. ¼ W., distant 44 miles. From the Rocks of Dunheertach, lying 11 miles S.W. from Icolmkill, it bears S.S.W., distant 28 miles; and from Tanvore Head S.W. by S., distant 6½ miles. It will be known to mariners as a STATIONARY and a FLASHING LIGHT. To a distant observer it appears like a star of the first magnitude, producing a bright flash of light every 5 seconds, without those intervals of total darkness which characterise other Revolving Lights upon the coast. In clear weather it will be visible at the distance of 6 leagues, and is open from N.N.E. to S.E. (westerly); half-a-mile off Cull Point it disappears.

Oronsa and Colinsa Islands.—Oronsa is much the smaller island, and is nearly 4 miles to the northward of Ruinanishag Point, in Islay. Off its southern sides are several rocks, one of which extends W.S.W. from Gudimel, a small island on the S.E. part of Oronsa. This rock dries at half-ebb. There is a shoal also about ¼ of a mile to the southward of the middle of the rock, on which are 6 feet at low water. At the S.W. point of Oronsa is Ilana Roan; one mile S.W. of which are 2 or 3 rocks, which dry with spring-tides only, and some shoals, on which the sea always breaks. A leading mark to go to the southward of these dangers is Ruvaal Point in Isla, on with the S. end of Beninore Hill in Jura. Sail not nearer to Colinsa than till Ruvaal Point bears on the middle of the hill. To the W. of Colinsa are several rocks and shoals, lying a mile out from Ardskinish Point, some are above, some below, and others dry only at low water; you will avoid the whole of them by keeping about 2 miles from the shore, or one mile from those rocks you see above water. There is no anchorage on the W. side of Colinsa, and but indifferent on the E. side.

The **Gulf of Coryvreckan,** which is formed by the N. end of Jura, and the Island Scarba, is distinguished by a violent breaking sea with whirlpools, partly occasioned by an excessively rapid stream running over a steep rock, at the N. side of the Sound, near the W. Point of Scarba. On the Jura side of the Gulf the sea rages, and forms whirlpools, both with ebb and flood: but the waves do not rise so high as on the Scarba side of the Gulf.

The Sound of Mull Lighthouse is situated on a small rock called Runa Gall, on the south shore of the Sound of Mull, Argyllshire, about one mile northwards from Tobermory. The tower is about fifty yards within the high water mark of spring tides, and is connected with the shore by a bridge of two spans. The Light is an azimuthal condensing Light, and shows a FIXED RED LIGHT northwards out to sea; a FIXED GREEN LIGHT towards the New Rocks, the Red Rocks, and the Stirks Rocks, in the Sound of Mull; a FIXED WHITE LIGHT southwards into the Sound of Mull. The Light is exhibited from a tower of masonry about 55 feet above high water of spring tides, and may be seen in clear weather at the distance of about twelve nautic miles.

Ardnamurchan Point.—A Lighthouse, exhibiting a Fixed Light of the natural appearance, has been erected on this point; and bears by compass from Caillach Head, N.E. ¾ E., distant 7 miles; from the Cairns of Coll, E.S.E., 8 miles; from Kana Head, S. ¼ E., 30 miles; from Scour of Eigg, S.W. by S. ¾ W., 11 miles; from Bo Askadil Rock, W.S.W., 7 miles. It is visible 18 miles in clear weather.

Ushenish Lighthouse is situated on the most easterly headland on the eastern side of the Island of South Uist, one of the Hebrides, in the county of Inverness. The Light is a dioptric first-class FIXED RED LIGHT, and is exhibited from a tower of masonry erected on the headland. The Light is about 176 feet above high water of spring tides, and may be seen in clear weather at the distance of about eighteen nautic miles.

Island Glass Light, situate on the eastern side of Glass, and on the western side of the channel between Skye and the Long Island. This light is STATIONARY, appearing like a star of the first magnitude, at the distance of 5 or 6 leagues, from W. by S. to E.N.E. ½ E. by the S.

Skergriatick Rock.—A Beacon, painted Black, has been erected on this rock, situate in the Minsh. It consists of a Frame-work of iron, surmounted by a cylindric cage, and rising to about 30 feet above high water spring tides. There are steps leading from the rock to the cage, in which shipwrecked mariners may find a temporary shelter. This beacon bears by compass from Skernamule beacon N.N.W., distant 3 miles; from Dunvegan Head, in Skye, N.E. ¾ E., 18 miles; from Island Glass Lighthouse, S.E. by S. ⅜ S., 7½ miles; from the Greater Galtimore (one of the Shiant Islands), S.W. ¼ S., 8 miles. There is foul ground nearly all the way from Skergriatick Rock to Fladdahuan Island, from which the beacon lies 2½ miles to the N. by E.

Loch Terriden.—In entering Loch Terriden avoid Runawhagh Point, its southern entrance, a little way off which point is a rock under water, which dries at spring tides. Excepting this rock, there is no danger in sailing into or up this Loch; for Skerintram Rock, which lies on the N. side, is always above water, with deep water all round. Here therefore the access is easy, the ground good, and so well sheltered, that several hundreds of the largest ships may ride with safety in all weathers. Its entry is 2¼ miles wide, the Loch running in S. by E. ½ E. to abreast of Loch Shieldag, then S.E. by E. to the furthest end. The best place for anchorage is in Loch Shieldag, between the two narrows, on the S. side of the basin, or any where above the second Narrow, which is what may properly be called Loch Terriden.

Loch Gerloch.—About 4 miles further N. is Loch Gerloch, a large and well sheltered harbour, the ground in all parts clean, holding well, and capable of containing a fleet of the largest ships; its entrance is between Coupachar Point and Longa Island; distant from each other nearly two miles. There are no dangers either in or near it; and when it does not blow hard from the W. or S.W. ships may ride in any part, particularly on the E side of Island Longa. In winter the best anchorages are between Flowerdale and the Island of Horisdale, in from 9 to 20 fathoms water. Small vessels may ride on the W. side of this island, S. E. of a rock above water.

Loch Yew.—From Longa Island to Ru Rhea the bearing and distance are N. E. ½ N., 3½ leagues. Five miles to the eastward is Loch Yew, a place large and well sheltered, forming a bay of easy access, a moderate depth of water, and having good holding anchorage, where whole fleets may ride in the greatest safety at all times. The entrance to Loch Yew is a mile wide, and nearly off its western point lies the small Island of Fura, with 2 or 3 islets to the eastward of it; there is also a little rock off the northern point of Fura; keep therefore at a distance in passing it, and the channel in is free from danger. In the middle of the bay is Yew Island, at the northern point of which are some rocks above water. The best places to ride, are on the E. side of the Island Yew, or on the E. side of the bay off Tunag, and off Inveraspadale at the opposite side of the Loch.

Loch More or Great Loch Brim.—To the northward of Loch Beg, are several islands, lying before Loch More, or Great Loch Brim. Loch More is a great and safe branch of the sea, capable of accommodating the largest fleets, and having no rocks or dangers within it, except a small ledge on the E. side of Ullapool extending above a cable's length from that shore, which is avoided by keeping ⅓ from the Ullapool side. You may anchor in this bay in 14 and 15 fathoms water, above a cable's length from the shore, or any where above Logie Point, in from 13 to 24 fathoms. Should you, in entering or sailing from this Loch, go between the larboard point, or Ru Handerrick, and the Carniskere Islands, remember to give the former a berth on account of a rock called Nuela, which lies nearly a cable's length from the shore, and dries about half ebb.

Loch Kylescough is nearly 7 miles E.S.E. ¼ E. from Ru Stoir, and 3½ miles in the same direction from Ouldenay Island. This is a large and well sheltered branch of the sea, the approach to which is safe, and the anchorage good; but for some miles within the Loch the water is too deep for ordinary vessels, being from 30 to 50 fathoms, unless you carry an anchor on shore. Above the Island Ranich, where the contracted channel commences again to widen, ships may anchor any where, the stream in the narrowest part running not more than 1 mile an hour.—The only rock necessary to notice, lies near the Island Calaway, off the larboard side of entrance; it bears W.S.W. from it and dries at low water; keep Runachusan Point in Ouldenay Island on with the extremity of Ru Stoir, and you will clear this rock to the southward. At the N. side of the entrance to Loch Kylescough is Loch Shark, and N. E. of Shark lies Loch Calaway.

Loch Inshard.—One league to the eastward of Lusford is Loch Inshard, the last bay before you round Cape Wrath. In sailing in great caution must be observed, as there is a rock lying right at the entrance, which appears at spring ebbs only. Within the loch you will be well sheltered, your depth moderate, and your ground good. Sail up until you are landlocked, and anchor near the north or east side. To the north west of Loch Ardicar are some Islands, close to the main, called Ilanarone; and nearly N.N.E. of these, 4 miles, is Balag Island, having a small rock above water, at both the N. and S. extremities. This Island lies about a mile from Ru Wochel. Near the latter is a rock above water, close to the land. From hence to Cape Wrath the coast is high and rocky. Off Cape Wrath are said to lie several rocks under water, called the Stags. Vessels in sailing round this headland should always give it a good berth, of 1½ or 2 miles, and steering eastward, they will reach the Pentland Frith.

Isle Oronsay Lighthouse is situated on a low point at the south-east end of the Island of Oronsay, Inverness-shire, in the Sound of Skye, also called Sound of Sleat. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT, from a tower of masonry about 58 feet above high water of spring tides. The Light may be seen in clear weather about twelve nautic miles.

Kyleakin Lighthouse is situated on a point of rock which covers at high water spring tides, and projects from the west end of Eilan Dool, or Gillean Island, in Ross-shire, at the western entrance of "The Narrows," leading to Loch Alsh. The tower is about fifty-three yards within the high water mark of spring tides, and is connected with the Island by a bridge of five spans. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT in the fairway of the Sound of Loch Alsh, and a FIXED WHITE LIGHT in the fairway leading to the Sound of Applecross, and which White Light extends southwards to Pabba Island. From thence it shows a FIXED RED LIGHT, extending eastwards along the shore of Skye to the south of the fairway of Loch Alsh. It also shows a FIXED RED LIGHT to the north-eastwards of the fairway to the Sound of Applecross. To the north of the fairway of Loch Alsh the Light is not shown. It is exhibited from a tower of masonry about 53 feet above high water of spring tides, and may be seen in clear weather at the distance of about eleven nautic miles.

Rona Lighthouse is situated on the northern end of the Island of Rona, in Inverness-shire, between the west coast of Ross-shire and the Island of Skye. The Light is a catadioptric second-class holophotal FLASHING WHITE LIGHT, showing a flash EVERY TWELVE SECONDS. It is exhibited from a tower of masonry erected on a peak at the north-east point of the Island. It is elevated about 222 feet above high water of spring tides, and may be seen in clear weather at the distance of about twenty nautic miles.

Cape Wrath Lighthouse, erected on the Cape, forming the north-western extremity of the main land of Scotland, in lat. 58 deg. 37 min. N., and in lon. 5 deg. W., bears from Hoy Head in Orkney, W. ¾ N., distant 50 miles; from the Butt of the Lewis, E. by S. ½ S., 41 miles; from the rocks called the Stags off the Cape, S. W. by W. ¼ W., about 1 mile; from the sunken Rock called the Nun, S.S.W. ¾ W., distant 15 miles; and from the Islands of Stack and Skerry, W.S.W., the former 35¼ and the latter 38 miles distant. It is known to mariners as a REVOLVING LIGHT, of the natural appearance, changing with one tinged red, which attain their most luminous effect every two minutes, and become, to a distant observer, totally eclipsed for a short time. The light is visible from S. ½ E. to S. W. by W. by the N., at the distance of 23 miles.

Dunnethead Light, on the Northern extremity of the mainland of Scotland, in lat. 58 deg. 40 min. N., bears by compass from the N. end of the Island of Stroma, in Pentland Frith, W.N.W., distant 7½ miles; from Hoy Head, leading to Hoy Sound, S.S.W., distant 13 miles; from the Stack and Skerry, S. by E. ¾ E. distant thirty-three miles; and from Cape Wrath, in Sutherlandshire, S.E. by E. ¾ E., distant 54 miles. In reference to these bearings, the light will be visible to the mariner in a northerly direction from S.E. ½ E. to W. by northward. The Light is STATIONARY, and being elevated 346 feet above the medium level of the sea, will be seen like a star of the first magnitude, at the distance of from 7 to 8 leagues, and at lesser distances according to the weather.

Magnetic Bearings & Distances

FOR THE NORTH AND EAST COASTS OF SCOTLAND.

		MILES.
CAPE WRATH (Lat. 58 37 30 N., Long. 5 W.)		
To Ru Store	SW by W	26½
Loch Maddy entrance	W by S	92
Glass Island Light	W by S ½ S	70
Chicken Head	W ¾ S	47
Tolsta Head	W ½ N	39
To Nun Rock	NNE ¾ E	15
Hoy Mouth, Stromness	E ¾ S	61
Holburn Head	SE by E ½ E	51
DUNNET HEAD (Lat. 58 40 16 N., Long. 3 22 20 W.)		
To Thurso Bar	SW by W ½ W	5
Holburn Head	W by S	5
Hoy Head	NNE	13
Swona, South end of	E by S	10
Pentland Skerries	ESE	14
SULE SKERRIE (Lat. 59 3 N., Long. 13 W.)		4
To Dunnet Head	SSE	33
Strathy Head	S by W	28
Sumburgh Head, Shetland	E	100
Westra Frith	E by S	40
HOY MOUTH, STROMNESS (Lat. 59 3 N., Long. 3 23 W.)		
To Scrabster Roads	SW ½ S	17
Strathy Head	W by S ½ S	23
Lock Erobol	W	45
Cape Wrath	W ¾ N	59
DENNESNESS LIGHT, NORTH RONALDSHA (Lat. 59 23 N., Long. 2 23 W.)		
To Foul Island	NE	45
Pappa Island, Shetland	NE ½ E	60
Sumburgh Light, Shetland	E ¾ N	46
Fair Island	E by S	28

START POINT, IN SANDA ISLAND (Lat. 59 16 39 N., Long. 2 22 25 W.)

		MILES
To Foul Island	NE ¼ N	50
Fair Isle	E	30
Noss Head	SW ½ W	50
Copinsha Island	SW ½ W	22

SUMBURGH HEAD, SHETLAND (Lat. 59 51 N., Long. 1 16 W.)

To Noss Island	NE by E	20
Bucanness Light	SW by S	140
Fair Isle	S W by W	21
Start Point, Sanda I.	W by S ¼ S	48
Foul Island	NW by N ½ N	28

NOSS HEAD (Lat. 58 28 38 N., Long. 3 3 5 W.)

To Duncansby	NE by N	10
Pentland Skerries Lights	NE	12½
Fair Isle	ENE	78
Sumburgh Head	NE by E ½ E	96

TARBERTNESS LIGHT (Lat. 57 51 N., Long. 3 48 W.)

To Troup Head	SE ¼ E	48
Cowsey Point	SE by S ¼ S	18
Burgh Head	S ¾ W	13
Nairn	SW ¼ S	16

KINARD'S HEAD (Lat 57 42 N., Long. 2 1 W.)

To Rattry Brigs	SE by S ⅜ S	8
Helmsdale	NW by N	60
Noss Head	N by W	61
Duncansby Head	N ½ W	67
Copinsha Island	N by E	77

BUCANNESS LIGHT (Lat. 57 28 15 N., Long. 1 46 11 W.)

To Peterhead, S.H.	NNE	2½
Rattry Brigs	NNE	9
Sumburgh Head	NE by N	140
Bell Rock	SW	66
St. Abb's Head	SW ⅜ S	95
Girdleness Light	SW ½ W	25

THE GIRDLENESS (Lat. 57 8 15 N., Long. 2 3 2 W.)

To Bucanness	NE ½ E	25
St. Abb's Head	SSW	72

BUCANNESS, continued.

		MILES
Bell Rock	SW ¼ S	42
Flambrough Head	S ½ W	193

MONTROSE (Lat. 56 42 N., Long. 2 27 W.)

To St. Abb's Head	S by W ½ W	48
Bell Rock	SSW	11
May Island	SW by S	30
Flambrough Head	S	174
Longstone Light, Ferns	S ½ W	70

BELL ROCK (Lat. 56 26 3 N., Long. 2 23 6 W.)

To Montrose entrance	NNE	11
Girdleness Lights	NE ¼ N	42
Bucanness Light	NE	66
Flambrough Head	S ¼ E	158
Buttonness	NW ½ W	13
Arbroath	N by W ½ W	6
Dunbar Harbour	SW ½ S	27
St. Abb's Head	S by W ½ W	32
Fifeness	SW by W ⅝ W	11½

MAY ISLAND (Lat. 56 11 8 N., Long. 2 33 20 W.)

To Fifeness	N ¾ E	5
Arbroath	NE by N ¾ N	21
Bell Rock	NE ¾ E	16
St. Abb's Head	S ¾ E	21
Inchkeith	W ½ N	22

INCHKEITH (Lat. 56 2 N., Long. 3 8 W.)

To Kirkaldy	N by E ⅛ E	6
Elieness	E by N ⅛ N	14
Fidra Island	E by S ¼ S	12½
Fisherow	S ¼ E	6
Colm Island	NNW	7
Garvy Island	W by N ¾ N	9
May Island	E ½ S	22

ST. ABB'S HEAD (Lat. 55 55 N., Long. 2 9 W.)

To Buttonness	N	37
Bell Rock Light	N by E ½ E	32
Aberdeen, Girdleness	NNE	72
Bucanness Light	NE ⅜ N	95
Bass Rock	NW by N	11
Elieness	NW by N ¾ N	25½
May Island	N by W	20

EAST COAST OF IRELAND.

POINT CARNSORE TO LOCH CARLINGFORD.

Point Carnsore is the S.E. point or extremity of Ireland, and lies about 42 leagues from Cape Cornwall, bearing N. by E. ½ E.; from the Small's Light N. by W. ½ W., distant 37 miles. Nearly E. by S. from Carnsore Point, distant 6 miles, lies the TUSKAR, a very remarkable rock, 20 feet above the level of the sea at high water, upon which stands a lighthouse similar to that on the Eddystone, elevated 81 feet from its base. The light revolves every two minutes, showing two faces bright, and one red. The red light is visible 10 miles, and the bright 15 miles. During foggy weather a bell is tolled every half minute. This rock bears from the Smalls Lighthouse N. ½ W., distant 33 miles. Ships coming from the westward and bound for St. George's Channel, should endeavour to see this rock before they shape their course to the northward.

Blackwater Bank, in front of Wexford Bay, is a narrow sandbank running nearly in the direction of the coast, at the distance of from 4 to 5 miles. A buoy is placed at each extremity of this bank. Moored off the north end, in 20 fathoms

at low water, spring tides, is a Light Vessel, which exhibits a Fixed Light. The Light is shown from the mainmast, and in clear weather can be seen at a distance of 10 miles. The vessel has three masts, and carries a Ball at the main-mast-head; is painted Black, with a White Band, having the word "*Blackwater,*" in white letters, on her sides; and lies about 1½ miles E. ¾ S. of the black buoy on the north end of the Blackwater Bank, with the following marks and compass bearings:—Arklow Light Vessel, N.E., 13 miles; Cahore Point, N. by W., 5 miles; Tuskar Lighthouse, S.W. ¾ S., 18 miles. A gong is sounded in foggy weather

Wexford Harbour is capacious and sufficiently sheltered, but is obstructed by a bar extending across it, over which there are at times but 7 feet water. Buoys are laid in the deepest water across the bar; but to enter this harbour a pilot is necessary.

Arklow Bank is a narrow sandbank off Arklow Bay, about two leagues from the land, and nearly 10 miles long from N.E. by N. to S.W. by S., and from ½ to ¾ of a mile broad; the shallowest part is near the N. end, where the least water is 1 foot; the S. end has from 8 feet to 3 fathoms on it, and except at slack water, you will perceive its ripple; near to its East side are from 13 to 20 fathoms: approach it no nearer than 30 fms. The marks for its southern end are Arklow Rock N.W. ½ N. distant 7 miles, and in one with the northern declivity of the Copper Ore mountains; and the Great Sugar Loaf open to the eastward of the Ballynacarrig Hills, and also of Mizen Head, bearing about N. ½ E. There is also a buoy placed to mark the south end, striped black and white vertically, with the words "*Arklow Bank South No. 4*" on it. The marks for its northern end are the top of Carrig Mc Rely just open to the N'ward of Maughry Point, bearing N.W.¾N., and the Great Sugar Loaf open to the eastward of Wicklow Head, N.½W. Wicklow Head bearing N.N.W. clears it. There is also a buoy placed to mark the north end, striped black and white horizontally, surmounted by a staff and globe, with the words "*Arklow Bank North, No. 1*" on it. Two Can Buoys have been placed to mark the eastern edge, the northenmost of which is chequered red and white, with the words "*Arklow Bank No. 2*" on it. It is placed in 12 fathoms, with the following marks and compass bearings—Arklow Bank North Buoy, E. N.E. ½ E.; highest part of Bray Head just open of the highest part of Wicklow Head, N.byE.; Mizen Tower on with the peak of a small hill, N.W. by W. The southernmost is striped black and white horizontally, with the words "*Arklow Bank, No. 3*" on it. It is moored in 12 fathoms, low water, with the following marks and compass bearings—Arklow Bank No. 2 Buoy, N.E. by N.; Arklow Bank South Buoy, S.W. ½ S.; Arklow Bank Light Vessel, S. W ½ W. A Light Vessel is moored, in 22 fathoms, on the south end of the bank. The vessel has three masts, showing a Revolving Light from main-mast, which attains its greatest brilliancy once every minute, visible 10 miles. Carries a ball at main-mast-head, and has the words "*Arklow Bank*" painted on her sides. During foggy weather a gong is sounded.

On **Wicklow Head** are two lighthouses, each showing a bright fixed light. The upper may be seen at 21, and the lower 16 miles off. The lights bear from each other N.W. by W. ¾ W., and S.E. by E. ¾ E., 180 yards, and, when in one, lead between the India and Arklow Banks.

Wicklow Harbour, fit for small craft only, there being only 9 feet in the entrance at high water, spring tides, and 6 at neap tides. To make its entrance better, a new channel has been opened; this is formed by 2 Piers about half a furlong to the westward of the Old Bar, and there the depth is 12 and 14 feet.

The **Wicklow Banks** are 2 narrow patches of sand, lying about 5 miles E. from Wicklow Head. The southern Patch, called the India Bank, is about one mile long, N.N.E. ½ E., and S.S.W. ½ W, and ⅛ of a mile broad. On its middle are 2 fathoms, on its N.E. part 3½ fathoms, and on its S.W. end 3¼ fathoms; at its S. W. extremity is a black buoy, from which Wicklow Head Lights bear W. ¾ S., 5 miles. The lights in one, bearing N.W. by W. ½ W., lead 2¾ miles to the southward of this buoy, in from 12 to 30 fathoms; and the buoy is a guide to pass between Wicklow Head and the Banks. To sail between this Bank and Wicklow Head, bring Wicklow Head lights in one; keep them so until the Sugar Loaf Hill bears N. ¾ W.; then steer by this course, and you go clear, and to the southward and westward, of the India Banks.

The **South Ridge** lies at the N. end of the India bank, separated by a narrow channel of 5 fms., about a cable's length in width: it is 1½ miles long, and ⅛ of a mile broad, with 3¼ to 5 fms. water on it. Its direction is N.N.E. ½ E., and S.S.W. ½ W., and its N.W. end is nearly 5½ miles S.E. by E. from Six Mile Point.

The **Codling Bank.**—The south end of this bank lies N.E. by E., 3 miles from the South Ridge; it then runs N. by E.,

3 miles, and turns suddenly to W. by N. for 2 miles, then curving round to the S.E. till it joins the south point. In the middle of the bank, which is 2 miles broad, are from 3¼ to 5 fathoms. The Great Sugar Loaf open north of the Gap, N.W. ¾ N., leads between the Codling and the South Ridge. A Black Buoy is placed on each extremity of the Codling, and lying off the south-eastern end, in 8 fathoms, low water, spring tides, is a Black Spiral Buoy, surmounted by a Staff and Globe, and marked "*Codling Bank*," with the following marks and compass bearings:—Carrickgollogan Hill, in one with Bray Point, N.W. ¾ N.; Great Sugar Loaf, N.W. ¼ W.; Wicklow Head, W. by S. ¾ S.

The **Bray Bank** lies N.E. by E. and S.W. by W.; is 2 miles long and ½ a mile broad, with twelve feet on it. In the Channel, between the Codling and the Bray, which is nearly half a mile wide, there are 8 to 10 fathoms. Carrickgollogan Hill 2 degrees open north of Bray Head, N.W. ¼ N., clears the Codling to the northward. This mark will lead across the bay, in 3 fathoms at low water. The south hummock of the Little Sugar Loaf in one with Windgate Hill, W.N.W. ½ W., leads between the Bray and the Kish Banks in 3¼ fathoms. There is a white buoy at the N. end of the Bray Bank.

The **Kish** is a long, narrow sand, stretching N. by E. ½ E., and S. by W. ½ W., about 6½ miles, and is from ½ to ¾ of a mile broad; on its southern extremity is a black buoy. From it Dublin Lighthouse bears N. by W. ½ W., 12½ miles; Howth Head Light N. 11½ miles; and Bray Head W.N.W. ½ W., 6 miles. On the Kish are from 9 feet to 3 fathoms, the latter depth being near its northern end; here a white buoy is placed, which lies from Howth Head Lighthouse S. S. E., distant 6 miles, and from Dalkey Island E. ¾ S. about the same distance. Three-quarters of a mile from the northern extremity of the Kish, a Floating Light Vessel is moored, with the following mark and bearing:—Ireland's Eye a little open of Howth Head, and Dublin Lighthouse, N.W. ¼ N., distant 7½ miles. This vessel bears 3 lights or lanterns, on three separate masts equidistant from each other, the centre lantern being the highest. Three miles to the southward of the white buoy is a beacon buoy, lying in 1½ fathom water, and points out the middle and most dangerous part of the Kish; at this spot the Great Sugar Loaf Hill appears on the saddle of Bray Head, bearing W. ½ S., and Ireland's Eye just open, and shut with the Head of Howth, N. ¼ W.

Bennett's Bank.—The S.E. end of this bank lies about 2 miles N. E. ½ N. from the North Buoy of the Kish, and 5 miles S. E. from Howth Head Lighthouse; it is about 1¾ miles in length, and has 5 to 5½ fathoms on it; at ½ mile southward are 8 or 9 fathoms.

The **Burford Bank,** at the entrance to Dublin Bay, is narrow, and runs in a N.N.E. ¼ E. and S.S.W. ¼ W. direction, being about 1½ mile long, and one-third of a mile broad. Nelson's Pillar kept open to the southward of the Pigeon-house on Dublin Quay, will lead clear of its southern extremity in 4½ and 5 fathoms water; and the same pillar, or Shallows Bath Light, open to the northward of Poolbeg Lighthouse, will clear its northern end, in 5¼ and 6 fathoms water. The mark to go clear to the eastward of it, is Ireland's Eye open to the Nose of Howth. Upon each end of this bank is a buoy; that on the southern end is vertically striped red and white, and that on the northern chequered black and white.

Sailing for Dublin Bay from the Southward. — From the Tuskar to Wicklow Head the bearing and distance are N.E. ¾ N. nearly 46½ miles, but to pass to the eastward of the Arklow Bank the course is N.E., observing to make due allowance thereon for the set of the tide, whether flood or ebb. When Wicklow Head Lights bear N. by W. you will be clear of the Arklow Bank; then to sail within the Wicklow or India Banks, bring the Great Sugar Loaf Hill well open of Wicklow Head, bearing N. by W., or Wicklow Lights in one; either of these will lead between the Arklow and India Banks; and when within 2 and 2½ miles of the shore, a N. by E. ½ E. course will carry you past Moulditch Bank and Dalkey Island. If with a westerly or S.W. wind, you may haul close round the Mugglins, and proceed along shore, avoiding the Bullock Rock, which lies about a mile from Dalkey. In working up between the banks and the shore with a flood tide and northerly wind, do not stand further from the land than four miles: for at about that distance the stream turns off to N.E. by E., and with little wind may drift you upon the banks; while near the shore the stream commonly makes to the southward 1½ hours before high water.

Stopping Places. — In moderate weather vessels may stop almost any where within the banks between Wicklow and Dublin, except off the Giant's Bed, where lies the Moulditch Bank; the best part, with westerly winds, is between Bray Bank and the main, from ½ to 2 miles from the shore. Here is very little stream of tide, and the violence of the

sea is considerably broken by the banks.

In **Killynee Bay** vessels may anchor in 5 or 6 fathoms, sheltered from W.N.W. to N.N.E. winds, and also in 7 fathoms off Wicklow Church, sheltered from S.W. and westerly winds.

Dublin Bay.—There is good anchorage in the mouth of Dublin Bay when the wind does not blow hard from the E. and S.E.; with these winds a great sea sets in when it blows hard, so that vessels are obliged to run for some place of safety; with north-easterly winds, vessels run for Kingstown harbour, which lies on the S. side of Dublin Bay, and is enclosed by two large piers; on the head of the eastern of which is a lighthouse shewing a revolving light, presenting white and red faces alternately, and attaining their greatest brilliancy at intervals of thirty seconds. During foggy weather a bell is tolled. There is also a fixed red light on the west pier-head. The entrance to this harbour faces the N.E., and has 4 fathoms water; within, from 4 to 2½ fathoms at low water. When going in, leave the revolving light on the larboard hand, and round it close to. BAILEY LIGHT, exhibited from the S.E. point of Howth Peninsula, is stationary, and is visible at a distance of fifteen miles. About a mile to W.S.W. of the lighthouse lies the Rosebeg Bank, which is easily distinguished in blowing weather by the sea breaking over it; and on which are from 2¾ to 3 fathoms water. The Revenue Barrack on with the Poolbeg Lighthouse, bearing N.W. by W.¾ W., leads clear to the southward of it.

Dublin Harbour lies between two banks, the North and South Bull, and is protected by two walls built on piles, the southern one of which is carried 2¾ miles into the bay, and has a lighthouse on its extremity, called the Poolbeg, exhibiting a fixed light all night, and a lower light, much fainter than the upper, from half flood to half-ebb: in the day a ball is hoisted during the same period. At the extremity of the North Bull Wall there is a beacon, also a black buoy. A fixed light is now exhibited on a beacon on the North Bank, 1 mile west of the Pigeon House Basin, open to the channel, but shut to the north of it. There is a fixed light on the point of the north wall opposite King's End, called the North Wall Light. A bar lies across the entrance, on which are 12 feet at low water. Between the bar and lighthouse are 14 to 27 feet. A red buoy is moored on the bar, in 12 feet at low water: it lies a mile E. ¾ S., per compass, from Poolbeg light. Pass about a cable's length to the southward of this buoy, observing the before-mentioned mark, and you will carry 12 feet over the bar at low water. On the north side of the channel, and bearing E., 3-10th's of a mile from the lighthouse, is a white buoy, moored in 12 feet at low water, between which and the lighthouse are from 14 to 27 feet. The south bar buoy (black) lies S. ¼ W. 2-5th's of a mile from the lighthouse, on the southern extremity of the south bar patches, which commence about ⅛ of a mile S.E. from the lighthouse, extending in that direction nearly ½ a mile; then turning to the westward about the same distance, when they terminate where the black buoy is placed. On these patches are only from 8 to 10 feet. The channel is regularly buoyed on the north side with black buoys, and on the south with red buoys. The red buoys are conical shaped 5 feet above the water, and are numbered in black figures. No. 10 is the most eastern, and is placed in 7 feet low water on edge of White Bank, west of Half Moon Battery; and No. 1 about 600 feet below King's End, in 6 feet low water. Between Poolbeg and the Pigeon House there are several places where vessels may anchor, in from 16 to 20 feet at low water, the channel having been greatly improved by means of powerful steam dredges. Ships in general, with suitable draughts of water sail over the bar to the south of the east buoy. This is called the East Channel, and the mark for it is the Church of Irishtown just open to the northward of the lighthouse. This mark will lead you about a cable's length to the southward of the east buoy in no less depth than 16 feet at half-flood. So soon as you are over the bar, the depth will increase to 18 and 20 feet. Keep about mid-channel between the Spit Buoy and the lighthouse, and when about ½ a mile within the latter you may anchor in 15 or 16 feet at low water. This is called Poolbeg, and although a tolerably good place in summer, it is not so good in winter time; it is then best to go a mile further up, so as to take the ground about half-ebb, or to lie along the wall or along the quay above King's End. To sail in through the West Channel, you must pass to the southward of the South Buoy; when the lighthouse bears N.E. ¼ N., and on with Baldoyle Chapel, or the ruins of Kilbarrack Church, steer for it in that direction, giving it a berth on your larboard hand, as you haul round to the westward. When coming from the southward, keep Sandy Cove Tower on with the eastern extreme of the pier at Kingston, S. ¼ E., until you bring the lighthouse on the above bearing: this will lead you in the best water, and well to the westward of the south bar buoy. In the channel are only 8 feet at low water, spring tides. The tide flows at the lighthouse, on full and change days, 10 hours 47 minutes, and rises 13

feet on springs. Vessels coming from the northward, bound for Dublin, must give the Hill of Howth a berth, to avoid the bank called Rosebeg. To avoid it on the east side, bring the eastern extreme of Howth open of the Bailey, or the Bailey Light N.E. ¼ N.; and on the south side, Poolbeg Lighthouse, N.W. by W.¾ W.

Ireland's Eye is a small island 1½ miles to the north of Howth Head; on its eastern side is anchorage in 6 fathoms; on its north in 7; but the best is on the west side in about 4 fathoms, with the Stack open to the southward of the height, and from whence it is easy to run for the pier of Howth in case of necessity.

Howth Pier Harbour, to the S. of Ireland's Eye, is capable of receiving vessels of 11 or 12 feet draught. There are two piers, on the easternmost of which stands a lighthouse exhibiting a fixed light of a red colour, of essential use to to clear the dangers off Ireland's Eye. There are also two small lights upon the west pier, which are intended to lead vessels going in from the northward, or from between Ireland's Eye and Lambay Island.

Harbour of the Skerries—This Harbour may be easily known by Rockabill and St. Patrick's Islands; the former is a remarkable rock, always above water, and steep-to all round, having from 9 to 18 fathoms close to it, and on the summit of which a Lighthouse is erected exhiting a FLASHING light every 12 seconds, and can be seen 18 miles. The flash is white between N. ½ W. and S.W. by S.; red between the same bearings round westward or towards the land. It lies 4 miles E. by S. of the Skerries, and about 2½ miles from St. Patrick's Island. To sail in, after you have rounded St. Patrick's Island, steer N.W. by W. until all the town of Skerries appears open of the pier-head; you will then be clear of the Cross, and may round into the road, where you will have 4 or 5 fms. of water. Here the riding is safe, unless it come to blow hard from the E. or N.E.; but if you intend going up to the pier, stop about a cable's length from the pier-head, in 3 fathoms, until the tide serves.

Balbriggan Harbour is sheltered from the east by a Pier, on the S. side of the Bay, which runs northward. Within the Pier Head, at high spring-tides, are 12 feet water, and with neap-tides, 9 or 10. On the pier, S. side of entrance, is a white lighthouse, exhibiting a fixed light, visible at the distance of 10 miles, between W. S. W. and S.S.E. ½ E.

Drogheda Bar lies 27½ miles N. of Dublin, about 10 miles N. of Skerries, and 7 miles from Balbriggan, the river running due E. and W. Formerly the river from the Maiden Tower to the bar had a tendency to run N.E., but an annual outlay of nearly £6000 a-year in its improvements has contributed to give the entrance to the river an E. and W. direction, thereby enabling vessels to take the bar with much more safety than heretofore. The parallel walls at the mouth of the river having been extended within the last few years 1800 lineal yards seaward, and now nearly reaching the bar, has caused the water in the river adjacent to the bar to be comparatively smooth in the severest weather. These walls have also had the effect of deepening the channel, and directing its course in a more southerly direction, thereby making the bar much easier of access in bad weather. The continual dredging of the river has removed the banks and shoals which previously existed, leaving the navigable channel of a uniform depth, not less than from 18 ft. 6 in. to 19 ft. at high water of ordinary spring tides. The water on the bar at spring tides is 22 ft., with 17 ft. 6 in. at neaps, 4 ft. 6 in. at low water of spring tides, and 6 ft. 6 in. at neaps. There is an excellent tug-boat in attendance on vessels requiring her assistance, with a number of experienced licensed pilots always looking out for vessels bound for this port. There are fifty sailing vessels, with five first-class paddle-steamers, having in the whole a registered tonnage of 7327 tons trading to this port, exclusive of other vessels which frequent this place with occasional cargoes. Four lighthouses are placed at the entrance of the river, and a number of stone towers built on the N. side, with wooden perches for landmarks on the S. side; the centre between them denoting the channel. The relative bearings of the E. and W. Lights will be occasionally changed, as the sandbanks alter their places. The present entrance of the river, keeping these two lights in one, is W. by N., until you come abreast of the large Stone Pillar on the north side, then steer N.W. ½ W. for the North Red Light. There has lately been placed at the East end of the North Wall a large Wooden Perch, with Cage and Barrel placed on the top of it, and must be kept about 100 feet on the starboard side in coming in. Ships drawing 10½ feet should have at least 4 hours' flood tide in bad weather before taking the bar.

Dundalk.—Sailing N. you will pass Clogher Head and reach Dunany Point, off which, about a mile E. of high water mark, lies a small rock, drying with low water spring tides. The first buoy is in 6 fathoms at low water, about 4 miles from Dunany, bearing from it N. by E.,

keeping Clogher Head well open, and bearing from Cooley Point W. by N., distant about 4 miles. The second and third buoys bear N.N.W. ¼ N. from the first buoy. The second buoy is in 3½ fathoms at low water; and the third is on the bar, on which there are, at low water springs, 3, and at low water neaps, 6 feet. The depth on the bar at high water springs, varies from 24 to 18 feet; and neaps, from 16 to 13 feet. These depths continue up to Soldier's Point, whence, to the quays, the depth is at high water springs, 19 feet, and neaps 13 feet. From the bar to Soldier's Point, the W. side of the channel is marked by three hexagonal beacons constructed of timber piles, each having a ball on the top, and painted black; and on the E. side near to Soldier's Point, at a place called *The Rock*, there is a large hexagonal beacon constructed of timber piles and painted red; this beacon has a lantern on the top shewing a Red Light when Lighted at night. Between the Rock Beacon and Soldier's Point on the N. side of the Channel, there are two beacons painted red. Between Soldier's Point and the Quays there is also on the N. side of the Channel, at the entrance to the Ballymascanlon River, a similar beacon to the last, painted red: from thence to the Quays the N. side of the Channel is marked by perches. All the beacons are furnished with lanterns, which are lighted at night, and, with the exception of that on the Rock, shew Bright Lights. A Lighthouse, on screw piles, has been erected at the entrance of the Harbour Channel. The Light is a Fixed Light, varied by Flashes, giving a flash once in every 15 seconds; its focal point 33 feet over the level of the sea, at high water; and in clear weather it is visible at the distance of about 9 miles. To seaward the Light appears of the natural colour, Bright, between the bearings of W. by N. and N. ½ W.; it is masked in the direction of the Dunany Reefs, between the bearings of N. ½ W. and N. by E. ½ E.; it is coloured Red towards the west side of Dundalk Bay; and shows Bright towards the Harbour Channel, northerly. The Lighthouse is borne on screw piles of red colour, braced into an open framing below the dwelling, which is of octagonal form, and coloured white: over this the Lighthouse has a dome-formed top. It stands within the entrance of the Channel in lat. 53° 58′ 40″ N., and lon. 6° 18′ W.; and bears from Castle Rocks, off Cooley Point, N.W. ¾ W., distant 5¼ nautic miles; from Dundalk Patch (rocky shoal), N. by W. ¾ W., distant 6¼ nautic miles; from Dunany Reefs, eastward of Dunany Point, N. ¼ W., distant 6½ nautic miles. A large bell has been placed on the roof of the lighthouse, which strikes six times per minute in foggy weather. All vessels entering the Port to keep the Lighthouse on the Starboard hand. Masters of vessels are cautioned to give the beacons and perches a sufficient berth. When vessels bound to Dundalk come between Cooley Point and Clogher Head, they are required to hoist a signal for a pilot. Vessels wanting the use of a Steam Tug are requested to hoist by day an Ensign to the Fore-top-gallant-mast-head; by night, Two Lights, one above the other. Masters of vessels necessitated to enter the Harbour, without being able to obtain a pilot, should observe, that after passing the Lighthouse, they are to keep the black beacons on the Port hand, and the red Beacons on the Starboard hand.—The Dundalk Harbour Commissioners have had built, at a cost of £3,000, a new and powerful Iron Steam Tug-boat for the accommodation of vessels trading to this port.

DUNANY AND IMOGENE ROCKS, DUNDALK BAY.—A *black conical buoy*, surmounted by a staff and ball, has been placed in 3¼ fathoms, at low water, spring tides, to mark the position of the Imogene Rocks, which lie about a mile and three quarters S.S.E. off Cooley Point, north side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Dundalk High Chimney, open of Rathcor Point, N.W. ½ W.; Cooley Point, N.N.W. ½ W.; Carlingford Lighthouse, N. E. ½ N.—A *red conical buoy*, surmounted by a staff and ball, has been placed in 4 fathoms, low water, spring tides, on the outside of the Dunany Reefs, which lie off Dunany Point, south side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Clogher Head, S. W. ¾ S.; Dunany Church, W. ½ S.; Dundalk High Chimney, N. by W. ½ W.; Tipping Mountain on with a saddle in the distance, N. ¼ W.

Loch Carlingford lies two leagues to the eastward of Dundalk Harbour entrance, and forms a large well-sheltered bay, the ground good, and water sufficient for the largest ships; but there are several rocks and dangers which must be attended to. Its entrance is between Ballaggan and Cranfield Points, which bear from each other nearly E. by N. and W. by S., distant 1½ miles. The following Iron Nun Buoys have been laid down at low water, spring tides:—*Black* Buoy on the Shoal N.E. of the lighthouse, in 7 feet water at low water, lighthouse S.W., distant about 40 fathoms; Blockhouse W.N.W. *Red* Buoy off the tail of the Scar, Cranfield Bay, in 8 feet water, lighthouse S.W.; Greencastle N. *Red* Buoy on the south end of the Earls Rock and Shoal, in 8 feet water, Greenore Point W. by S.; Greencastle E.; distant from Greenore Point ¾ mile. *Red* Buoy on the S.W. end of Ballyedmond Bank, in 9 feet water, Monument N.; Old Castle, Carlingford, W. S. W. *Black* Buoy on the

eastern edge of Carlingford Bank, in 8 feet water, Greenore, S.S.E.; Old Castle of Carlingford, S. W. by S. When inward bound, masters of vessels will keep the red buoys on the starboard hand and black on the port. The Helly Hunter, upon which a large Red Buoy has been placed, is a rocky shoal lying to the eastward of the entrance of the Loch, and stretching about 1 mile S.W. and N.E.; its western end dries with extraordinary low tides only, and on the other parts the least water is 6 feet. To avoid the Helly Hunter, as you sail to Carlingford from the E. or S., do not bring Mount Culy to the westward of W. ½ N., until the Blockhouse comes on with the top of Foy Mountain, bearing N.W. ½ N. Then steer for the N. end of Blockhouse or Haulbowline Island, giving the Point of Cranfield and the Island a berth of a cable's length each from the high-water mark. Between the W. side of Blockhouse Island and Ballaggan Point are several rocks and shoals, and consequently this passage must not be attempted.

Carlingford Loch Light, situate on Greenore Point, on the larboard side in going up Carlingford Loch, revolves, is of the natural appearance, attains its greatest magnitude every 45 secs., and is visible at a distance of 9 miles.

To Sail into Loch Carlingford, take flood-tide, and with the Blockhouse bearing from N. by W. ½ W. to N.W. ½ N., sail in for the E. side of the Island, giving it a berth of a cable's length or two on the larboard. Steer thence for Greenore Point, keeping between ½ a cable and 2 cables' length from it; then run N. by W. up the middle of the channel; and abreast of Killean Point, or above it, nearest the E. side, drop your anchor, in from 2 to 6 fathoms water. Small vessels may lie on the W. side, easy and safe, about 2 cables' length eastward of Carlingford Castle, on soft mud.

Carlingford Lights are shown from a tower erected on Haulbowline Rock, which lies upon the bar ½ a mile W. by N. from Cranfield Point, on the larboard side of the entrance to the Loch. The upper is a fixed light, and the lower revolving. The higher light is shown throughout the night, and may be seen like a star of the first magnitude, at the distance of fifteen miles. The lower light, having also a starlike appearance, is exhibited from half-flood to half-ebb. In the day, during the same period, a ball is hoisted; and in foggy weather, a bell is tolled every half minute.

NORTH-EAST AND NORTH-WEST COASTS OF IRELAND.

LOCH CARLINGFORD TO SLIGO BAY.

Annalong.—A small dry harbour, with excellent shelter for coasters after passing a narrow but easy entrance.

Newcastle.—A dry harbour, surrounded by a quay and sea-wall, affording good shelter for coasters, with an even bottom, and very easy access between the two pierheads.

Dundrum Harbour. — The entrance to Dundrum Harbour (a dry one) lies 2½ miles eastward of Newcastle, at the mountain foot. In the middle of the entrance channel a black buoy is laid down in 14 feet, low water, spring tides. It may be picked up by keeping the old castle that stands above the town a sail's breadth in on the west point that forms the entrance. Steering north from this, you will arrive at a smaller buoy lying in the middle of the river; then by steering N.W. by W. you will come up with the first perch on the banks to the west, having on it a small barrel—give this a berth of half a cable's length on your larboard hand; after which, by changing your course N. by E., you reach the second perch, having a triangle on it: allow this the same berth as the first. The third perch has a round black top. From the second perch, from which you have the town and pier open, steer N.N.W. up the river until abreast of a red-topped perch, to which give a berth of half a cable's length on your starboard hand, and then keep for the pier-end.

St. John's Point. — On this Point in lat. 54° 13′ 10″ N., and lon. 5° 39′ 50″ W., is erected a tower, shewing an intermitting light, *Red* appearing of its full brightness during 45 secs., and ob. 15 secs

The light bears from Newcastle pier, (Dundrum bay) E. by S. ½ S., 7½ miles, and from the Calf of Man revolving lights N.W. ½ W., 33 miles, and can be seen seaward from W. by N. ½ N. to E. ½ N. The light kept open will lead clear of Gun's Island and of the St. Patrick's rock, off the entrance of Strangford Lough.

Killough, half a league East of St. John's Point, has a good roadstead in off-shore winds, and, within, offers to coasters a safe dry harbour, with a muddy bottom. Killough Pier is built from the West side, and, between it and a smaller Pier on the East side, called Coney Island, lies the entrance to the port. Outside the entrance of the bay an Iron Perch marks the Water Rock, which is covered only at high water: to avoid it, bring a remarkable two-storied house, with white front and roof, (called Cotter's House, and situated inside the harbour,) one-third inboard from the West Pier-head, until you have passed the Perch; then keep more to the Eastward till you bring the House over to the extreme end of the Pier. Two cables N.N.E. ½ E. from the Perch is the Little Plate Rock, and half a cable N. from this is the Big Plate, both covered except at spring ebbs; and, consequently, when there is water to enter the harbour, there is also water over these rocks. The Garter, on which is an Iron Perch, is a ledge of foul ground which runs off from the Western side of the bay, under the Old Mill Stump. There is also a spit of rough stones, called Crane's Point, extending S. W., a short distance from Coney Island; but by keeping Cotter's House midway between the two Pier-ends, when you come within two cables' length of them, you avoid this spit. The best anchorage in the Bay is within the Water and Plate Rocks, in from about five to seven fathom, with shelter from all but southerly winds.

Ardglass Harbour, 2½ miles E. of St. John's Point, is easily known by several old Castles and a rising town on the W. side of the bay. You can anchor at the mouth of the bay, between Ringfad and Fennick Points, in from 6 to 10 fathoms water; but if the wind blows on shore, a small vessel may shelter inside the pier under the middle castle in from 1½ to 2½ fathoms water, with a warp to the quay, or run aground on the beach. A temporary red light is shown from the inner shore of harbour, 2 cables' length from entrance N. by W.

Loch Strangford lies N.E. at the distance of 60 miles from the Hill of Howth, and nearly E.N.E. ½ E. 28 miles from Loch Carlingford. The stream at the entrance is very rapid, and when the tide is ebbing and wind strong at S., S.E., or E., the sea is short and broken, which gives the bar across the river the appearance of a ridge of sunken rocks; but there are not less than four fathoms at low water on any part of the bar, and it is quite free from rocks. Few places afford such safety to wind-bound vessels as this Loch, ships having at all times of tide abundance of water, not only on the bar, but also in the two principal roadsteads, *Ballyhenry* on the N.E., after passing Portaferry, and *Audley's Road* on the S. W. side of the river, after passing Strangford. An Iron Perch with a square head has been erected on Rock Patrick, which is covered at half-flood, and is about three quarters of a mile off Killard Point. Vessels from the southward can pass close to this Perch, on either hand, in making for the North Bar, the only safe entrance for strangers; and as there has been erected a round Tower of masonry on Rock Angus, and there are Perches on the Garter on the port hand, and Pladdylug rocks on the starboard hand, which lie near its mouth, no danger need be apprehended in daylight; but a good offing should be kept from the E. shore to avoid Pladdylug; and on the other hand do not stand too far towards the Garter, as the flood has somewhat of a westerly direction towards it. Having passed the Tower on Rock Angus a mile and a half, come to anchor, if you are late for the tide, opposite a White Beacon on the south shore, called Cross Roads, where you can stop a tide until you can get to Ballyhenry or Audley's Road, 2 miles further, and just beyond Strangford and Portaferry towns. The "Hole" of Strangford is a perfectly sheltered anchorage between the town and Swan Island, and there are 2 Quays opposite the Customhouse, with berths alongside them, and a little Bay with an even beach and smooth water for vessels desirous of taking the ground. There is also at PORTAFERRY (opposite) a good Quay, with berths and a smooth beach along the shore, under the town. A Horse Ferry plies between the two towns. There is a Red Pillar Beacon on the outer end of Swan Island, which marks the entrance into the "Hole" of Strangford. On hoisting a signal, experienced pilots can be had.

South Rock Light is erected on the South Rock, about 2 leagues northward from the entrance to Loch Strangford. The light revolves, attaining its greatest lustre every 1½ minutes, and is visible at a distance of 12 miles. A reef of rocks called the Ridge, extends 1½ miles to the N.E. of the lighthouse, on the extremity of which is a red buoy, which bears about S. by E. from the North Rock Beacon. The North Rock, about a mile N. by W.

of the lighthouse, is marked by a solid Beacon, like a small church spire, erected in 1856. The Butter Pladdy, about 1½ miles S.W. of the lighthouse, is marked by a black buoy, to be left on their outer hand by vessels taking the "Sound of the Light"—a channel much frequented by coasters and now well marked, between the lighthouse and the North Rock Beacon. Sailing along the Downshire shore, from the Copeland to the North and South Rock, the South Light should be kept outside of Burr Isle, or the Blackhead of the Gabbans, in Isle Magee, a sail's breadth outside of Donaghadee shore, or the Copeland Light North, to clear Scullmartin Rock that lies N. ¼ E. 3½ miles from Burr Isle, and S.E. 1 mile from the town of Ballywater. To the northward of Scullmartin, on which is an Iron Perch, lie Ballywater Rocks, which stretch out about ¼ a mile, commencing at Ballyferris Point, and run S. two miles. The S. end is seldom covered, the middle is covered at ½-tide, the N. end seldom bare. Just inside the Long Rock and Scullmartin a new Quay has been built. Vessels of 60 and 70 tons frequently go in to discharge; and there is good shelter from all but N.E. winds, though the space is small, because after building the Quay, the Board of Works never cleared away the loose stones inside it. Six and a half miles N. of Ballywater is

Donaghadee, the deepening of which is at present being proceeded with, must be entered with great caution either by day or night in order not to come foul of the Dredger Barges, or their moorings, which are stationed at the entrance and in the harbour. The depth of water at the entrance between the pier heads has been increased to 10 feet at low water; from the Lighthouse to the easternmost Crane and extending to the centre of the harbour, there is a depth of 12 feet at low water, and at the western Crane the depth is 10 feet at low water. From the S.E. pier-head a Light is shown, red to seaward from N. by E. ¼ E. to S. ¼ E., and bright towards the harbour and the entrance of Belfast Bay. Sailing in from the southward keep above ¼ a cable's length from the shore until the harbour is open, then run in and let go your anchor inside the pier-head. No buoys are allowed to anchors on account of the steam packets. Mariners must be on their guard not to lose sight of the red part of the light in sailing N. or S. of Donaghadee. About a mile north of Donaghadee is Foreland Point, from whence extends a ledge of rocks to the E., with an iron Perch on it, and outside of that again is a large black buoy, which should not be rounded too close, particularly at low water. Deputy Rock, on which is a red buoy, lies half way between Donaghadee and Copeland, and has about 8 ft. at low water. The proper course through the sound is between the Foreland and Deputy buoys; but there is a channel on the E. side of the latter, keeping one-third from the Copeland, as a shelf of foul ground runs out after passing the Deputy. Cairn Point, at N.W. end of Copeland, must have a good berth on the starboard hand, to avoid a rock called Gordon's Bush, that lies a cable's length S. of it, and is seldom bare at low water. These are all to be feared in the Sound of Donaghadee.

Copeland Island lies 2½ miles N. E. ¼ N. from Donaghadee, and one mile to the eastward of Nout Head. E.N.E., one mile from Copeland, are the Cross and Mew Islands, between which is a narrow channel not navigable. On the Cross Island is the Copeland Light. Between these small islands and the Copeland is the outer sound. On the E. side of the Copeland, near the south point, is a ledge of rocks extending above two cables' length to the eastward: there is also a ledge extending from the Mew Island to the westward; between these is the channel. Half way between the sound of Copeland and Cross Island, is a small rock called the Pladdins, over which are, with common spring tides, 3 or 4 feet of water; it bears S. ¼ W. off the light. To avoid this rock on the E. side, bring the lighthouse N. by W.; on the S. side, bring the S.W. house in Donaghadee in sight with the S. end of Copeland Island: in this sound the currents are strong, and, as there are no buoys, is to be avoided by strangers.

Belfast.—The entrance to Belfast Lough is immediately to the N. of Copeland Light, and lies between Said Light and Black Head; the latter bearing from the former N.N.W., distant about eight miles. At the larboard side of the entrance, about a mile to the W. of Orloch Point, is a rocky ledge called the Briggs, stretching out three quarters of a mile, and upon which is a red buoy. About 6 miles to the W. of the Briggs is Grey Point, and, in a sort of bight between them, is the town and harbour of Bangor, fit for small vessels only. Two miles further W. from Grey Point, a small ridge of rocks runs out from the shore rather more than a quarter of a mile, on which is a buoy to be kept on the port-hand. On the opposite side of the Lough, and bearing W. by N. ⅝ N. from Orloch Point, distant 9 miles, is the town of Carrickfergus, where there is a pier, having, with spring tides, 10 feet water, and with neaps 7 feet. As a guide to the entrance of this harbour at night, a red light is shown two hours before and two hours after high water:

this light to be brought immediately over a street lamp in Governor's-place—the red light showing about 2 feet *above* the white light, and from a vessel coming in due north. Off this town, to the S. and W., is a bank running out 1½ miles from the shore, and extending N. 1¾ miles; the least water over it is 7 feet. Extending a mile from the shore on the S. side of the Lough, and opposite the village of Hollywood, is Hollywood bank, on which is a lighthouse built on screw piles, which shows a pale red light, visible 8 miles in clear weather. Between the Hollywood and middle bank is the commencement of the pool of Garmoyle, which extends from abreast the large red buoy on the starboard hand, having from 3 to 4 fathoms at low water. From Garmoyle, the channel up to Belfast is now nearly straight, having above 10 feet at low water, spring tides; it is well buoyed—red on the larboard and black on the starboard hand going up to the quays. There is also a green light on Hollywood Bank, with three more of the same colour towards Belfast, all of which are to be left on the port side when going up. There is also a red light S. W. of the stone Beacon, to be left on the starboard side. Large ships usually anchor off the town of Carrickfergus, near the middle of the Lough. Many vessels frequent this anchorage, which is marked on all the Admiralty Charts of the Lough, and Masters of ships pronounce it excellent. Vessels drawing not more than 16 feet water may anchor higher up in the Folly Roads—between the Carrick bank and abreast of White Abbey; smaller vessels in Whitehouse Roads. Large vessels drawing 18 feet water, intending to reach the quays, may anchor in Garmoyle. A large pilot cutter is constantly under way during the daytime, at night also (weather permitting), and generally boards vessels bound to Belfast below Grey Point. The Briggs of Kilroot, now a Perch on them, lie on the N. side of the Lough, and stretch almost from Kilroot Point to White Head, and about a quarter of a mile from the shore, to avoid which keep Black Head open with the White Head, and a vessel will be clear of all danger.—The Admiralty Chart of 1856, as surveyed and reported on by R. Hoskyn, Master R.N., states:—"Belfast Louth is an admirable refuge harbour. Above Grey Point ships may ride securely against all winds.

Loch Larn.—A lighthouse is erected on Farres Point, on the larboard hand going into this spacious Loch, opposite which are the Maiden or Hulin Rocks. Sailing into Larn from the S.E., pass Muck Island, Brown's Point and Bay; give Barr's Point a berth near half a mile, as a ridge of rocks runs off above a quarter of a mile; give Farres Point, on which is the Lighthouse, a berth of half a cable's length; run for Corran Point on Larn side, on which stand the ruins of an old castle, giving Isle Magee side a large berth, as a long shoal runs out from it very near half way across to the steampackets' wooden wharf opposite the salt pans, and continue to near the Point of Racknow, round which is Yellow Stone Roads, sheltered from all sea, and little tide. There is a long flat runs out from the N.W. side of the entrance which when covered, is so deceitful to strangers, that they should open the mouth of the Loch well; keep no more than two cables' length from the lighthouse, run up past the wooden wharf, giving it a berth on the starboard hand. Anchor ¾ of a cable's length from Isle Magee shore. Small vessels from above the wharf should run up abreast of Corran Point in two fathoms, keeping one-third from Corran shore, and two-thirds from the Island. Large vessels should come to further out, about one-third from Corran side. There are no rocks in Larn Loch, and should a vessel run too far, she will only go on soft sand or mud. A stranger going in, in the night, should take his soundings from Isle Magee shore; but going to the Yellow Stone Roads should take a pilot. Vessels may run in without anchors or cables—there are no rocks nor shoals to interrupt them, coming from the southward, except Barr's Point, before mentioned, and Hunter's Rock. Four miles off the mouth of Larn Loch, and 4 miles N. ½ W. from Knee or Muck Island, the Sound of Muck appears open, and Corran Castle on with Larn Lighthouse.

Maiden, or Hulin Rocks Light. Two lighthouses, marked with broad red and white belts, are erected on the Maiden or Hulin Rocks. These Rocks bear by compass from the Mull of Cantyre Light, S.S.W., distant 24 miles; from Sanda Island, S.S.W. ½ W., 18¾ miles; from Ailsa, W.S.W., 23 miles; from Copeland Island Light, N. ½ E., 16½ miles, and from the eastern extremity of Rachlin Island, S. by E. distant 29 and a half miles. The lights are distant from each other 320 fathoms, and bear N.W. by W. and S.E. by E. The mariner in passing should give them a wide berth, there being a number of sunken rocks extending upwards of 3 miles N. and 1½ miles S. of them.

Ballicastle Harbour.—Opposite Church Bay, on the Irish Coast, is Ballicastle Harbour, formed at the mouth of a small rivulet near the town, affording shelter for small vessels drawing 7 feet water, for at high water there are 9 or 10 feet between the pier heads, with spring-tides, and 8 feet with neap. In summer

ships may ride near the W. side of the bay in 9 or 10 fathoms water, the glass-house bearing S.S.W., Sheep Island being shut in with Kinbane Head, and Clare House bearing on the top of the cliff near it; but it will not be prudent to lie long here. Should the wind blow from the N. or N.W., and a swell begin to set in, weigh anchor, and rounding Tor Point, make for Cushinden, Cushindaal, or Larn.

The **Skerries** lie W. by N. 5 miles from Bengore head, and about a mile from the shore: on the south side of the largest of these islands, where it appears lowest, a vessel may anchor in 6 or 7 fathoms water, a little more than a cable's length from shore. In sailing into this anchorage be careful of the Stirks on the east side, and of the Kers on the west side: they lie a little to the southward of a cluster of rocks about half a mile westward of the Skerries, and dry at four hours' ebb.

Port Rush is much improved by a pier and quay; there are from 8 to 24 feet within the harbour, while off the mouth of the port a vessel may anchor in 6 to 8 fathoms, on a bottom of sand. On entering the harbour you must give the North Pier a berth of at least fifteen yards, to clear the stones which have been placed to break off the swell, and which are covered at ¾ flood.

Loch Foyle is a capacious harbour, where the largest ships may ride in safety in all weathers; but the best place for large ships is on the N. side, 3 or 4 miles within the entrance, in from 5 to 8 fathoms water: but vessels of 11 or 12 feet draught will ride easiest between Quigley's Point and Ture, in from 2¼ to 3 fathoms. The danger to be avoided is the Tuns Bank, which lies on the S. side of the entrance, having a channel between it and the land, on the N. side, ¾ of a mile wide. To sail into Loch Foyle, wait for flood tide, or a brisk leading wind to stem the ebb, which runs at the rate of 3½ knots in the entrance: keep Glenegad Head 2 or 3 ships' length open off Inishoan Head, until the mouth of Derry River at Kilmore Point is a little open of Magilligan's Point; then steer for the entrance, keeping ⅓ of a mile from the N. shore, and you will pass between it and the Tuns Bank: when you are within Magilligan's Point, you may keep at a greater distance from shore, and run up to the anchorage. On Donagree Point, a little to the S. of Inishoan Head, are two lighthouses, bearing from each other E. and W., distant 153 yards. The lights are fixed, visible 13 miles, and when in one lead clear of the Tuns Bank.

Inistrahul Island, on the N.E. part of which a lighthouse stands, is 6 miles N. ½ E. from Glenegad Head, and 4 miles from the nearest shore. The light makes a revolution every two minutes.

Loch Swilly.—The entrance of this Loch lies 7 miles W. by S. from Malin Head, and is about 3½ miles wide, from shore to shore. Fannet Point is a low point at the W. side of the entrance; it is distinguished by a lighthouse which displays a steady light, which, when seen from sea, appears of a deep red colour, but from within the Loch, bright. This is a safe harbour for vessels of any size; but the best anchorages are off Burncranah House, 2 or 3 cables' length from shore, in from 4 to 8 fathoms, or between the Island Inch and Rathmullin, rather nearer to the latter, in from 5 to 8 fathoms.

Mulroy Harbour is known at a distance by Tory Island, Horn Head, and Rosgull Hill; it has water sufficient for the largest ships; but a part of the channel is narrow and difficult. Strangers should always take a pilot.

Sheephaven & Downing Bays.—Few vessels like to run for Sheephaven as many get on shore, yet some are compelled, not being aware of the excellent anchorage in Downing Bay, which lies on the E. side, at the bottom of Sheephaven. The bay is formed by points called Downing and Morlach. Close under Morlach Point is the anchorage, in from 4 to 6 fathoms. In running for it from Hornhead, the course will be S.E. by S., distant six miles, care being taken to give a berth to two half-tide rocks about a cable's length N.N.W. from Downing; when the sea breaks on them, which it generally does, they may be approached as most convenient: there are no other dangers.

Tory Island, the east end of which lies 7¼ miles N. W. from Horn Head, has no good anchorage on its S. side; but in the summer season, with S. winds, a vessel may stop on the north side in 18 or 20 fathoms, within half a mile of the shore. On its N.W. end is a lighthouse, exhibiting a steady bright light, visible from seaward 16 miles all round; but when passing to the S.E. of the island, is shut in behind the heights between N.W. by N. and N.W. ½ W.

Rathlin-O-Birne.—This island lies 2 miles S.W. ¼ W. from Malin More Head, and is about ½ a mile long and ½ of a mile wide. A lighthouse has been erected upon it, in N. lat. 54° 40′ and W. long, 8° 50′ exhibiting a flashing light, at an interval of 20 seconds, visible at a distance of 16 miles, but red towards the mainland and sound, eastward of that island.

Donegal Harbour is on the E. side of the peninsula, called the Hassens, or Green Islands, 2 miles below the Town of Donegal, where small vessels may ride in 2 or 3 fathoms water at about a cable's length from shore. To sail in, take half-flood, and keep about ½ a mile from the shore on the larboard or N. side, until you are near the Black Rock; then steer E. ½ N. until you are a cable's length past it; you may then steer directly for the Green Islands, giving the north shore a berth of about two cables' length.

Sligo Bay is to the southward of the point of Raugly, and at the N.E. side of the bay is the entrance to Sligo Harbour: S. by E. ½ E. from Raugly point is Black Rock, covered at high water, on which is a fixed bright light, shewing from S.W. seaward to S. E. by S. and seen at a distance of 13 miles. To sail in keep about 2 cables' length to the northward of the lighthouse, in order to avoid the shoal water on the N. side of the rock. The only place where a vessel will lie afloat at all times of the tide, is Oyster Island Harbour, but the bottom is rocky, and does not hold well. On this Island are two fixed lights, bearing N.N.W. ¾ W. and S.S.E. ¾ E., 165 yards from each other. After passing the bar, the lights in one clear the Bun Gar Bank, and lead to the entrance of the harbour, or up to the Metal Man Beacon.

SOUTH-EAST COAST OF IRELAND.

WATERFORD TO BALTIMORE.

Waterford Harbour.—From Great Saltee Island to Hook Point, on which Waterford Lighthouse is erected, the bearing and distance are, W.N.W. 13 miles; and from the Longship Lighthouse off the Land's end, N. ¼ E. 43 leagues. When coming from the S. or the E. for Waterford, bring Sleanaman Mount a remarkable mountain inland, to bear N. E. until you see Hook Lighthouse on the E. side of the entrance of Waterford Harbour, from which a bright and steady light is exhibited. Go not nearer Hook Point than about 2 cables' length, to avoid falling into irregular streams of tide that run near it. Having passed the Hook, and intending to proceed for the anchorage at Passage, take a flood tide or a leading wind, and steer for Credan Head, giving it a berth of at least ½ a cable's length. From Credan Head steer N. E. by N. for Duncannon Fort, carefully avoiding the sand banks which extend from both shores. That on the starboard side begins at Bluff Head, extends more than half a mile from the shore, and terminates at Duncannon Fort. Between Bluff Head and Duncannon Fort is Ballistraw Bay. The sand on the other side, called Drumroe Bank, extends more than a mile from shore, and narrows the passage abreast Duncannon fort to about a quarter of a mile. Two lights in Duncannon Fort, one above the other, are exhibited to direct vessels to that point. On the flat, or what is known as "the bar," 14 feet of water can be had on the lowest spring tides. This shallow lies nearly midway between Credan Head and Duncannon, extends for about a mile in length, and is composed of hard sand; the course by compass over it is from N. N. E. ½ E. to N.N.E. ¼ E. Another lighthouse, having a fixed bright light, is erected N.N.E. ¼ E. from Duncannon Fort lighthouse, distant half a mile. These two lights kept in a line, will lead in the best channel across the bar between the eastern and middle buoys. When above the lights keep near the eastern side, steering about N. ½ W. for the church of Ballihak, until the perch, which is fixed in the upper end of Drumroe Bank, comes on with the town of Passage; you may then steer upward N. W. by N. in mid-channel. Abreast of this perch are 10 or 11 fathoms. The usual anchorage is about a mile above Passage Town, in 5 or 6 fathoms. Two or three miles above Passage is very good anchorage, and there the stream is much weaker than at Passage. In proceeding for this place, avoid a spit of sand called the Seedes Bank, which stretches off about W. S. W. from Buttermilk Castle, extending about half-way over to the opposite side; the least water on it is 9 feet. Avoid also a small rock of 9 feet at low water, and 14 feet at half-tide, which lies about 2 cables' length from shore, on the S. side of Cheek Point. In proceeding about low water, keep in the middle between the two points, or rather nearest to Buttermilk Point; if the flood-tide be running, keep in the rough part of the stream, and you will clear the shoal. Vessels drawing 20 or 22 feet water may go up to Waterford, where there are 2 fathoms at low water, a ship's length from the quay. The safest channel to Waterford is on the north side of little Island: the channel on the other side is deeper, but it is narrower, and subject to eddy-tides, which make it dangerous. Pilots may always be had at the entrance of the harbour.

Dungarvan Bay.—A lighthouse has been erected on Ballinacourty Point, on the northern side of Dungarvan Bay, with the following marks and compass bearings:—Helvick Head, S. ½ W., 1½ miles; Carrickapane Rock, S. S. E., 9 cables' length; and Whitehouse Spit, W. by N., 3½ cables' length. It shows a fixed bright light, visible between the bearings of W. and S.E. ¾ S.; green, bearing from W. to N. W. by W.; and red in the direction of Carrickapane Rock. Its white appearance can be seen at the distance of about 10 miles in clear weather.—The intermittent light on Mine Head, S. W. by W., 4 miles from Helvick Head, markes the approach from the westward to Dungarvan Bay, and can be seen further eastward than the range of Dungarvan light. A vessel in the entrance of Dungarvan Bay must keep clear of the red colour of the light to avoid Carrickapane Rock; and on the northern side of the bay keep to the southward of the green light to avoid Carricknagaddy, and the rocks which extend half a mile eastward of Ballinacourty Point.

Youghall Harbour lies about 13 miles W.S.W. from the entrance to Dungarvon. During high water, spring tides, ships drawing fully 17 feet may go in, and ride off the middle of the town. Across the mouth of the harbour is a bar, which extends above a mile south from the entrance, and has 6 to 9 feet on it at low water. Except when the wind blows from the south, south-east or south-west, there is always smooth water on this bar; 14 to 15 feet water are on it at high water, neap tides. When Cable Island bears W.S.W. you are on the outer edge of the bar. When sailing for Youghall Bay from the southward, keep Knockmeldown Mountain N. by E. To anchor when waiting to go over the bar, the best places are on the S. side of the bar, the harbour mouth bearing N.N.E., in 3 or 4 fathoms; or on the north side of Cable Island, in 3 to 6 fathoms, about 2 cables' length from the shore. From a tower on the west side and within the entrance, is shown a fixed bright light, open to the harbour, and seaward to S. W. by S., and may be seen at a distance of 6 miles.

Cork Harbour.—From a tower on Roche Point, at the east side of the entrance, is shown a fixed light, red towards the sea, to the harbour bright, and visible at the distance of 14 miles. From it Cork Head bears S. W. by W. about 4 miles. From the Longship Lighthouse off the Land's End to the entrance of Cork Harbour is 46 leagues N. by W. ½ W. Coming from the southward, and bound to this harbour, keep Knockmeldown Hill about N.E. by E. until you see the Old Head of Kinsale, a bluff point of land with a lighthouse on it. From this Head the entrance of Cork Harbour lies E. ¾ N, distant about 5 leagues. When off the harbour, Roche Tower with its lightnouse is remarkable. A little without the point, on E. side of entrance, lie the Stag Rocks. There is clean ground in a moderate depth without the harbour's mouth, where ships may, with a northerly wind, wait the flood or daylight. A white buoy is placed on the edge of the bank off Fort Camden; another white buoy about a mile further in, to the northward of the entrance to Cross Haven; a third, of the same colour, off the east side of Spike Island; and a white buoy on the eastern extremity of East Haulbowline Bank. Each of these buoys is numbered. There are also several black buoys on the side opposite, on the edge of the mud flat: they lie in 4 fathoms, and are likewise numbered. Having passed the narrows, which is about 450 fathoms over, the channel continues that width on a N. by E. and N.E. direction, between the white buoys on W., and black buoys on E. side, to the anchorage off Spike Island, on sandy ground: thence it leads upwards, narrowing round the beacons on the northern side of the Spit extending E.S.E from Haulbowline Island, close in to Queenstown on the north shore. At the entrance of the passage to Queenstown is a white buoy; and at about 160 fms. to the S.W. of this, in 2½ fathoms, is the Lower Spit Buoy, quartered black and white on the top, with alternate black and white rings on the side. The Upper Spit Buoy, white, lies in 9 feet, N.W. by W. ½ a mile from the Lower Spit Buoy. Here the tide runs 2 or 3 knots; it is high water on the full and change at half-past 4, and the tide rises from 9 to 13 feet. Large ships going in at or near low water, must be careful to avoid the Harbour Rock, which lies a little within the Stag Rocks, on the east side. On it are two buoys, about 1½ cables' length apart: one on the eastern, white with red rim; the other on the western edge, red with black rim. It has 15 feet on it at low water spring tides. About half a mile N. by E. ½ E. from the Harbour Rock lies the S. end of the Turbot Bank, extending thence N.W., and which has on its shoalest part, the north end, 18 feet low water average springs. The middle of this bank lies with a remarkable dark stone building, on the precipitous part of Kenly Cove, bearing W.S.W., and touching the projecting part of the land south-eastward of Temple Breedy Church. It has on it two buoys, about a cable's length apart: one on the east, white with a black rim; the other on the west side, red with a white rim. In order to avoid the shoals on the east side, keep

within two cables' length of the eastern shore; or bring the lower part of the white wall, which stands to the S'ward of the fort upon Dog's Nose, on, or under the west bastion of that fort. To go to the westward of the Harbour Rock and Turbot Bank, keep the fort on Dog's Nose open to the westward of the lower part of the white wall above-mentioned: or when without the harbour, bring and keep a village, which appears upon a hill upon Great Island, over some pine trees, touching the point of Dog's Nose, bearing N. 21 degrees E. which will lead clear of all dangers on that side. To go between the shoals, keep the flag-staff in the fort of Dog's Nose, on, or over the lower part of the white wall. To avoid the Harbour Rock on the S. side, keep the Crow Rock on with Poor Head. The Turbot Bank may be avoided by keeping nearer to the E. than to the W. side of the entrance. Between the Harbour Rock and the east point are 5 to 6 fathoms; between the Harbour Rock and Turbot Bank are 6 and 7 fathoms; and between the bank and the western shore are 5 and 6 fathoms at low water. About a mile E. by N. from Haulbowline Island, extends the Spike Sand, which begins to dry on the north side at half ebb, and shelters the anchorage at Queenstown. On the east elbow of this bank a lighthouse has been erected on screw piles, in 9 feet; it exhibits a fixed red light, visible from N.N.E. ½ E. to S.E. by E. ½ E., round by eastward, and at a distance of 8 miles. Masters of vessels are cautioned not to cross the bank between the lighthouse and Haulbowline Island, and to give the lighthouse and detached beacon-pillar sufficient berth in passing. In going from Dog's Nose for the anchorage off Queenstown, keep Dog's Nose Point S. by W. ¾ W.; or steer for the eastmost part of the fort on the N shore, between the black and white buoys to avoid a flat which extends in some parts a mile from the E. shore, and also a rock that lies to the westward of Cork Beg, which appears at half-ebb, with a beacon on it. The best place for large ships to anchor is off the garrison, in from 8 to 5 fathoms. Merchant ships may ride off the town of Queenstown in smoother water and less tide, they may go also further up the harbour of Passage, and ride any where between the first houses and Ronan's Point. In proceeding from Queenstown to Passage, do not approach nearer than half a cable's length to the south side of Black Point; and give the W. side of it a berth of about a cable's length, to avoid a sand which extends from that shore, and dries at low water. You may go westward from Haulbowline Island, until you see Ronan's Point in the channel of Passage; then steer N'ward along the W. side of the channel, for the anchorage. Vessels drawing 16 feet may, with spring tides go up to Black Rock or to the town of Cork, and lie at the quays with 9 feet at low water, average tides. Between Passage and Horse Head is a spit of sand, of 6 feet water, extending above a cable's length eastward from the Clay Cliff: you will avoid the extremity of this spit by keeping Dunkettle House on with a grove of trees which stand on the top of a hill above the House. The point of this spit lies with Belveley Castle and Ronan's Point in one; and vessels which anchor near it, should have the castle fairly without Ronan's Point, or wholly shut in with it. In a small creek called Cross Haven, within the entrance of Cork Harbour, and on the west side, opposite Dog's Nose, vessels may ride in 10 or 12 feet.

Kinsale Harbour.—A new lighthouse has been erected on the Rocky Point at the S. end of the Old Head, distant half a mile S.S.W. ½ W. from the old lighthouse, bearing from Bulman's Rock S.W. ¾ W. 4¾ miles. This light is a fixed bright light, similar to that heretofore shown from the old lighthouse, and is visible from N.E. ½ N. seaward to W. by N., and at the distance of 21 miles. In sailing towards the harbour from the southward, keep Knockmeldown Hill N. E. by E. until you see the Old Head of Kinsale; after making that, which is about 3½ miles S.W. by S. from the entrance of the harbour, run in until the old lighthouse on it bears W.N.W. about 3 miles; then run in N.W. by W. until the old lighthouse bears S.W. by S.; and then steer N.E. by N. until you are abreast of the lower cove, where you may anchor in 6 fathoms. The only danger near Kinsale Harbour is Bulman Rock, which lies about a cable's length S.S.W. ½ W. from Hangman's Point on the E. side of the entrance, and has 4 feet on it at low water. This rock is buoyed, and may be passed on either side, but the channel on its W. side is the safest for ships coming in or going out.

Baltimore Harbour lies about 5½ miles to the north eastward of Cape Clear, and is very convenient for ships bound either eastward or westward. Small vessels may ride 2 or 3 cable-lengths N.N.W. of Baltimore Town, in 10 or 11 feet at low water, sheltered from all winds.

BRISTOL CHANNEL.

LIGHT VESSELS AND BUOYS.

Light Vessels are moored, and Buoys laid in this Channel as follows:—

Light Vessels.

A Light Vessel, exhibiting a bright light, which revolves every minute, and is visible 10 miles, lies near the English and Welsh Grounds, on the south side of the Bristol Channel, and in lat. 51 deg. 26 min. N., and long. 2 deg. 58 min. W. This vessel is painted red, carries a ball during the day, has the words *English and Welsh Grounds* upon her sides, and is moored in 5½ fathoms low water, spring tides, with the high land at Minehead on with Flatholm Light Tower, W. by S.; the Usk Light Tower, N. by E. ½ E.; a remarkable Peak on the distant Land (See-mee or See-me-not), on with St. Thomas' Head, S. ½ W. A gong is sounded in foggy weather.

A Light Vessel, bearing a bright light, which revolves every minute, and is visible 10 miles, lies off the western end of the Helwick Shoals, and in lat. 51 deg. 31 min. N., and long. 4 deg. 24 min. W. This vessel is painted red, shows a ball in the daytime, has the word *Helwicks* upon her sides, and is moored in 17 fathoms, low water, with Oxwich Point, E. by S.; Worm's Head, N. E. by E. ½ E.; Caldy Lighthouse, N.W. by N. N'ly.; Lundy Island, S.W. ½ W., 23 miles. During foggy weather a gong is sounded.

Cardigan Bay Light Vessel, lies in 20 fathoms, low water, spring tides, 1 Red revolving light, shewing a flash every 30 seconds, 25 feet above the level of the sea, South Bishop Lighthouse, S. W. by W., 36½ miles; Strumble Head, S.W. ¼ S., 21½ miles; Kenmaes Head, S. ¼ W., 16½ miles; Causeway Buoy, E. by N. ¾ N., 25 miles; Bardsey, Lighthouse, N.E. by N. 23 miles.

Buoys.

Morte Stone, Black, Staff and Globe, lies in 9 fathoms low water, spring tides, 1¼ cable's length to the N.W. of the Ledge; Bull Point, E. ¼ S., 1½ miles; Morte Point, S.E. ¼ S., ½ mile; Baggy Point S.W.by S., 2 7-10 miles, Hartland Point, W. by S. ¾ S., 14 4-10 miles; Lundy Lighthouse, W. by N. ¾ N. 16 miles.

Sand Ridge, White, lies in 4 fathoms low water spring tides, with the Valley of Rocks Hotel, midway between Linton church and a conspicuous house on a hill westward, bearing S.W.; Hurtstone, apparently a cable's length outside the Foreland, E. S. E.; Rillage bearing W. by N. ¼ N., 9¾ miles.

Gore, Black, lies in 18 feet, Burnham High Light its length open nortward of Low Light, bearing E. by S. ¾ S.; Flatholms Island, its apparent length open west ofSteepholms; the Lighthouse, N. E. by N., 9 miles; Sand Point appearing open of Brean Down Point, N. E. by E. ½ E.

West Culver, Red and White striped, with Beacon, lies in 4 fathoms, with Swallow Cliff, a little open of the South of Steepholme Island, E. ¼ N.; Willet's Tower, well open to the Westward of West Quantocks Wood, S.S.W. ¼ W. Westerly; East Culver Buoy, E. ½ S., 5 miles.

East Culver, Red, lies in 6½ fathoms, with Penarth Head, on with Lavernock Point, N.N.E. ¼ E.; Black Nose Point, just open Southward of Steepholm Island, E. by N. ¼ N.; Flatholm Lighthouse, N. E. ¼ E.; Burnham Church Tower, S.E. by S.

One Fathom, Black, lies in 4½ fathoms, with Barry Church (with Belfry) twice its apparent breadth on the West end of Barry Island, N. by W.; Lavernock Point, N.E. ¼ E. N'ly.; Flatholm Lighthouse, E. ¾ N., 4½ miles; Steepholm Flagstaff, E. by S. ¾ S., 4½ miles; Brean Down, S.E. by E. ½ E.

Honeycomb, Black, lies in 5 fathoms, about 35 fathoms N.W. of the Rock, with Weston-super-mare Church on with W. end of Piggot's Summer House, S.E. ¾ E.; Kewstock Church about a ship's length open N. of Breanbeck Island, E.byS.¼S.; Brean Down Point, S. W.; Swallow Cliff Point, N.E. by E.½ E.; Flatholm Lighthouse, N.W.¼W., 4 miles

New Patch, White, lies in 9 feet, with the high land of Minehead just open Southward of the South end of Flatholm Island, W. ¾ S.; Flatholm Light, W. ¼ S. S'ly., ½ mile; Grounds Light E. by N.N'ly. 6 5-10 miles; Cardiff Church Tower, and the two Glass House Chimnies at Cardiff, apparently at equal distances, the Church Tower being the Eastern object, N. ¼ E.; Hayes' Windmill over the East end of Sully Island, N.W. ¼ W.; Penarth Church, N. ¾ W.

Wolves, Red and White chequered, lies in 5 fathoms, half a cable's length westward of the rocks, with Hayes' Wind-

mill on with the West end of Sully Island, N.W.; Breaksea Buoy bears W. N.W.W'ly., 10 miles; Penarth Head, N. by E. ½ E.; Flatholm Lighthouse, S.E. ¼ S.

SOUTH WEST PATCH, Red, with Beacon, lies in 4 fathoms, with Worle Mill in a line with the western side of Middlehope Beach, S. ¼ E.; Monkstone Beacon W. ¼ S., 4 miles; Flatholm Lighthouse, W. by S. ¾ S.; Usk Lighthouse, N.N.E. ½ E.N'ly.; Grounds Light Vessel, S.E. by E. ¾ E.

WELSH HOOK, Black, lies in 5 fathoms, low water spring tides, with Aust Head a ship's length open southward of Denny Island, E. by N. ½ N.; Usk Lighthouse, N.N.W., 6 miles; See-me and See-me-not on with Clevedon Old Church, S.S.W. ¼ W.; Grounds Light-Vessel, W.S'ly., 3¾ miles.

RANNEY FLOATING BEACON, placed on the S.S.W. part of Ranie Spit, lies in 3½ fathoms low water spring tides. Sailors' Home at Cardiff, just open off Penarth Head, N. by E. ½ E.; the Western part of Brean Down on with Flatholms Island at low water; the Lighthouse, S. by E.; Ball Point, W. ¼ N.; the highest part of Sully Island, W. ¼ S.

WEST CARDIFF, Black, with Beacon, lies in 4¼ fathoms, with the Monkstone Beacon in line with Clevedon New Church, E.byS.½S.; Grounds Light, E.¾ S., 6¾ miles; Crrdiff Hook Buoy, N.E. ¼ E., 2 7-10 miles; Usk Lighthonse, N.E. by E. ¼ E.E'ly., 9¾ miles; the Eastern side of Steepholm, just open West of Flatholm, at high water, the Lighthouse S.E'ly.; Sully Island open a ship's length Southward of Ball Point, W. ¼ S.; Penarth Church, N.

EAST CARDIFF, Red, lies in 6 fathoms, lowwater, spring tides; Hook Buoy, S. W. by W. ½ W., 1 mile; Monkstone Beacon on with S.E. end of Steepholm, S.S.W. ½ W.; Penarth Church, W. ¼ S.; Usk Lighthouse, E.N.E.

CARDIFF HOOK, Black and White chequered, lies in 2 fathoms, with Cardiff Church Tower its apparent length open Eastward of a conspicuous Clump of Trees, N. N. W. ¼ W.; Grounds Light, S. E. by E. ½ E., 5½ miles; Peterstone Church Tower apparently midway between the Spire of Newport New Church and the Tower of the Old Church, N.E. ¾ E.; the Usk Light Tower, N. E. by E. ¾ E.

NORTH WEST SPIT, Black and White, Vertical Stripes, lies in 2 fathoms low water spring tides; Cardiff Hook, N.E. ¾ E., 2½ miles; West Cardiff Buoy 2 cables distant, S. S. E. Easterly; the eastern part of Steepholms on with the western high water mark of Flatholms, S. ¼ E.; Penarth Church, N. ¼ E.

BREAKSEA, Black and White striped horizontally, with Beacon, lies in 5 fathoms, about one cable's length from low water mark, and ½ a cable's length without the Rocks, with the Nash Low Light Tower apparently midway between the High Light Tower and the White Beacon upon St. Donant's Cliff, N.W. ½ W.; One Fathom Bank Buoy, S.E. 7½ miles; Evans' Farm House, apparently midway between a large Yellow Dwelling House and Limpert House, the latter being the Eastern object, N. N. E. ½ E.; Brereton Windmill, N. N. W. ½ W.

COCKBURN SHOAL, Black, lies in 4 fathoms, about 20 fathoms S.E. from the shoal, with the Avon Lighthouse one-third between Penpole House and Miles' House, S. E.; High water mark of Black Nose Point on with Portishead Point, W. ½ S.

WEST USK, Black, dries at low water; a farm house at St. Brides in line with a bluff tree on the western land, N.W. by W. ½ W.; Usk Lighthouse, N. by W. ½ W.; Windbound Point, N. by E. ¼ E.

EAST USK, White, dries at low water; a clump of tiles on Stone Hill just open westward of Windbound Point, N.N.W. ½ W.; West Usk Buoy in line with Peterstone Church W. ½ N.

EAST NASH, Black and White chequered, lies in 4½ fathoms, with Groes' House, (yellow) twice its apparent width open Westward of the Tower upon Dunraven Promontory, N.; the North side of the Nash High Light Tower on with the South side of the Low Light Tower, S. E. by E. ¼ E.; Nash Swatchway Buoy, N.W. ¼ W., 4½ miles; Tusker Beacon, N.N.W. ½ W. 4¾ miles; the fair channel course from the Mumbles to this buoy inside the sands, with the Mumbles Light Tower N. N. W. ¾ W., and the Nash Low Light Tower S. S. E. ¾ E.

NASH SWATCHWAY, Black, lies in 2¼ fathoms, with Sker House on with Rhwychwyn Point, N. ¼ E.; Newton Down Windmill, its apparent length open Northward to Newton Nottage Church Tower, N.N.E. ¾ E.; the Nash High Light Tower, its apparent length open Northward of the Low Light Tower, S.E.½E.; Tusker Beacon, N.E. ¼ N; East Nash Buoy, S. E. ¼ E., 4½ miles; West Nash Buoy, N. W. by W. N'ly., 2¼ miles.

WEST NASH, Black and White chequered, with Beacon, lies in 6 fathoms, with Newton Down Windmill on with the centre of the Breakwater at Porth Cawl, N. E. by E. ¼ E.; Nash High Light Tower, S. E. ½ E., 7¼ miles; the Nash

Low Light Tower, S. E. ¼ E.; East Skerweather Buoy, N., 2 6-10 miles; West Skerweather, N.W.¼N., 6½ miles; Mumbles Light Tower, N.N.W.; Nash Swatchway Buoy, right between the Lighthouses, S.E. by E. S'ly., 2 miles; Tusker Beacon, E., 2¾ miles.

EAST SKERWEATHER, Red and White striped, lies in 6 fathoms, with a conspicuous Shaft on the summit of the highest Hill, open Eastward of Constantinople Cottages, the apparent length of them, N.N.E. ½ E.; Margam Trees, on with the West end of a long stone wall terminating near the Beach E. ½ N.; the Windmill inland of Cwm Mawr on with Dunraven Point, S. E. ¼ E.; Kemfig Church 2½ points open Westward of the Scar House, N. E. by E. ¼ E.; Nash Low Light Tower, S. E. ¼ S., 9 miles; Mumbles Light Tower, N. N. W. ½ W.; West Nash Buoy, S., 2 4-10 miles; West Skerweather Buoy, N. W. by W. ½ W., 5 miles; Mixon Buoy, N. N. W. ½ W., 9 miles; Tusker Beacon, S. E. ¼ E., 4 miles.

WEST SKERWEATHER, Red, with a Beacon, lies in 4½ fathoms, with Constantinople Cottages on with the mouth of Aberafon Harbour, E.N.E. Northerly; Margam Trees open Southward of Sker House three times their apparent width E. by S.; Nash High Light Tower, S.E., Easterly, 14 miles; Mumbles Light Tower, N., Easterly, 6 miles; East Skerweather Buoy, S E. by E. ½ E., 5 miles.

HUGO, Black, lies about a cable's length from the dry sand on the N.E. side of the Bank, in 3 fathoms low water, with a large square House on with the South end of the large Store House at Porth Cawl, S. E. ¼ E.; Kemfig Church its apparent breadth open South of a White Cottage (the Northernmost in the Village), E. ½ N.; Nash Low Light Tower, S. E. by S.; Mumbles Light, N. N. W. ¾ W.; Constantinople Cottages N. E. ½ N.; East Skerweather Buoy, S. by E.

INNER GREEN GROUNDS, Red Nun, lies in 3½ fathoms, about one and a half cable's length from 5 feet on the S.E. end of the Shoal, with Kilvey Old Mill, ⅛ distant from the Inn (a large brick house), towards Tennant's Look-out House, N.N.E. ½ E.; Swansea East Pier Head, N. by E. ¾ E., 2 3-10 miles; Mumbles Lighthouse, W.½N.; Woodland Castle, N.W. N'rly.

OUTER GREEN GROUNDS, Black and White chequered, lies in 2½ fathoms, with the Tut between the two Houses on the Mumbles Point, W. ½ N.; Woodland Castle, N. N. W. ¾ W.; Swansea Pier and Lighthouse, N.E. by N.; Kilvey Old Mill, N.E. ¼ N.; Green Grounds Buoy, E.

MIXON, Black, with Bell, lies in 10 fathoms, with Porth Einion Point on with Oxwich Point, W. by N. ½ N.; Kilvey Old Mill Tower on with Swansea East Pier Head, N. E. ½ E.; Mumbles Light Tower, N. E. ½ N.; West Skerweather Buoy, S½E., 5½ miles.

WEST HELWICK, Black, with Beacon, lies in 13 fathoms, with Rhossily Parsonage on with East Crow of Tableland of Worms Island; Porth Einion Point, E. by S. ½ S.; Worms Head, E.N.E.E'ly; Helwick Light Vessel, S. W.; Caldy Lighthouse, N.W. by N.

HELWICK SWATCHWAY, Black and White striped, lies in 4½ fathoms, with Burry Holmes appearing in the centre of Worms Sound, N.N.E. N'ly; Oxwich Point on with Porth Einion Point, E. by S.¼S., Easterly; East Helwick Buoy, E. by S. ¾ S., 3½ miles; Worms Head, N., 2 4-10 miles; West Helwick Buoy, W. by N. ¾ N., 2½ miles.

EAST HELWICK Black, lies in 2½ fathoms, with Rhossily Point open westward of Tears Point the supposed breadth of a ship, N. W. ¾ N.; a White Building upon the high land, apparently midway between two White Cottages below that building, N.N.E. ½ E.; Helwick Swatchway Buoy, W. by N.¾N., 3½ miles; West Skerweather Buoy, S. E. ½ E. S'ly., 12¼ miles; Mixon Buoy, E. by S. ¾ S., 9¼ miles; Worms Head, N. W. ¼ N., 5 miles.

TUSKER AND MONKSTONE.—A mast with a large red ball attached is erected as a beacon upon each of these rocks. From the Tusker Beacon, Porth Cawl Point, N. ½ W., is 1½ miles; Mumbles Lighthouse, N. W. by N. 13 miles; Nash Low Light Tower, S. S. E. ½ E., 5¼ miles; East Skerweather Buoy, N. W. ¼ W., 4 miles; East Nash Buoy, S.S.E. ¾ E., 5 miles; West Nash Buoy, W., 2½ miles.

BEACON ON THE WOLF ROCK.—This Beacon consists of an artificial cone, bearing a mast having a large ball upon its summit at an elevation of 36 feet above the level of the sea at high water; the mariners are to observe that spring tides rise at this station 19 feet, and that at low water of those tides, the rock is uncovered to the height of 15 feet. St. Michael's Mount open of Lemorn Cove leads 2½ miles to the Eastward of it; Longships Lighthouse touching Cape Cornwall leads 1¼ miles Westward of it. The Bearings and Distances of the undermentioned objects from this Beacon, are as follows, viz.:—Longships Lighthouse, N. E. ¼ N., 7¾ miles; Scilly Lighthouse, W. by N. ½ N., 21 miles; Rundlestone Rock, which covers at half-flood, E. by N. ½ N., 7 miles; Seven Stones Light-vessel, N.N.W.¼W., Westerly, 12½ miles; Lizard Lighthouses, E. S. E., 23 miles

WEST COASTS OF ENGLAND AND WALES.

SMALLS LIGHT TO THE PORT OF LIVERPOOL.

Smalls Light is placed on Smalls Rocks, lying off St. David's Head in Pembrokeshire, and bearing from St. Ann's Point, N.W. by W., distant 18 miles. This light is stationary, appearing like a star of the first magnitude, at the distance of 13 miles. To avoid these rocks, keep above a mile from the highest on all sides, and do not attempt to pass inside of them without a good chart and ample directions, or a pilot; with these there is excellent anchorage to be found in St. Bride's Bay in 8 or 9 fathoms.

South Bishop Light.—The Bishop and Clerks are a number of dangerous rocks, with great overfalls, lying northwest of Ramsey Island, at the distance of 2½ miles. On the southernmost, called the South Bishop, is a lighthouse, exhibiting a revolving light, visible in all directions, and appearing with great brilliancy at intervals of 20 seconds, whereby it will be readily distinguished from the Smalls and other lights in its vicinity; it can be seen at the distance of 18 miles. This light is the principal guide the mariner has to enable him to know his exact situation, when sailing near this dangerous part of the coast of Wales. The light must be always passed to the westward, and when to the northward of it never bring it to the westward of south, until you are 3½ or 4 miles from it, particularly on a flood-tide, in moderate weather, for then you have the tide nearly on the beam, which runs rapidly through amongst the islands; at spring tides nearly 5 knots, and causes several overfalls. The passages between the rocks must not be attempted by strangers.

From St. David's Head to Strumble Head the course is E. N. E. ½ E., distant 10½ miles; between them at the distance of 5½ miles from the former, is Abercastle Island, lying close to the land. In sailing from St. David's Head to Cardigan Bay you must give the shore a good berth, for several rocks under water lie scattered about, some of which are nearly a mile from shore; they are called the Sledges, and are 2 miles eastward of St. David's Head.

Fishgard Bay.—Three miles to the eastward of Strumble Head you open Fishgard Bay, having good anchorage with any wind, except from the N. to the E., the ground holding well. The best anchorage will be to the southward of the Crow Rock, which is always above water, in 4 or 5 fathoms, the rock bearing N. by E. ½ E., distant ¼ to ½ a mile. This bay is more desirable for vessels seeking shelter in gales from S. and W. than Studwall's Road, which is 51½ miles to the leeward, as it is well sheltered from these gales, which Studwall's Road is not, and the bay affords a more ready outlet to the S. or N. than any place in the neighbourhood.

Newport Bay opens when you are 6 or 7 miles distant from Strumble Head.—The bar and channel to Newport lie about ½ a cable's length from the shore, directly below the village of Newport. On the bar are 13 feet water with spring tides, and 7 or 8 at neaps. When a vessel is over the bar, she will be sheltered from all winds.

Cardigan Bay.—The Buoy on the Causeway in Cardigan Bay has been moved, and now lies near the extremity of the Causeway Reef, in five fathoms at low water springs, with the following marks and compass bearings; Slandebrog Mill in line with the east side of West Island at St. Studwall, N. by E.; Penkilan Head, N. by W.; Bardsey Lighthouse, N. W. ½ W. A LIGHT VESSEL lies in 20 fathoms, low water, spring tides, 1 Red revolving light, shewing a flash every 30 seconds, 25 feet above the level of the sea, South Bishop Lighthouse, S. W. by W., 36½ miles; Strumble Head, S.W. ¼ S., 21½ miles; Kenmaes Head, S. ¼ W., 16½ miles; Causeway Buoy, E. by N. ¾ N., 25 miles; Bardsey Lighthouse, N.E. by N., 23 miles.

Cardigan Harbour is adapted for vessels drawing about 15 feet. In the channel over the bar, which is liable to shift, are 14 feet water with spring tides, and 8 or 9 with neap; but in Cardigan Road a ship may stop, in moderate weather, almost any part without the bar, about two cables' length from the shore, in 6 fathoms water.

Aberystwith Harbour is fit for vessels which draw 15 feet. There are land-marks to lead you over the bar, one of which is moored on wheels, as the bar shifts. When any vessel is seen off the place in the evening, there are lights put upon the marks, which must be brought in one, to direct you over the bar.

Aberdovey is abont 3 leagues to the northward and eastward of Aberystwith, and 6 miles to the south of the Diamond Beacon on Beach Head. This harbour has a shifting bar about a cable's length broad, and about half that in and out. The Trinity Board have placed a large Black Buoy at the entrance, outside, and a Red one inside the bar. A good look-out should be kept for a small Buoy between the Black and Red Buoys, which makes the angle of the passage if any. These Buoys are all placed in the fairway. Vessels may come to anchor half a mile above the Red Buoy, and which is about the same distance below the town, where from 12 to 15 sail, drawing from 12 to 15 feet water may ride in safety and in good holding ground.

Barmouth Bay may be known at a distance by the highest mountain on that coast: it has two tops—the southmost is highest; and when seen from the westward, is in a line with the N. side of the entrance of Barmouth. From the N. side of the Bay, and about 1 mile from the main, a shoal called the Causeway, extends W. by S. 3 leagues: at low water there is not more than 2 or 3 feet water all along the edge of it, where at a cable's length the compass is so affected by magnetism, as to vary 90 degrees, and, as you approach nearer, quite reverse the points.

Studwall's Road affords excellent anchorage for the largest ships, sheltered from all winds except from E. to S. E. by E. It is easily known by two Islands that lie off the point, and there is no danger except a small rock about ¼ of a mile eastward of the Islands, between which there is a good passage, as well as between the westernmost and the main, at a cable and a half's length from them.

Bardsey Island is separated from the mainland by a channel more than a mile and a half wide, having from 15 to 25 fathoms in it. On the S.W. part of this Island is a Lighthouse exhibiting a bright fixed light, visible seaward from E. ¾ S. to N.E.¼E., and at a distance of 17 miles; but masked between the bearings of N. 50 deg. E. to S. 70 deg. E. If in a gale of wind from the W.N.W. vessels should be unable to weather Bardsey Island, this light will point out a secure asylum in Studwall's Road, enabling them to preserve a proper position until daylight, when they can proceed to the anchorage therein. Vessels bound to Studwall's Road, or laying-to for daylight, must not bring the light to bear to the westward of W. N. W.; and if they lose sight of the light when it bears from them nearly in that direction, they will be too far to the northward, and in danger of getting embayed in Hell's Mouth.

Carnarvon. — From Brauchypool Head the shore lies nearly E. N. E. to Carnarvon Bar, and from thence nearly N. by W. ½ W. to Holyhead Island, forming Carnarvon Bay. Vessels going in are to leave the outer or Black Buoy on the port hand, the Red Buoys on the starboard hand, and the Perch beacon on the port hand. The black and white chequer buoy is placed in mid-channel. Nun buoys, painted green, denoting sunken rocks, are placed off Llanddwyn Point. This Point may be distinguished in the daytime by two white towers (a large and a small one), and during the night by a fixed red light, visible in clear weather about five miles to seaward, between the bearings (from Llanddwyn by compass) of N. W. by N., and S. W. by W.; and which is intended solely as a leading light for the entrance to the Menia Straits. The bar should not be attempted until daylight, nor by vessels drawing more than 10 feet before half flood. During gales from W. to N., vessels may find shelter on the S.E. side of Llanddwyn Point. The proper anchorage is about a quarter of a mile from the shore, with the small tower a little open to the northward of the large tower. In running in give a good berth to the sunken rocks (the green buoys indicating which are placed to seaward); but it is much preferable for strangers to heave-to outside sufficiently to windward and make signal for Pilot, four of whom are stationed at Llanddwyn, with a lifeboat and Marryat's code of signals. Vessels wishing to communicate will be answered from the large tower.

South Stack Light.—Off the N.W. point of Holyhead Island is the South Stack Rock, upon which is a lighthouse, bearing a brilliant light, which revolves every minute, whereby it will be readily distinguishable from the light on the Skerries, which is a stationary light, and bears from the light on the South Stack N.E. ½ E., distant 8 miles, and may be seen through a great part of Carnarvon Bay. During foggy weather, a smaller bright light, revolving in 1½ minute, is occasionally shown, about 40 feet above the sea, and 30 yards north of the main lighthouse. Any vessel making either of these two great lights, can find no difficulty in navigating round the head, or into the harbour of Holyhead, if the wind permits; and no directions that could be given would serve equal to that of having the two lights in sight, as will be the case in the situation above mentioned.

Holyhead Refuge Harbour is chiefly formed by an immense breakwater,

the heel resting on Soldier's Point, from whence it projects N.E. by E. nearly one and a half cables' length, then E.S.E. about five cables' length, and then E.N.E. to its end, which is marked by a red light, visible at a distance of 3 or 4 miles. The end of the breakwater is N.N.E., one mile from the Old Harbour Light.—To sail into Holyhead Refuge Harbour, give the end of the breakwater a good berth, as a strong tide sets to the westward nine hours out of the twelve, and strikes hard upon it. Having rounded the breakwater, steer to the W.S.W., between it and the outer Platters, leaving all the black buoys on the port hand, and anchor well in, close to the beach. There are passages between the Platters and Salt Island; but these should never be attempted by strangers. Vessels should have both anchors ready for letting go, with 50 or 60 fathoms of chain ranged according to the weather, and should be careful to anchor well up, or they will have to shift berth. Vessels disabled or without ground-tackle may be laid on a beaching slope at the head of the harbour, which has been prepared for the purpose.

Old Harbour of Holyhead.—A wooden pier has been recently built, extending from the Old Harbour Lighthouse in a direction E. by S.: two red lights of equal height mark its end.—All vessels bearing up for Holyhead Harbour should be prepared with both bower anchors ready to let go, and the end of a good warp for a boat to take to one of the dolphins, moored along the passage for that purpose. The course round the pier, up the harbour, is W. by N., then W.N.W.; therefore, with the wind at N., and to the westward of that point, a press of sail should be carried, especially after-sail; run the jetty close on board, and neither start tack nor sheet till the vessel is well inside the lighthouse and the packets' moorings, then act as circumstances may require. Rise of water at spring tides, 17 feet; depth of water at the entrance, at low water, spring tides, about 12 feet. Holyhead harbour being a tide harbour, and frequently with many anchors down in the way, vessels drawing 12 feet should not run in until about two hours' flood, and those of a heavy draught should, if possible, keep off until four hours' flood. In tempestuous weather no vessel should run for the harbour at night time. There is no occasion to use this as a harbour of shelter now the new harbour is established. All vessels anchoring outside must keep a light up during the night.

Holyhead Harbour Lights, situate on the starboard hand in entering the harbour, are stationary. The higher, a bright fixed light, is visible at the distance of 11 miles; and the lower, red, is visible from S.S.W. to S.W. only, serving as a mark to clear the Platters, and rocks on both sides. Vessels entering the harbour are in the fairway when they see the RED light and steer for it. A red light is shown from the eastern extremity of the new breakwater; and two red lights, of equal height, are exhibited from the end of the temporary wooden jetty which has been recently built out from the Old Harbour Lighthouse in a direction E. by S.

The Skerries is a cluster of islets and rocks 13-5ths mile to the northward of Carmel Point, occupying a space of about half a-mile. Upon the centre and highest islet of the group is a lighthouse 54 feet high, showing a fixed bright light at 117 feet above the level of high water, visible 16 miles. The position of this lighthouse is lat. 53° 25′ 18″ N., and long. 4° 36′ 24″ W. A short distance all round the islands is deep water, except on the northern side of the group, where is a dangerous rock of 2¾ fathoms, called the African, lying with the lighthouse in one with Pengarn Hill bearing S.S.E. Upon this rock there is a great overfall when the tide is running either way. Between the Skerries Islets and Carmel Point is a dangerous ledge of rocks, drying with spring tides only, called the East Platters. Close-to all round are 8 to 16 fathoms, and there is a strong rippling when the sea is heavy. You may sail between the rocks and the Skerries by bringing the South Stack Bridge over the North Stack and between them and Carmel Point, by bringing the South Stack and North Stack in one. The Beacon on the West Mouse Rock in one with the Middle Mouse, also clears it on the south side.

Point Lynas lies S. E. by E. ¼ E. of the eastern point of Amlwch Bay, distant 1¼ mile, and is situate in lat. 53° 25′ N., and long. 4° 17′ W. It is a bold conspicuous point of land both from the eastward and westward. A lighthouse is erected on the high pitch of the point, and is a castellated building, with a white basement. It exhibits a flashing light, which becomes instantaneously obscured at intervals of 10 seconds, and remains obscured 2 seconds only, so that it is readily distinguishable from the Skerries and other lights in the vicinity. From Lynas Lighthouse to Great Orms Head, S.E., 16 miles; N.W. Lightship, Liverpool, E.S.E., 37 miles; Calf of Man, N. ¼ W., 42 miles; Buoy Nelson, off Preston, E., 41 miles; St. Bee's Head, N.E., 70 miles.

Port of Amlwch, Anglesea.—In the day time, when the Breakwater Balks

are down, a Ball is fixed on a pole at the easternmost point of the harbour. When too many vessels lie at the entrance of the harbour, a Red Light will be shown, and when the entrance is clear a White Light.

To Sail into Beaumaris Harbour, THROUGH THE SOUND IN LOW WATER.—Steer in for Table Land, till the W. end of Puffin Island comes open with the E. end of Penmaenmawr Hill. These marks will clear the Dinmora Bank on your starboard hand. You then have the Sound fairly open; but to avoid the rocks off Trwyndu Point, keep more to the Perch on your left; and when Beaumaris comes open off Trwyndu Point, haul up for the red buoy off Penman, keeping it on your starboard hand, and off the red buoy of the Causeway on your left. Anchor in 4 fathoms off Penman red buoy, clean and good holding ground, well sheltered from a north-westerly wind; but if one hour's flood, you will carry 16 feet over the Flats off Penryn Point. Steer for the black buoy on the Spit of the Levan Sand, abreast of Friar's House, where anchor in 5 fathoms low water spring tides, or at half flood steer for the town, keeping the red buoy on Watch House Point on your starboard hand, in 6 and 7 fathoms. Keep that depth of water until the Church at Beaumaris bears N.N.E. by compass, when you may anchor in 9 fathoms at that time of tide. Thence you will see Bangor Pool, which is above Ferry Point. But if any of the buoys should be missing, as you steer up, keep the Church Tower and Lodge Hill in one.—Opposite the Friar's House, in mid-channel, is a sandbank, marked by a red and white chequered buoy: in sailing up to Beaumaris, keep this buoy on the starboard hand.

To Sail out of Beaumaris Harbour, FROM THE ANCHORAGE OFF THE TOWN.—Weigh at high water, and drop down to Friar's Road. Give the black buoy off the Spit a berth on your starboard hand, and the red buoy off Penman on your larboard. At half ebb, take the eastern passage, keeping off the red buoy of the Causeway on your larboard hand. From the latter, steer for the east end of Puffin Island, on your larboard hand, keeping off it half a cable's length, and the black buoy off the Dutchman's Spit the same distance on your starboard hand.

Menai Lighthouse is erected at the north-eastern entrance of the Menai Straits. The light is STATIONARY and of a RED colour, visible from N.W. ¾ W. seaward, to S.W. ¼ W. excepting that by the intervention of Puffin Island the light will be eclipsed to vessels upon the bearings from it of E. by N. ½ N. to E. ½ S. A ledge of rocks extending under water from the base of the lighthouse nearly 50 yards, it is advisable not to approach the building within that distance.

Conway Harbour.—There are two channels leading into this harbour—the west and north. For the west channel, steer from the N.W. black buoy to the second black buoy, leaving them on your larboard hand; keep the red buoy off Penmaenbach, the chequered red and white buoy, the two red buoys, and the perch, on your starboard hand; haul up, and steer for the quay, keeping close to Deganwy Point on the larboard hand. The entrance to the north channel is marked with a black perched buoy: the second, third, and fourth are all black, and moored in the best of the channel. Vessels drawing from 10 to 12 feet may lash alongside the quay, on mud and sand, dry at low water.

To Sail from Point Lynas to the Great Ormshead.—The course from Point Lynas to the Great Ormshead is S.E. per compass; from whence keep the Ormshead as the line is drawn on the chart, till Rhyland Castle and St. Asaph Church are in one; then haul in till the south mark on Helbre and Bidstone Lighthouse come in one. Steer forward on that line which is the deepest water along the shore. It will also clear the Middle Patch on the left, which is dry at low water, spring tides. Buoys are placed here; red on the starboard. and black on the larboard hand, coming in. Give the Point of Ayr Lighthouse a berth of a mile on the starboard hand: and when it bears W. haul up S.S.E. for mid-channel. At that time the rippling of the tide on the edge of the Salisbury Bank will be very perceptible, as well as on the Welsh side. Continue that course, in mid-channel, till the Grange Mill bears N.E. by E. by compass, then haul quick for Dawpool, and keep that bearing till Burton Mill comes over the town of Parkgate. That course clears the south end of Salisbury Bank, and the Bagilt Flats on your right. As you advance, keep the lead going, and borrow on the Haswell Church side of the shore. It will carry you clear to Bearhouse Pool, where anchor till you obtain a pilot. The leading mark for passing at high water across the Salisbury Bank to Hoylake is Helbre Eye on with the Grange Mill.

Chester Bar is a narrow sandbank between 3 and 4 miles in length, stretching rather circularly from S.E. to N.W.; its south end is near to Nant House, and is called the Middle Patch, sometimes drying, the middle of it is called Earwick, and dry at low water; but much the

greater part of it never dries, having from 3 to 6 feet water over it at all times. To clear the Earwick to the eastward, bring Nant House and the barn above it in one. To SAIL OVER CHESTER BAR in a ship drawing 12 feet, take half-flood; and when Craig Disart Hill bears S. S. E., which with Middle Hill and Comb Hill form an equilateral triangle, keep the two Ormsheads shut below, and a little open above; by this you will avoid all danger on the southward. To avoid the banks and shallows on the north side, open the Ormsheads below near a ship's length, but not more. If a vessel comes to Chester Bar before half-flood, and is apprehensive of not having sufficient water to cross it, she may sail between the Middle Patch and the Earwick, keeping the Ormsheads a little open below; and when Craig Disart Hill and Middle Hill are in a line, steer N.E. by E. until you deepen your water to 4 or 5 fathoms, and sail along Hoyle Sand for the Point of Air, giving that point a berth of half-a-mile. To avoid that part of Hoyle which is opposite to Air, keep Bidston Windmill to the south of Helbre Summerhouse; this will carry you through the Swashway toward Hoyle Lake. But the mark which leads clear of the north part of the Hoyle Sand, and directly into Hoyle Lake, is the Point of Air Lighthouse open to the northward of Hilbre Island.

The River Dee.—Vessels may stop a tide about a mile to the eastward of the Point of Air, upon which a lighthouse is erected. The tide runs, when strongest, 3½ miles an hour; and when the tide and wind are contrary to each other, make a rough sea here. At this place, which is called Wild Road, you can anchor in 5 or 6 fathoms; or you may proceed higher up to the anchorage off Linacre Creek, where, in 6 or 7 fathoms, you will be much better sheltered than in Wild Road from north-westerly winds, and ride on ground that holds well. To sail from Wild Road to Dawpool, a distance of near 6 miles, bring the southernmost house of Dawpool, which stands below a clay cliff, exactly in a line with the barn having a white end, standing on the top of the cliff, but the barn must not be brought on either side of the house, anchor about 2 cables' length from high water mark in 3½ or 4 fathoms at low water. Here the stream runs 5 miles an hour when strongest. At Parkgate, which is more than 4 miles up the river, vessels must lie aground on the beach; for though there are 2½ fathoms in the channel off the town, and 3 fathoms above it, yet the stream is so strong, and the ground so indifferent, that a vessel would drag its anchor. Take the ground about 2 hours before high water, below the houses of Parkgate. Vessels in making their passage to Parkgate must use the utmost caution to avoid the Salisbury Bank, a dangerous shoal, and lying in the direction of the river. The channel now to Parkgate is opened into a swashway by Bagilt and Flint; four red buoys are placed on the edge of the Mostyn and Bagilt Banks, and two black ones on the Salisbury Bank, the former of these are to be left on the starboard side, the latter on the larboard. A black buoy lies on the SELDOM SEEN ROCKS in the channel between the Salisbury Bank and the Lime Wharf. There are three small islands or rocks, called the Helbre Islands, lying to the southward of the Hoyle Sands: on the northernmost, which is called Great Helbre, are two wooden beacons or marks, distant from each other 633 yards.

BAY AND HARBOUR OF LIVERPOOL.

In the vicinity, and to the northward and westward of the Rivers Dee and Mersey, lie the banks which form the several channels to Liverpool, viz., the Hoyle Banks, the Burbo Sands and Flats, the Jordan Banks, Formby Point Flats, &c. The principal channels are, the Horse and Rock Channels, the Victoria Channel, the Queen's Channel, the Old Formby Channel, and the Crosby or Main Channel.

The principal lights and sea-marks of Liverpool Bay are as follow:—

The NORTH-WEST LIGHT VESSEL, off the Horse and Helbre Channels, in 7½ fathoms, low water, has three masts, each bearing a lantern, so disposed as to form a triangle, and showing brilliant fixed lights of the natural colour, which may be seen at the distance of 10 miles; in the day she carries a black ball. Her hull is painted black, with a broad white streak. In thick or foggy weather, either by day or night, a bell and gong is sounded alternately. This Light Vessel is now more particularly distinguished by the burning of a blue light, of 2 or 3 minutes' duration, at the following periods, namely, during the months of November, December, January, and February, at 6, 8, 10, and 12 o'clock, p.m., and 2, 4, and 6 o'clock, a.m. During the months of March, April, September, and October, at 8, 10, and 12 o'clock, p.m., and at 2 and 4 o'clock, a.m., During the months of May, June, July, and August, at 10 and 12 o'clock, p.m., and 2 o'clock, a.m. The instant of ignition is as near

Greenwich mean time as possible; but those approaching under difference of time at ship should look out around the anticipated bearing five minutes before the respective hours.

The FORMBY LIGHT VESSEL, at the elbow of the Crosby and Queen's Channels, moored in 25 feet at low water, shows two yellow fixed lights upon separate masts, visible 8 miles; a red ball is exhibited during the day. Her hull is painted red. In foggy weather a bell is tolled. Crosby Lightship, S. E. ½ S., 2½ miles; N. W. Mark, E. by N. ¾ N., 3⅞ miles; Buoy Q. Fy. (bell beacon), N. W. by W. ½ W., 2⅜ miles.

The CROSBY LIGHTHOUSE, situated to the north-eastward of Crosby Point, shows a fixed red light, elevated 96 feet above the level of the sea at half-tide, and visible between the bearings of S.S. E. ¾ E. and E., which limits indicate respectively when a ship is westward of Formby Spit, or to the southward of Crosby Lightship.

About a mile and a quarter to the north-eastward of Crosby Lighthouse is the FORMBY OLD LIGHTHOUSE, the light from which has been discontinued. Near the latter, on the strand, is a beacon, which formerly formed a leading mark for Victoria Channel; further to the northward is the Life Boat House; and near it just round Formby Point, is the North-west Mark. This mark is one with another on Mad Wharf, bearing S. E. by E. ¾ E., is the leading direction for entering the Old Formby Channel.

The CROSBY LIGHT VESSEL, at the north-east elbow of the Great Burbo Bank, moored in 44 feet at low water, shows a yellow fixed light, visible 8 miles, and carries a red ball at the mast-head in the daytime. Her hull is painted red. From hence the fairway course up the Mersey is S. by E. ½ E. In sailing through Crosby Channel during ebb-tide, to avoid the indraught through the gullies in Great Burbo Bank, vessels should be kept well to the eastward of a line drawn between the Rock Lighthouse and Crosby Lightship.

At Bootle, near Liverpool, are two obelisks on the shore, and behind Bootle, near Walton Church, is a beacon, called Bootle Inner or Walton Mark.

On the south side of Liverpool Bay, on the peninsula separating the Mersey from the Dee, are many objects used as seamarks, several of which will have been seen before arriving at the North-west Light Vessel. Off the west end of the peninsula are the islets, called the Great and Little Helbre, upon which are placed two beacons. On the mainland, within two miles S.E. by S. of the Helbre Islets, are the village and church of Kirby, to the east of which is Grange Hill, surmounted by a beacon, in the form of a pillar, at 173 feet above half-flood. Within two miles S. S. E. from Kirby, is Irby Hill, with its mill and wood.

About a mile and a quarter north of Kirby, near the shore, is the Hoylake Hotel, and within half a mile E.N.E. from this are the HOYLAKE LIGHTHOUSES, showing fixed lights, which mark the eastern entrance to the roadstead of that name. The upper one exhibits a brilliant light at 71 feet above half-flood, which may be seen at the distance of 13 miles. This light is decidedly and strongly lighted on a north aspect, and so masked as suddenly to appear when coming in, or disappear when going out, immediately it bears south by compass, thereby indicating when Bidston and Leasowe Lights must be crossed to clear the Six Feet Flats, when inward-bound, or the Spit-Elbow of East Hoyle, when outward-bound. It is masked so as not to show further to the westward than the bearing of south, or midway between the buoy of the flats (H 1, Black with perch and ball) and the buoy on the S.E. shoulder of East Hoyle Bank (H 3, Red Can). The lower light is 47 feet above the same level, and may be seen at the distance of 11 miles. This light is so lighted as to open abruptly when coming from the westward, or shut when going westward, directly it bears S by E. ¾ E. by compass, thereby indicating when you are approaching the line of N.W. Spit Buoy of East Hoyle (H 1, Red, with perch), and that you may haul into the Horse channel (when Bidston and Leasowe Lights open their breadth eastward) when the said Hoylake light bursts forth to view; or haul from the Horse Channel to the westward when it disappears. It will thus serve as a guide round the Spit of Hoyle (even should the N.W. Light Ship be missing), with the like effect as the Upper Hoylake Light at present indicates when to cross the line of Bidston and Leasowe Lights, to clear the Six Feet Flats. The two Hoylake Lights in a line indicate the turning point from the Horse into the Rock Channel, or the contrary. At a mile to the eastward of the lower light are the Dove Beacons, erected as a mark for the eastern passage into Hoylake, the interior channel of communication between Helbre Swatch, and the Horse Channel, which is, at times, a very desirable harbour.

The Old Bell Beacon lies at the entrance of the Rock Channel. It bears a self-acting bell, and is marked, "R 1, Spencer's Spit."

The next conspicuous object is the LEASOWE LIGHTHOUSE, which is white; its light brilliant and fixed, 110 feet above the level of half-tide, is seen 5 leagues off, and is so masked as to give a defined light in the Rock Channel, within certain

limits, and suddenly disappears, bearing S.W. ½ S. to vessels inward-bound, when off West Wharf Buoy, R 3, Red, and suddenly appears when outward-bound. This is succeeded inland by the BIDSTON LIGHTHOUSE, upon the summit of Bidston Hill, with its church and mill, This lighthouse is of stone, but appears of a dark colour, and shows a brilliant fixed light at 244 feet above the level of half-tide. Its light can be seen 23 miles off. This light is so masked as to give a defined light in the Rock Channel, within certain limits, and to vessels inward bound it suddenly disappears on the bearing of S. by W. ½ W. when abreast of East Wharf Buoy, R. 4, Red, and suddenly appears when outward bound. The lights of Leasowe and Bidston are called the Sea Lights. At three-quarters of a mile eastward from the Leasowe Light is the Mockbeggar Hall, and 2¼ miles further east is the Black Rock Lighthouse, standing upon the reef, so called, at the entrance of the Mersey.

THE BLACK ROCK LIGHTHOUSE is built on the rocks off New Brighton, on the west side of the entrance of the River Mersey, and is a handsome round tower of Anglesea limestone. It is surrounded by water at nearly half-tide. The height of the building, from the lantern to the base, is 75 feet, and the whole height above the level of the sea is 88 feet. The light revolves, exhibiting alternately from the same light room, two bright lights, and one of a red colour, each at intervals of a minute, the whole revolution being completed in 3 minutes. Having acquired their brightest state, they gradually become less luminous, and are eclipsed. The light in clear weather can be seen about 5 leagues off. A bright fixed light from a lower chamber is also shown down the Rock Channel and up the River while 11 feet water remain in the Gut, and a black ball denotes the same by day. Three bells toll in succession during foggy weather; and a blue flag summons the Magazine life-boat when distress appears.

Garston Dock.—This Dock, which is 4 miles south of the Liverpool Docks, and on the same side of the river, is free from the Liverpool dock rates, vessels entering it being only liable for the harbour and light dues. The channel from Liverpool is buoyed with red and black buoys.

Post Office, Whitehaven.—WILLIAM B. GIBSON, POSTMASTER.

Arrivals.—*Week days*—London and all parts 9h. 25m., a.m.; 8h. 25m., p.m. *Sundays*—London and all parts 10h. 40m., a.m. Despatches.—*Week days*—Local parts, 10h. 5m. a.m.; North mail, 2h. 35m. p.m.; London and all parts, 6h. 15m. p.m. *Sundays*—North mail, 7h. 50m. a.m.; Local parts, 11h. 30m. a.m.; London and all parts, 5h. p.m. The letter box is closed 15 minutes before each despatch. Letters bearing one additional stamp will be forwarded for the first ten minutes The deliveries by letter carriers commence during the week days at 10h. 15m. a.m., and 8h. 45m. p.m.; and on Sundays at 12h. 45m, p.m.

POST OFFICES IN CONNECTION WITH THE WHITEHAVEN POST OFFICE.

Those marked thus † are empowered to grant and pay Money Orders.

OFFICES.	ARRIVAL.	DESPATCH.	RECEIVER.
Sandwith	11 0 a.m.	4 55 p.m.	J. Fisher.
† St. Bees	7 15 ..	8 58 a.m.	W. Geddart.
Ditto	11 55 ..	4 10 p.m.	Ditto.
Parton	11 0 ..	4 50 ..	E. Lightfoot.
Distington	12 40 ..	3 20 ..	E. Lawrence.
Hensingham	10 14 ..	5 26 ..	J. Sumpton.
Cleator Lane End	10 35 ..	5 5 ..	C. McGinn.
Cleator	11 25 ..	4 5 ..	J. Harkness.
† Cleator Moor	12 5 p.m.	3 20 ..	Jno. Atkinson.
† Egremont	10 46 a.m.	4 54 ..	G. Selkirk.
Beckermont	11 8 ..	4 32 ..	J. Gilliot.
Calderbridge	11 19 ..	4 21 .	M. Moore.
Gosforth	11 34 ..	4 6 ..	P. Leech.
Holm Rook	11 56 ..	3 44 ..	J. Birkett.
Eskdale	1 55 p.m.	9 30 a.m.	W. Russell.
Wasdale	2 15 ..	5 10 p,m.	M. Pharoah.
† Ravanglass	12 15 .	3 25 .	H. Jackson.
Waberthwaite	12 50 ..	2 50 ..	J. Woodall.
† Bootle	1 20 ..	2 20 .	J. Parker.

Fair and Foul Weather Prognosticator

The following Table and the accompanying remarks, are the results of many years tual observation; and will show the observer what kind of weather will probably llow the entrance of the Moon into any of her Quarters.

MOON	TIME OF CHANGE	IN SUMMER.	IN WINTER.
Moon—or last Quarter happens	Between Midnight and 2 in the Morn..	Fair	Hard Frost, unless the wind be S. or W.
	——2 and 4 do	Cold, with frequent Showers	Snow and stormy.
	—— 4 and 6 ..	Rain	Rain.
	—— 6 and 8 .	Wind and Rain	Stormy.
	—— 8 and 10	Changeable	Cold rain, if the wind be W. Snow, if E.
	—— 10 and 12..	Frequent Showers	Cold and high winds.
	At 12 o'clock at Noon and to 2 P.M.	Very Rainy	Snow or rain.
	Between 2 and 4 After.	Changeable	Fair and mild.
	—— 4 and 6	Fair	Fair.
	—— 6 and 8	Fair, if the wind N.W. Rainy, if S. or S.W.	Fair and frosty, if N. or N. E. Rain or Snow, if S. or S.W.
	—— 8 and 10	Ditto	Ditto.
	—— 10 and 12	Fair	Fair and Frosty.

REMARKS.—1. The nearer the time of the Moon's Change, First Quarter, Full; and st Quarter to MIDNIGHT, the fairer will the weather be during the 7 days following. e space for this calculation occupies from 10 at night to 2 next morning.—2. The arer to MIDDAY these phases happen, the more foul or wet the weather may be ex- cted the next 7 days. The space for this calculation occupies from 10 in the fore- on to 2, afternoon.—3. The phases happening from 4 to 10 in the afternoon, may followed by fair weather, but this mostly depends upon the wind.—4. To prognos- ate correctly, where the WIND is concerned, a good VANE should be within sight. . Kirwan remarks, if a storm arise from the East on or immediately preceding e time of the Spring Equinox, or from any point of the compass near a week after; en, in either of these cases, the succeeding summer is dry, four times out of five; t if a storm arise from the S.W., or W.SW., on or just before the Spring Equinox en the summer following is wet, five times in six.

Useful Stamp Tables

BONDS.

ven as security for money	
ot exceeding £50 ..	1s 3d
£50 .. and not exceeding .. 100 ..	2 6
100 .. .. 150 ..	3 9
150 .. .. 200 ..	5 0
200 .. .. 250 ..	6 3
250 .. .. 300 ..	7 6
r every £100 above 300, or any frac- nal part of £100 ..	2 6

PROBATE OF WILLS.

£20 .. .. £100 .	£0	10
100 .. .. 200 ..	2	0
200 .. .. 300 ..	5	0
300 .. .. 450 ..	8	0
450 .. and under .. 600 ..	11	0
600 .. .. 800 ..	15	0
800 .. .. 1000 ..	22	0
1000 .. .. 1500 ..	30	0
1500 .. .. 2000 ..	40	0
2000 .. .. 3000 ..	50	0
3000 .. .. 4000 ..	60	0
4000 .. .. 5000 ..	80	0
5000 .. .. 6000 ..	100	0
6000 .. .. 7000 ..	120	0

INLAND BILLS.

Not exceeding £5 ..	0s	1d
Exceeding £5 .. .. 10 ..	0	2
10 .. .. 25 ..	0	3
25 .. .. 50 ..	0	6
50 .. .. 75 ..	0	9
75 .. .. 100 ..	1	0
100 .. and not exceeding .. 200 ..	2	0
200 .. .. 300 ..	3	0
300 .. .. 400 .	4	0
400 .. .. 500 ..	5	0
500 .. .. 750 ..	7	6
750 .. .. 1000 .	10	0
1000 .. .. 1500 ..	15	0
1500 . 2000 ..	20	0
2000 .. . 3000 ..	30	0

AGREEMENTS.

Of the value of £20 and upwards, containing only 1080 words, 2s. 6d.; and for every further 1080 words 2s. 6d.

Letter of Power of Attorney	£1	10	0
Bills of Lading, each	0	0	6
Charter Party	0	5	0

APPRENTICES' INDENTURES

If no Premium	£0	2	6
Prem. under £30 ..	1	0	0
If 30 .. .. 50 ..	2	0	0
50 .. .. 100 ..	3	0	0
100 .. under .. 200 ..	6	0	0
200 .. .. 300 ..	12	0	0
300 .. .. 400 ..	20	0	0
400 .. and .. 500 ..	25	0	0
500 .. .. 600 ..	30	0	0
600 .. .. 800 ..	40	0	0
800 .. ..1000 ..	50	0	0
1000 and upwards ..	60	0	0

SEA INSURANCE POLICIES

Upon any voyage, for every £100 charged as follows:

	s.	d
Not exc. 10s. per cent..	0	3
Exceed. 10s. .. and not exceed.. 20s....	0	6
20s. .. .. 30s....	1	0
30s. .. .. 40s....	2	0
40s. .. .. 50s....	3	0
50s.	4	0

For every £100 insured for a term,

Not exc. six months....	2	6
Exc. six months	4	9

POSTAL REGULATIONS.

Rates of Postage from all parts of the United Kingdom, the Channel Islands, and the Isle of Man.

LETTERS under ½ oz., pre-paid 1d.
,, ,, 1 oz., pre-paid 2d.
,, ,, 2 oz., pre-paid 4d.

and so on, 2d. or two rates for every additional ounce or fraction of an ounce. No limit exists to the weight of paid Letters, and no Inland Letter must exceed 24 inches any way. All Inland Letters *must be pre-paid in Stamps*, except Letters posted at St. Martin's-le-Grand before 5 p.m. daily by one individual or firm collectively, postage of which amounts to £1 or upwards.—LETTERS by private ship under ½ oz. 6d., except Belgium and Holland. NEWSPAPERS 1d.

Unpaid Letters—Persons sending Letters by Post unpaid, which from any cause cannot be delivered, are liable to pay the Postage so charged, under the 3 and 4 of Victoria, cap. 96, and the 10 and 11 of Victoria, cap. 85, and, under the 1 Victoria, cap. 36, may be recovered with costs, by summary process before a Magistrate.

A Letter when posted is considered the property of the person to whom it is addressed, and the receivers may therefore *not give back a Letter* under any circumstances whatever.

RE-DIRECTED LETTERS subject to a second Postage at the rate charged for pre-paid letters.

Newspapers (Stamped) sent by Post, must be made up in covers open at the sides, have the Stamp visible, and no marks or writing (other than the address) thereon, or anything inclosed, or it subjects them to Letter Postage. British Newspapers, when duly stamped, are forwarded free throughout the United Kingdom (except those delivered within three miles of the place where posted, which are charged 1d.) *Unstamped* Newspapers if weighing under 4 oz. may be forwarded between places in the united Kingdom by affixing 1d. *postage stamp*. For places abroad, Newspapers *need not be stamped*, but postage must be pre-paid with *stamps*.

Note.—Newspapers for Foreign parts and Colonies, if posted later than 15 days after date of publication, are charged *Letter Postage*.

A Book Packet may contain writing (when not in the nature of a letter) and any number of separate books or other publications, prints, or maps, and any quantity of paper, parchment, or vellum (to the exclusion, however, of letters, whether sealed or open). And the books or other publications, prints, maps, &c., may be either printed, written, or plain, or any mixture of the three. Further, all legitimate binding, mounting, or covering of a book, publication, &c., or of a portion thereof, will be allowed, whether such binding, &c., be loose or attached; as also rollers, in the case of prints or maps; markers (whether of paper or otherwise), in the case of books; and, in short, whatever is necessary for the safe transmission of literary or artistic matter, or usually appertains thereto.

Soldiers' or Seamen's Letters are subject to a postage of 1d. if pre-paid and under ½ an oz.: by private ship 1d. the gratuity in addition must be paid. Letters to or from Soldiers or Seamen, from abroad, when unpaid, are charged 2d: If sent to or through a Foreign Country, they are liable to Foreign rates in addition, but to no further charge upon re-direction.

ACHES TO

QUIGGIN'S

ISLE OF MAN

ALMANACK,

FOR THE YEAR OF OUR LORD

1863,

Being the Third after Bissextile or Leap-Year,

AND THE 26th-27th OF THE REIGN OF HER PRESENT MAJESTY;

WITH CORRECT

TIDE TABLES,

FOR THE

OLD DOCK SILL, LIVERPOOL, AND THE CUMBERLAND GATES, BRISTOL;

AND

MARINERS' COMPANION;

CONTAINING ALSO EVERY CALCULATION NECESSARY FOR

WORKING A LUNAR DISTANCE.

CALCULATED TO MEAN TIME, IN LATITUDE 54° 10′ N. AND LONGITUDE 4° 30′ W.

☞ The Liverpool Tides are calculated for Greenwich mean time.

THIRTY-EIGHTH ANNUAL IMPRESSION.

DOUGLAS, ISLE OF MAN:
PRINTED AND PUBLISHED BY MARY A. QUIGGIN,
52, NORTH QUAY.

PHASES OF THE MOON.

Full Moon,	5th day, at	3h. 32m. morning.
Last Quarter,	13th day, at	0h. 6m. morning.
New Moon,	19th day, at	4h. 2m. evening.
First Quarter,	26th day, at	4h. 54m. evening.

M D.	Day brek.	Twil. ends.	⊙'s semi.	☿ *Mercury.* sets.	☿ *Mercury.* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	♅
1	6 m 7	6 a 0	16 18	3 a 59	0 a 29	4 a 5	0 a 27	1 m 41	6 a 41	1 m 36	6 m 52	11 a 35	5 m 42	
8	6 6	6 7	16 18	4 37	0 52	4 25	0 37	1 34	6 26	1 13	6 28	11 8	5 15	
15	6 3	6 16	16 18	5 20	1 12	4 46	0 46	1 28	6 12	0 49	6 2	10 40	4 47	
22	5 58	6 27	16 17	6 3	1 25	5 9	0 55	1 23	5 59	0 24	5 37	10 10	4 20	
29	5 49	6 39	16 16	6 20	1 21	5 34	1 2	1 19	5 46	11 a 55	5 11	9 40	3 53	

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Th	Circumcision.	8 48	12 3	9 17	12 7	3 45
2	F	Gen. Wolfe born	9 43	13 7	10 6	13 3	4 15
3	S	B. of Princeton, 1777	10 29	14 3	10 46	14 0	4 44
4	D	2 Sun. aft. Christmas	11 5	15 2	11 22	14 10	5 8
5	M	*Proper Lessons.* [Isa. xli; Matt. iii. — xliii; Rom. iii.	11 39	16 0	11 55	14 5	5 31
6	Tu	Epiphany. 12th Day	— —	— —	0 11	16 6	6
7	W	Pleiades souths 8 a 32	0 29	15 9	0 47	16 10	6 20
8	Th	Lucian, P. & M.	1 4	16 0	1 22	16 11	6 54
9	F	Fontenelle died, 1801.	1 38	15 11	1 55	16 9	7 18
10	S	Hilary Term beg., 11th	2 14	15 8	2 33	16 4	7 44
11	D	1 Sun. aft. Epiphany	2 50	15 1	3 8	15 7	8 8
12	M	*Proper Lessons.* [Isa. xliv; Matt. ix. — xlvi; Rom. ix.	3 29	14 6	3 50	14 8	8 31
13	Tu	Camb. Term begins	4 12	13 8	4 41	13 8	8 54
14	W	Oxford Term begins	5 12	12 11	5 50	12 11	9 16
15	Th	Brit. Musm. opd. 1759	6 28	12 7	7 9	12 8	9 37
16	F	Battle Corunna, 1809	7 50	13 2	8 30	13 6	9 59
17	S	Battle of Falkirk, 1756	9 4	14 8	9 37	15 0	10 19
18	D	2 Sun. aft. Epiphany	10 7	16 7	10 36	16 7	10 39
19	M	*Pro. Les.* [Isa. li; Matt. xvi. — liii; Rom. xvi.	11 1	18 2	11 26	18 0	10 58
20	Tu	Fabian, Bishop	11 48	19 6	— —	— —	11 16
21	W	Agnes, V. & M.	0 11	18 9	0 34	20 1	11 33
22	Th	Vincent, Martyr	0 55	18 10	1 18	19 11	11 50
23	F	Pleiades souths 7 a 28	1 41	18 3	2 2	19 1	12 6
24	S	Day increased 1 hour	2 22	17 4	2 43	17 8	12 21
25	D	3 Sun. aft. Epiphany	3 3	15 11	3 23	16 0	12 35
26	M	*Proper Lessons.* [Isa. lv; Acts xxii to v. 22 — lvi; Acts xxvi.	3 44	14 5	4 4	14 1	12 48
27	Tu	Aldebaran souths 8 a 2	4 27	12 11	4 56	12 4	13 1
28	W	Castor souths 10 a 55	5 28	11 7	6 4	11 0	13 12
29	Th	Geo. III died, 1820	6 45	10 11	7 24	10 7	13 23
30	F	King Charles. I beh.	8 5	11 3	8 45	11 1	13 33
31	S	Hilary Term ends	9 17	12 3	9 44	12 1	13 43

BRISTOL TIDES. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age	M D.	ASPECTS AND WEATHER
4 10	4 41	23 9	8 23	3 45	18 46 19	23 1 45	5m8	9a32	22N14	11	1	This
5 8	5 32	25 2	8 23	3 46	18 50 44	22 56 38	6 6	10 21	22 44	12	2	☉ in Perigee
5 57	6 16	26 0	8 23	3 47	18 55 8	22 51 4	6 56	11 10	22 9	13	3	*month will*
6 38	6 57	27 1	8 22	3 48	18 59 32	22 45 3	7 37	11 58	20 31	14	4	*probably*
7 15	7 34	28 2	8 22	3 50	19 3 56	22 38 34	rises.	morn	— —	F	5	*commence*
7 52	8 10	29 1	8 21	3 51	19 8 19	22 31 39	5a37	0 45	17 56	16	6	☿ gr. Hl. lat. S
8 27	8 43	29 8	8 21	3 52	19 12 41	22 22 24	6 58	1 31	14 31	17	7	*with Snow*
9 0	9 15	29 11	8 20	3 54	19 17 4	22 16 29	8 9	2 15	10 27	18	8	*and stormy*
9 31	9 48	29 9	8 19	3 55	19 21 25	22 8 14	9 21	2 58	5 53	19	9	*weather*
10 6	10 20	29 1	8 18	3 57	19 25 47	21 59 33	10 34	3 42	1 0	20	10	*or*
10 35	10 53	28 0	8 17	3 58	19 30 7	21 50 27	11 51	4 26	4 s 2	21	11	♀ in Aphelion
11 11	11 30	26 10	8 17	4 0	19 34 27	21 40 54	morn	5 12	8 59	22	12	*hard*
11 56	— —	24 7	8 16	4 2	19 38 47	21 30 57	1 8	6 1	13 38	23	13	*frost,*
0 23	0 55	22 10	8 15	4 3	19 43 5	21 20 35	2 29	6 54	17 40	24	14	♃ ☌ ☾, 10m15
1 29	2 13	22 11	8 14	4 5	19 47 24	21 9 48	3 49	7 50	20 44	25	15	*which*
3 4	3 51	25 4	8 13	4 7	19 51 41	20 58 36	5 7	8 51	22 26	26	16	♄ stationary
4 28	5 2	28 6	8 12	4 9	19 55 58	20 47 1	6 10	9 54	22 30	27	17	*may*
5 33	6 5	31 3	8 11	4 10	20 0 14	20 35 2	7 2	10 58	20 48	28	18	*continue*
6 33	7 2	32 5	8 10	4 12	20 4 29	20 22 39	sets.	11 59	17 30	N	19	*for*
7 26	7 51	34 4	8 9	4 14	20 8 44	20 9 53	5a57	0a57	13 0	1	20	♀ ☌ ☾, 11m20
8 15	8 36	35 3	8 8	4 16	20 12 58	19 56 45	7 23	1 51	7 44	2	21	☿ ☌ ☾, 1 m 3
8 58	9 19	35 0	8 7	4 18	20 17 11	19 43 15	8 47	2 42	2 10	3	22	*some*
9 38	9 56	33 7	8 5	4 20	20 21 24	19 29 23	10 7	3 31	3N20	4	23	*days.*
10 6	10 32	31 6	8 4	4 22	20 25 35	19 15 9	11 25	4 18	8 27	5	24	*Now*
10 49	11 7	28 9	8 2	4 24	20 29 46	19 0 34	morn	5 5	12 59	6	25	☿ in ♌, 2 a 51
11 24	11 44	25 6	8 1	4 26	20 33 56	18 45 38	0 40	5 52	16 47	7	26	☌ □ ☉, 2 m 29
— —	0 10	22 4	7 59	4 28	20 38 5	18 30 22	1 50	6 39	19 43	8	27	*more*
0 36	1 7	19 9	7 58	4 30	20 42 13	18 14 46	2 56	7 28	21 40	9	28	*fine and*
1 45	2 30	19 4	7 56	4 32	20 46 21	17 58 50	3 59	8 17	22 34	10	29	*fair.*
3 19	4 5	21 2	7 54	4 34	20 50 27	17 42 35	4 53	9 5	22 23	11	30	☿ in Perihel.
4 40	5 8	23 5	7 52	4 36	20 54 33	17 26 2	5 35	9 54	21 9	12	31	☿ stationary

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

.	NOON. ° ′ ″			3 HOURS. ° ′ ″			6 HOURS. ° ′ ″			9 HOURS. ° ′ ″			MIDN. ° ′ ″			15 HOUR. ° ′ ″			18 HOUR. ° ′ ″			21 HOUR. ° ′ ″		
g	131	28	6	130	2	39	128	37	1	127	11	11	125	45	8	124	18	53	122	52	25	121	25	43
	119	58	48	118	31	38	117	4	14	115	36	36	114	8	42	112	40	33	111	12	8	109	43	27
	108	14	29	106	45	15	105	15	43	103	45	54	102	15	46	100	45	20	99	14	36	97	43	33
	96	12	10	94	40	27	93	8	25	91	36	2	90	3	18	88	30	14	86	56	49	85	23	2
	83	48	54	82	14	24	80	39	32	79	4	17	77	28	41	75	52	42	74	16	21	72	39	37
	71	2	31	69	25	2	67	47	11	66	8	58	64	30	22	62	51	24	61	12	4	59	32	23
	57	52	21	56	11	58	54	31	13	52	50	9	51	8	46	49	27	3	47	45	2	46	2	44
	44	20	8	42	37	16	40	54	9	39	10	47	37	27	13	35	43	26	33	59	28	32	15	21
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
w	25	50	16	27	30	38	29	10	43	30	50	30	32	29	58	34	9	4	35	47	49	37	26	11
	39	4	10	40	41	44	42	18	54	43	55	39	45	31	59	47	7	53	48	43	21	50	18	24
	51	53	0	53	27	11	55	0	55	56	34	13	58	7	6	59	39	33	61	11	34	62	43	10
	64	14	20	65	45	6	67	15	27	68	45	25	70	14	58	71	44	8	73	12	55	74	41	19
	76	9	21	77	37	1	79	4	20	80	31	19	81	57	57	83	24	16	84	50	15	86	15	56
	87	41	18	89	6	23	90	31	12	91	55	44	93	20	0	94	44	0	96	7	46	97	31	18
	98	54	36	100	17	42	101	40	35	103	3	16	104	25	46	105	48	6	107	10	15	108	32	14
	109	54	5	111	15	47	112	37	21	113	58	48	115	20	8	116	41	22	118	2	30	119	23	32
)	120	44	29	122	5	22	123	26	11	124	46	57	126	7	39	127	28	19	128	48	57	130	9	32

Explanations

The LIVERPOOL TIDES on the left-hand Calendar pages are this year calculated
ır Greenwich mean time; with the height above the level of the Old Dock Sill,
ow represented by the marks on the east side of the Canning Dock, and include
ıe diurnal inequality in the height of each Tide.

PHASES OF THE MOON.

Full Moon,	3rd day, at 10h. 25m.	night.
Last Quarter,	11th day, at 10h. 46m.	morning.
New Moon,	18th day, at 3h. 6m.	morning.
First Quarter,	25th day, at 0h. 34m.	afternoon.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.
1	5m46	6a43	16 16	6a15	1a11	5a15	1a5	1m17	5a41	11a44	4m59	9a32	3m40
8	5 35	6 55	16 15	5 29	0 25	6 10	1 11	1 13	5 28	11 16	4 32	9 3	3 11
15	5 22	7 8	16 13	rises.	11m28	6 35	1 17	1 10	5 17	10 48	4 5	8 33	2 43
22	5 8	7 21	16 12	6m13	10 49	6 59	1 21	1 7	5 6	10 20	3 37	8 3	2 14
28	4 54	7 32	16 10	6 1	10 33	7 19	1 25	1 4	4 56	9 55	3 12	7 59	1 49

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equa of T
1	D	Septuagesima Sun.	10 7	13 6	10 29	13 3	13
2	M	Pro. Les. [Genesis i; Mark i. — ii; 1 Cor. xiii.	10 49	14 10	11 6	14 6	13
3	Tu	Blasius, Bishop	11 23	16 0	11 40	15 8	14
4	W	Pleiades souths 6 a 42	11 55	17 1	— —	— —	14
5	Th	Agatha, V. & M.	0 10	16 5	0 25	17 8	14
6	F	Dr. Priestley d., 1804	0 42	17 0	0 57	18 1	14
7	S	Day long, 9h. 11m.	1 16	17 3	1 31	17 11	14
8	D	Sexagesima Sunday	1 48	17 0	2 6	17 5	14
9	M	Proper Lessons. [Genesis iii; Mark viii. — vi; 2 Cor. iv.	2 25	16 6	2 44	16 7	14
10	Tu	Sirius souths 9 a 17	3 3	15 7	3 22	15 4	14
11	W	Rigel souths 7 a 52	3 47	14 6	4 11	13 10	14
12	Th	Procyon souths 10 a 2	4 41	13 4	5 17	12 7	14
13	F	Regulus souths 0 m 31	5 59	12 6	6 43	12 0	14
14	S	Valentine, Bishop	7 30	12 11	8 16	12 9	14
15	D	Shrove Sunday	8 56	14 5	9 29	14 4	14
16	M	Proper Lessons. [Gen. ix, to v. 20; Mark xiii. — xii; 2 Cor. ii	9 59	16 2	10 26	16 2	14
17	Tu	Shrove Tuesday	10 50	18 1	11 14	17 8	14
18	W	Ash Wednesday	11 35	19 6	11 55	18 9	14
19	Th	Galileo born, 1564	— —	— —	0 16	20 2	14
20	F	Castor souths 9 a 25	0 35	19 0	0 56	20 1	14
21	S	Trinadad taken, 1797	1 15	18 9	1 34	19 3	13
22	D	1 Sunday in Lent	1 55	17 9	2 13	17 10	13
23	M	Proper Lessons. [Gen. xix, to v. 30; Luke v. — xxii; Galatians v.	2 33	16 9	2 50	16 1	13
24	Tu	St. Matthias, Apostle	3 8	15 0	3 27	14 2	13
25	W	Sirius souths 8 a 18	3 47	13 4	4 9	12 3	13
26	Th	Day increa. 3h. 16m.	4 35	11 9	5 11	10 8	13
27	F	Hare Hunting ends	5 55	10 9	6 35	9 10	13
28	S	Elliott's Engagement off Ramsey, 1760.	7 16	10 9	7 58	10 3	12

To reduce the Liverpool Tides for the Isle of Man generally, subtract two minutes—the Tides at the Island being so much earlier than at Liverpool; and height, or rise of water at Liverpool diminished one sixth will give the approxim rise of water in Douglas.

BRISTOL TIDES.				SUN.									MOON.				M	ASPECTS AND WEATHER.
morn.		even.		height	rises.		sets.		rt. ascen.			declin. S.	sets.	souths	declin.		age	D.	
H.	M.	H.	M.	F. I.	H	M	H	M	H.	M.	S.	° ′ ″	H. M.	H. M.	° ′				
5	32	5	56	25 6	7	51	4	37	20	58	38	17 9 9	6m11	10a41	18N55		13	1	*Expect*
6	18	6	37	26 7	7	49	4	39	21	2	42	16 59 59	6 40	11 27	15 48		14	2	☿ ☌ ♀, 1 a 53
6	57	7	16	28 4	7	47	4	41	21	6	45	16 34 31	rises.	morn	— —		F	3	♀ gr. H. L. S.
7	32	7	49	29 11	7	46	4	43	21	10	48	16 16 46	5a58	0 13	11 56		16	4	*fair and*
8	6	8	23	31 2	7	44	4	45	21	14	50	15 58 44	7 11	0 57	7 30		17	5	*frosty*
8	38	8	56	31 11	7	42	4	47	21	18	50	15 40 26	8 24	1 41	2 40		18	6	*about*
9	10	9	25	32 0	7	40	4	49	21	22	50	15 21 51	9 38	2 25	2s20		19	7	*this time.*
9	42	9	59	31 3	7	38	4	51	21	26	50	15 3 1	10 53	3 11	7 19		20	8	♄ ☌ ☾, 3m 45
10	16	10	32	30 1	7	36	4	53	21	30	48	14 43 55	morn	3 58	12 2		21	9	☿ gr. H.L.N.
10	48	11	9	28 2	7	34	4	55	21	34	46	14 24 35	0 11	4 49	16 14		22	10	☿ in Inf. ☌ ☉
11	30	11	57	25 6	7	32	4	57	21	38	43	14 5 0	1 32	5 43	19 34		23	11	♃ stationary
—	—	0	27	22 11	7	30	4	59	21	42	39	13 45 11	2 51	6 40	21 45		24	12	*Now*
1	4	1	44	22 0	7	28	5	1	21	46	34	13 25 8	3 55	7 40	22 30		25	13	*more*
2	38	3	33	24 3	7	26	5	3	21	50	29	13 4 53	4 49	8 41	21 39		26	14	*cold,*
4	19	4	53	27 8	7	24	5	6	21	54	23	12 44 24	5 34	9 41	19 13		27	15	*with*
5	25	5	54	30 10	7	22	5	8	21	58	16	12 23 43	6 8	10 39	15 24		28	16	*high*
6	20	6	48	32 2	7	20	5	10	22	2	9	12 2 50	6 33	11 35	10 35		29	17	☿ ☌ ☾, 2 m 32
7	11	7	33	34 3	7	17	5	12	22	6	1	11 41 46	sets	0a27	5 11		N	18	*winds;*
7	56	8	16	35 5	7	15	5	14	22	9	52	11 20 31	7a32	1 18	0N25		1	19	♀ ☌ ☾, 2 a 18
8	37	8	55	35 3	7	13	5	16	22	13	42	10 59 5	8 55	2 7	5 49		2	20	*probably*
9	13	9	32	34 2	7	11	5	18	22	17	32	10 37 29	10 16	2 55	10 45		3	21	*stormy,*
9	48	10	7	31 11	7	9	5	20	22	21	21	10 15 43	11 32	3 44	14 59		4	22	☿ stationary
10	21	10	36	29 5	7	7	5	22	22	25	10	9 53 48	morn	4 32	18 22		5	23	*with*
10	52	11	8	26 3	7	5	5	24	22	28	58	9 31 44	0 41	5 21	20 45		6	24	♂ ☌ ☾, 8 m 35
11	27	11	50	22 9	7	2	5	26	22	32	45	9 9 32	1 45	6 10	22 6		7	25	*rain*
—	—	0	21	19 8	7	0	5	28	22	36	32	8 47 11	2 42	6 59	22 21		8	26	♅ ☌ ☾, 9 m 12
1	0	1	36	18 3	6	58	5	30	22	40	18	8 24 43	3 31	7 48	21 23		9	27	*or*
2	20	3	11	19 5	6	55	5	32	22	44	3	8 2 8	4 10	8 35	19 43		10	28	*snow.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

	NOON.			3 HOURS.			6 HOURS.			9 HOURS			MIDN.			15 HOUR.			18 HOUR.			21 HOUR.		
	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
Sa	138	28	39	137	0	8	135	31	24	134	2	25	132	33	14	131	3	49	129	34	11	128	4	19
1	126	34	13	125	3	54	123	33	22	122	2	36	120	31	36	119	0	22	117	28	54	115	57	12
2	114	25	16	112	53	6	111	20	41	109	48	1	108	15	7	106	41	59	105	8	35	103	34	56
3	102	1	2	100	26	53	98	52	29	97	17	50	95	42	55	94	7	44	92	32	18	90	56	36
4	89	20	39	87	44	26	86	7	57	84	31	13	82	54	13	81	16	58	79	39	28	78	1	42
5	76	23	41	74	45	24	73	6	53	71	28	8	69	49	8	68	9	54	66	30	26	64	50	45
6	63	10	51	61	30	43	59	50	24	58	9	53	56	29	11	54	48	18	53	7	15	51	26	3
7	49	44	42	48	3	13	46	21	38	44	39	56	42	58	9	41	16	18	39	34	24	37	52	28
8	36	10	32	34	28	36	32	46	44	31	4	55	29	23	14	27	41	42	26	0	22	24	19	17
..	..	..	..	..	..	..	..	.	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..
Sw	31	32	35	33	6	15	34	39	35	36	12	35	37	45	14	39	17	33	40	49	32	42	21	11
1	43	52	29	45	23	25	46	54	0	48	24	14	49	54	7	51	23	38	52	52	48	54	21	37
2	55	50	5	57	18	12	58	45	59	60	13	25	61	40	32	63	7	19	64	33	47	65	59	57
3	67	25	48	68	51	21	70	16	37	71	41	35	73	6	17	74	30	44	75	54	54	77	18	50
4	78	42	31	80	5	58	81	29	12	82	52	13	84	15	2	85	37	39	87	0	5	88	22	20
5	89	44	26	91	6	22	92	28	10	93	49	49	95	11	20	96	32	45	97	54	3	99	15	15
6	100	36	22	101	57	25	103	18	23	104	39	17	106	0	9	107	20	58	108	41	45	110	2	31
7	111	23	16	112	44	1	114	4	46	115	25	31	116	46	18	118	7	7	119	27	57	120	48	51
8	122	9	47	123	30	47	124	51	51	126	12	59	127	34	12	128	55	30	130	16	54	131	38	23

The EQUATION of TIME is given to the nearest second for Greenwich mean noon; and as the difference between the equation of time for mean noon and apparent noon does not in any instance amount to the fifth part of a second, the given minutes and seconds may be used for reducing mean time into apparent time, or the contrary. When the column is headed "Clock before Sun," the Equation is to be *subtracted* from *mean* time to reduce it to *apparent*; or, in the case of a celestial observation, the result being apparent time, the equation must be added to reduce it to mean time. And when "after Sun," the equation must be added to *mean* time, to reduce it to *apparent* time, or subtracted from *apparent* time to reduce it to *mean* time.

PHASES OF THE MOON.
- FULL MOON, 5th day, at 2h. 46m. afternoon.
- LAST QUARTER, 12th day, at 6h. 55m. evening.
- NEW MOON, 19th day, at 2h. 37m. afternoon.
- FIRST QUARTER, 27th day, at 8h. 58m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus sets	♀ Venus sout.	♂ Mars sets.	♂ Mars sout.	♃ Jupiter rises,	♃ Jupiter sout.	♄ Saturn rises.	♄ Saturn sout.	M D.
1	4m54	7 a 35	16 10	6 m 0	10m31	7 a 23	1 a 25	1 m4	4 a 55	9 a 51	3 m 8	7 a 33	1m45	1
8	4 34	7 50	16 8	5 53	10 28	7 49	1 29	1 1	4 45	9 21	2 39	7 2	1 15	8
15	4 16	8 4	16 6	5 47	10 32	8 14	1 33	0 58	4 35	8 50	2 9	6 32	0 46	15
22	3 56	8 19	16 5	5 39	10 42	8 38	1 38	0 55	4 25	8 18	1 39	sets.	0 16	22
29	3 24	8 36	16 3	5 30	10 55	9 1	1 42	0 51	4 16	7 46	1 9	5m59	11a43	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height	Evening. Time.	Evening. Height.	Equation of Time. (Clock before Sun.—Add to Apparent Time, or Subtract from Mean Time.)
							′ ″
1	D	2 Sunday in Lent.	8 37	11 8	9 10	11 5	12 38
2	M	*Proper Lessons.* [Genesis xxvii; Luke xii. — xxxiv; Ephes. vi.	9 36	13 1	9 58	12 0	12 26
3	Tu	Sirius souths 7 a 55	10 20	14 8	10 40	14 5	12 13
4	W	Regulus souths 11a12	10 56	16 1	11 12	15 10	12 0
5	Th	Procyon souths 8 a 40	11 29	17 4	11 44	17 0	11 46
6	F	Pleiades sets 1 m 21	11 59	18 3	— —	— —	11 32
7	S	Perpetua, Martyr	0 15	17 9	0 30	18 9	11 18
8	D	3 Sunday in Lent	0 48	18 2	1 5	18 9	11 3
9	M	*Pro. Less.* [Genesis xxxix; Luke xix. — xlii; Coloss. iii.	1 26	18 0	1 44	18 2	10 48
10	Tu	Castor souths 8 a 14	2 2	17 5	2 22	17 0	10 32
11	W	Sirius sets, 11 a 50	2 44	16 5	3 7	15 7	10 16
12	Th	Gregory, M. B.	3 30	15 0	3 56	13 5	10 0
13	F	♅ discovered, 1781	4 28	13 7	5 4	12 4	9 44
14	S	Admiral Byng shot	5 47	12 8	6 35	11 9	9 27
15	D	4 Sunday in Lent	7 22	13 0	8 17	12 6	9 10
16	M	*Pro. Les.* [Genesis xliii; John ii. — xlv; 2 Thess. i.	8 45	14 5	9 15	14 1	8 53
17	Tu	St. Patrick	9 42	16 1	10 8	15 7	8 36
18	W	Edwd., King W., Sax.	10 34	17 8	10 53	17 4	8 18
19	Th	Princess Louisa born	11 12	18 9	11 34	17 10	8 0
20	F	Sir I. Newton d. 1727	11 51	19 2	— —	— —	7 42
21	S	Benedict, Abbot.	0 9	18 6	0 27	19 2	7 24
22	D	5 Sunday in Lent	0 46	18 4	1 5	18 6	7 6
23	M	*Proper Lessons.* [Exodus iii; John ix. — v; 1 Tim. vi.	1 23	17 10	1 42	17 3	6 48
24	Tu	Regulus souths 9 a 54	1 59	16 6	2 18	15 8	6 30
25	W	Lady Day	2 37	15 2	2 56	14 0	6 11
26	Th	Sirius souths 6 a 24	3 15	13 8	3 37	12 3	5 53
27	F	Pea. of Ameins, 1802	4 3	12 2	4 30	10 9	5 34
28	S	Pleiades sets 11 a 50	5 6	11 1	5 48	9 11	5 16
29	D	Palm Sunday.	6 31	10 10	7 9	10 2	4 58
30	M	*Proper Lessons.* [Exod. ix; Matt. xxvi. — x; Heb. v to v. 11.	7 50	11 7	8 24	11 3	4 39
31	Tu	Castor souths 6 a 51	8 55	12 11	9 19	12 9	4 21

BRISTOL TIDES.				SUN.					MOON.				M	ASPECTS AND WEATHER.
morn.	even.	height		rises	sets.	rt. ascen.		declin. S	sets.	souths	declin.	age.	D.	
H. M.	H. M.	F.	I.	H M	H M	H. M. S.		° ′ ″	H. M.	H. M.	° ′			
3 57	4 33	22	3	6 52	5 34	22 47	48	7 39 25	4m40	9a22	16N58	11	1	*Expect changeable weather*
5 0	5 23	25	1	6 50	5 36	22 51	33	7 16 36	5 6	10 8	13 25	12	2	
5 46	6 8	27	7	6 48	5 38	22 55	17	6 53 41	5 28	10 53	9 12	13	3	
6 27	6 45	28	9	6 46	5 40	22 59	0	6 30 40	5 46	11 37	4 30	14	4	☿ in ♒, 0 m 5
7 4	7 20	30	9	6 44	5 42	23 2	43	6 7 34	rises.	morn	— —	F	5	*to begin*
7 38	7 55	32	5	6 41	5 44	23 6	26	5 44 23	7a24	0 22	0s29	16	6	*the*
8 11	8 29	33	3	6 39	5 46	23 10	8	5 21 7	8 42	1 8	5 32	17	7	♄ ☌ ☾, 6 m 59
8 45	9 5	33	6	6 36	5 48	23 13	49	4 57 47	10 1	1 56	10 25	18	8	☿ gr. elon. W.
9 22	9 38	32	8	6 34	5 50	23 17	31	4 34 22	11 20	2 46	14 49	19	9	*month;*
9 56	10 16	31	0	6 31	5 52	23 21	12	4 10 54	morn	3 39	18 26	20	10	*but more*
10 35	10 54	28	11	6 29	5 54	23 24	53	3 47 23	0 36	4 35	20 59	21	11	*inclined*
11 17	11 45	25	10	6 26	5 56	23 28	33	3 23 49	1 46	5 33	22 11	22	12	*to fair;*
— —	0 15	23	0	6 24	5 57	23 32	13	3 0 13	2 44	6 33	21 52	23	13	*some*
0 52	1 36	21	10	6 21	5 59	23 35	53	2 36 34	3 38	7 31	20 3	24	14	*showers,*
2 29	3 33	24	1	6 19	6 1	23 39	33	2 12 54	4 6	8 29	16 53	25	15	☿ in Aphelion
4 7	4 39	27	5	6 16	6 3	23 43	12	1 49 12	4 34	9 23	12 37	26	16	*ending*
5 7	5 34	30	0	6 14	6 5	23 46	51	1 25 30	4 57	10 16	7 37	27	17	☿ ☌ ☾, 8 a 0
6 3	6 25	31	5	6 11	6 7	23 50	30	1 1 47	5 17	11 6	2 14	28	18	*in fine*
6 46	7 10	33	0	6 9	6 9	23 54	9	0 38 4	sets.	11 56	3N12	N	19	*weather,*
7 29	7 49	34	1	6 6	6 11	23 57	48	0 14 21	7a51	0a44	8 20	1	20	*and*
8 8	8 27	34	3	6 4	6 13	0 1	26	N0 9 21	9 7	1 33	12 55	2	21	☉ ent. ♈.
8 45	9 2	33	2	6 1	6 15	0 5	5	0 53 2	10 20	2 22	16 44	3	22	[Spring com.
9 19	9 35	31	4	5 59	6 16	0 8	43	0 56 42	11 29	3 12	19 35	4	23	♄ ☍ ☉, 7 m 9
9 52	10 8	28	11	5 56	6 18	0 12	21	1 20 20	morn	4 1	21 24	5	24	*march*
10 24	10 40	26	5	5 54	6 20	0 15	59	1 43 56	0 29	4 51	22 7	6	25	♂ ☌ ☾, 2 m 24
10 58	11 21	23	3	5 51	6 22	0 19	37	2 7 30	1 21	5 40	21 44	7	26	*dust*
11 44	— —	20	4	5 49	6 24	0 23	15	2 31 0	2 4	6 28	20 20	8	27	*towards*
0 15	0 53	18	6	5 46	6 26	0 26	54	2 54 28	2 39	7 15	17 58	9	28	*the*
1 32	2 12	19	1	5 44	6 27	0 30	32	3 17 52	3 7	8 1	14 47	10	29	*end of*
3 3	3 44	21	9	5 41	6 29	0 34	10	3 41 12	3 30	8 46	10 54	11	30	*the*
4 17	4 43	24	9	5 39	6 31	0 37	48	4 4 28	3 50	9 30	6 26	12	31	*month.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M.	NOON.			3 HOURS.			6 HOURS.			9 HOURS.			MIDN.			15 HOUR.			18 HOUR.			21 HOUR.		
D.	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
☽E	132	11	20	130	37	5	129	2	38	127	28	1	125	53	14	124	18	16	122	43	8	121	7	50
)	119	32	23	117	56	46	116	21	1	114	45	6	113	9	2	111	32	50	109	56	29	108	20	0
1	106	43	23	105	6	37	103	29	44	101	52	43	100	15	34	98	38	18	97	0	54	95	23	23
2	93	45	45	92	8	1	90	30	9	88	52	11	87	14	7	85	35	56	83	57	39	82	19	17
3	80	40	49	79	2	15	77	23	37	75	44	53	74	6	6	72	27	13	70	48	17	69	9	17
4	67	30	13	65	51	6	64	11	57	62	32	46	60	53	32	59	14	17	57	35	1	55	55	44
5	54	16	28	52	37	12	50	57	57	49	18	43	47	39	33	46	0	24	44	21	20	42	42	20
6	41	3	25	39	24	36	37	45	54	36	7	20	34	28	56	32	50	41	31	12	39	29	34	50
•	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
☽W	23	52	48	25	22	0	26	51	4	28	19	59	29	48	43	31	17	16	32	45	35	34	13	41
2	35	41	33	37	9	9	38	36	32	40	3	38	41	30	30	42	57	6	44	23	27	45	49	33
3	47	15	23	48	40	58	50	6	18	51	31	24	52	56	15	54	20	52	55	45	15	57	9	24
4	58	33	20	59	57	4	61	20	35	62	43	54	64	7	2	65	29	58	66	52	44	68	15	20
5	69	37	46	71	0	3	72	22	11	73	44	11	75	6	4	76	27	49	77	49	28	79	11	1
6	80	32	29	81	53	51	83	15	10	84	36	25	85	57	37	87	18	46	88	39	53	90	0	59
7	91	22	5	92	43	10	94	4	16	95	25	22	96	46	30	98	7	41	99	28	54	100	50	10
8	102	11	31	103	32	56	104	54	25	106	16	1	107	37	43	108	59	31	110	21	27	111	43	30
9	113	5	41	114	28	2	115	50	32	117	13	11	118	36	0	119	59	1	121	22	12	122	45	35
0	124	9	9	125	32	56	126	56	56	128	21	8	129	45	34	131	10	14	132	35	7	134	0	15

IN THE TIDE TABLE FOR BRISTOL, on the right-hand pages, the heights are given of those Tides which happen nearest to noon in each day at the Cumberland Gates, without taking into account the diurnal inequality of the height.

PHASES OF THE MOON.

Full Moon,	4th day, at	4h. 9m. morning.
Last Quarter,	11th day, at	1h. 28m. morning.
New Moon,	18th day, at	3h. 5m. morning.
First Quarter,	26th day. at	4h. 8m. morning.

M D.	Day brek.	Twil. ends.	⊙'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	3m36	5 a 43	16 2	5m26	11m1	9 a 11	1 a 44	0 m48	4 a 12	7 a 32	0 m55	5m47	11a30	1
8	3 4	9 2	16 0	5 13	11 19	9 36	1 50	0 43	4 3	6 59	0 2	5 18	11 1	8
15	2 40	9 23	15 58	5 2	11 40	10 0	1 57	0 37	3 54	sets.	11a49	4 48	10 31	15
22	2 12	9 45	15 56	sets.	0 a 6	10 23	2 4	0 30	3 45	4m48	11 19	4 18	10 2	22
29	1 42	10 12	15 54	8 a 32	0 36	10 46	2 12	0 22	3 36	4 19	10 48	3 49	9 33	29

M D	W D	Remarkable Days	High Water.—Liverpool. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	W	Day increa. 5h. 45m.	9 42	14 6	10 1	14 5	4 2
2	Th	Regulus souths 9 a 18	10 21	16 0	10 38	15 11	3 44
3	F	**Good Friday**	10 54	17 4	11 11	17 2	3 26
4	S	Ambrose, Bishop	11 29	18 4	11 47	18 1	3 8
5	D	**Easter Sunday**	— —	— —	0 2	18 9	2 50
6	M	*Proper Lessons.* [Exod. xii; Rom. vi. — xiv; Acts ii to v. 22.	0 21	18 6	0 41	18 9	2 33
7	Tu	**Easter Tuesday**	1 1	18 5	1 22	18 2	2 15
8	W	Altair rises 11 a 49	1 42	17 10	2 5	17 0	1 58
9	Th	Lord Bacon d., 1626	2 30	16 9	2 55	15 6	1 41
10	F	Cambridge Term ends	3 21	15 5	3 52	13 10	1 24
11	S	Wm.&My.crnd.,1689	4 25	14 1	5 2	12 6	1 8
12	D	**1 Sun. after Easter**	5 44	13 3	6 26	12 1	0 52
13	M	*Proper Lessons.* [Num. xvi; Acts ix. — xxii; James i.	7 8	13 7	7 49	12 9	0 36
14	Tu	Oxford T. beg., 15th	8 23	14 8	8 54	14 1	0 21
15	W	Easter T. begins	9 23	15 11	9 46	15 6	0 5
16	Th	Battle Culloden, 1746	10 9	17 1	10 31	16 7	0 9
17	F	B. Franklin d. 1790	10 52	17 10	11 10	17 4	0 24
18	S	Arcturus souths 0m27	11 28	18 1	11 44	17 9	0 38
19	D	**2 Sun. after Easter**	— —	— —	0 3	18 0	0 51
20	M	*Proper Lessons.* [Num. xxiii, xxiv; Acts xvi. — xxv; 1 Peter iii.	0 20	17 8	0 38	17 5	1 4
21	Tu	Day 14h. 23m. long	0 56	17 2	1 15	16 6	1 17
22	W	Spica souths 11 a 16	1 33	16 4	1 52	15 4	1 29
23	Th	St. George, Martyr	2 11	15 3	2 31	14 0	1 41
24	F	Cromwell born, 1599	2 50	14 1	3 11	12 8	1 53
25	S	**St. Mark, Evan.**	3 34	12 11	3 58	11 6	2 4
26	D	**3 Sun. after Easter**	4 27	12 0	5 2	10 9	2 14
27	M	*Proper Lessons.* [Deut. iv; Acts xxiii. — v; 1 John ii.	5 39	11 6	6 18	10 7	2 24
28	Tu	Mut. of Bounty	6 52	11 10	7 26	11 4	2 34
29	W	Sirius sets 8 a 37	7 59	12 10	8 27	12 7	2 44
30	Th	Pleiades sets 9 a 41	8 52	14 1	9 15	14 1	2 52

Equation of Time. Clock before Sun.—Add to Apparent Time. Clock after Sun.—Subtract from Apparent Time.

M D.	Bristol Tides morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	5 7	5 27	27 7	5 36	6 33	0 41 26	4 27 39	4m8	10a15	1N36	13	1	☿ in ♉, 0 m 16
2	5 48	6 8	29 11	5 33	6 35	0 45 4	4 50 46	4 25	11 1	3s27	14	2	*This month*
3	6 26	6 45	31 0	5 31	6 37	0 48 43	5 13 47	4 43	11 49	8 27	15	3	♄ ☌ ☾, 11 m 20
4	7 5	7 25	32 8	5 28	6 39	0 52 21	5 36 43	rises.	morn	— —	F	4	*will probably*
5	7 41	8 2	33 9	5 26	6 41	0 56 0	5 59 33	9 a 2	0 39	13 7	17	5	♃ ☌ ☾, 0 m 25
6	8 22	8 41	33 10	5 24	6 43	0 59 39	6 22 17	10 22	1 32	17 7	18	6	*be ushered*
7	9 1	9 19	33 1	5 21	6 45	1 3 18	6 44 54	11 35	2 29	20 6	19	7	♂ ☌ ♅, 4 a 41
8	9 39	10 2	31 4	5 19	6 47	1 6 57	7 7 25	morn	3 28	21 45	20	8	*in by showery*
9	10 24	10 46	29 4	5 16	6 48	1 10 37	7 29 48	0 38	4 28	21 54	21	9	☾ in Perigee
10	11 13	11 42	26 2	5 14	6 50	1 14 17	7 52 4	1 29	5 27	20 31	22	10	*or rainy*
11	— —	0 13	23 7	5 11	6 52	1 17 57	8 14 12	2 8	6 24	17 45	23	11	*weather,*
12	0 49	1 27	22 8	5 9	6 54	1 21 37	8 36 12	2 37	7 18	13 54	24	12	♃ ☍ ☉, 9 a 41
13	2 13	3 4	24 7	5 7	6 56	1 25 18	8 58 4	3 0	8 10	9 14	25	13	*succeeded*
14	3 44	4 18	27 5	5 4	6 58	1 28 59	9 19 46	3 21	9 0	4 7	26	14	*by some*
15	4 48	5 12	29 9	5 2	7 0	1 32 41	9 41 20	3 41	9 49	1N 9	27	15	*fair*
16	5 36	6 1	31 3	5 0	7 1	1 36 23	10 2 43	3 59	10 36	6 18	28	16	*and fine*
17	6 24	6 44	31 9	4 57	7 3	1 40 5	10 23 57	4 16	11 24	11 2	29	17	*time for*
18	7 4	7 22	32 5	4 55	7 5	1 43 48	10 45 1	sets.	0a13	15 8	N	18	☿ ☌ ☾, 0 m 17
19	7 42	8 1	32 5	4 53	7 7	1 47 31	11 5 54	9a12	1 2	18 22	1	19	*sowing.*
20	8 19	8 36	31 7	4 51	7 9	1 51 14	11 26 36	10 18	1 52	20 37	2	20	☿ in su p. ☌ ☉
21	8 54	9 10	30 3	4 48	7 11	1 54 58	11 47 6	11 12	2 43	21 47	3	21	*Expect*
22	9 27	9 45	28 5	4 46	7 13	1 58 42	12 7 25	11 59	3 32	21 50	4	22	♅ ☌ ☾, 4 m 16
23	10 1	10 17	26 6	4 44	7 15	2 2 27	12 27 32	morn	4 21	20 50	5	23	☿ in ♉, 2 a 6
24	10 35	10 55	24 3	4 41	7 16	2 6 12	12 47 27	0 37	5 8	18 51	6	24	*more*
25	11 15	11 41	21 11	4 39	7 18	2 9 57	13 7 9	1 7	5 54	16 1	7	25	*showers*
26	— --	0 11	20 2	4 37	7 20	2 13 43	13 26 38	1 32	6 39	12 27	8	26	*to end*
27	0 44	1 19	19 7	4 35	7 22	2 17 30	13 45 54	1 53	7 23	8 18	9	27	*the*
28	1 55	2 36	21 4	4 33	7 24	2 21 17	14 4 56	2 11	8 7	3 42	10	28	☿ in Perihel.
29	3 16	3 49	24 3	4 30	7 25	2 25 4	14 23 44	2 27	8 51	1s12	11	29	*month.*
30	4 16	4 39	26 11	4 28	7 27	2 28 52	14 42 18	2 45	9 38	6 12	12	30	♄ ☌ ☾, 5 a 40

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
7 E	136 55 21	135 16 45	133 38 3	131 59 16	130 20 25	128 41 30	127 2 32	125 23 31
8	123 44 28	122 5 23	120 26 16	118 47 9	117 8 1	115 28 53	113 49 46	112 10 39
9	110 31 33	108 52 28	107 13 24	105 34 23	103 55 23	102 16 26	100 37 31	98 58 39
10	97 19 51	95 41 5	94 2 23	92 23 45	90 45 11	89 6 41	87 28 15	85 49 54
11	84 11 38	82 33 26	80 55 20	79 17 18	77 39 22	76 1 32	74 23 47	72 46 8
12	71 8 35	69 31 8	67 53 48	66 16 34	64 39 27	63 2 27	61 25 34	59 48 48
13	58 12 10	56 35 40	54 59 17	53 23 3	51 46 57	50 11 0	48 35 11	46 59 32
14	45 24 2	43 48 42	42 13 32	40 38 33	39 3 44	37 29 7	35 54 40	34 20 26
15	32 46 25	31 12 37	29 39 2	28 5 42	26 32 37	24 59 49	23 27 18	21 55 6
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
20 W	27 42 27	29 7 20	30 32 4	31 56 37	33 21 1	34 45 14	36 9 17	37 33 10
21	38 56 53	40 20 26	41 43 49	43 7 3	44 30 8	45 53 4	47 15 50	48 38 29
22	50 0 59	51 23 22	52 45 37	54 7 46	55 29 48	56 51 43	58 13 33	59 35 18
23	60 56 58	62 18 34	63 40 6	65 1 35	66 23 1	67 44 24	69 5 46	70 27 7
24	71 48 27	73 9 47	74 31 7	75 52 28	77 13 51	78 35 16	79 56 43	81 18 14
25	82 39 49	84 1 28	85 23 12	86 45 2	88 6 58	89 29 1	90 51 11	92 13 29
26	93 35 56	94 58 32	96 21 18	97 44 14	99 7 21	100 30 40	101 54 10	103 17 53
27	104 41 50	106 6 0	107 30 24	108 55 3	110 19 58	111 45 8	113 10 35	114 36 18
28	116 2 19	117 28 37	118 55 14	120 22 9	121 49 23	123 16 57	124 44 50	126 13 4
29	127 41 37	129 10 32	130 39 47	132 9 24	133 39 22	135 9 41	136 40 22	138 11 25

THE SUN'S RIGHT ASCENSION is given in time to the nearest second for Greenwich mean noon, and with the table of the right ascension of the principal fixed stars, given in page 29, is useful to find the time by the meridian distance of those stars.

The SUN'S DECLINATION is also given for *Greenwich mean noon*, and may be reduced to any other place by applying the proportional part of the daily difference.

PHASES OF THE MOON.
- FULL MOON, 3rd day, at 2h. 52m. afternoon.
- LAST QUARTER, 10th day, at 7h. 15m. morning.
- NEW MOON, 17th day, at 4h. 48m. evening.
- FIRST QUARTER, 25th day, at 8h. 47m. evening.

M D.	Day brek.	Twil. ends	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	1m31	10a28	15 54	8 a 51	0 a 44	10a52	2 a 14	0m20	3 a 34	4m10	10a39	3m46	9 a 25	1
8	0 45	11 16	15 52	9 45	1 10	11 9	2 23	0 10	3 25	3 41	10 9	3 18	8 56	8
15	noreal night.	15 51	10 15	1 26	11 22	2 32	11a56	3 16	3 13	9 39	2 50	8 28	15
22	noreal night.	15 50	10 17	1 30	11 28	2 40	11 44	3 7	2 44	9 9	2 22	8 0	22
29		15 48	9 53	1 17	11 31	2 48	11 30	2 58	2 16	8 40	1 54	7 32	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height	Evening. Time.	Evening. Height.	Equation of Time.
							′ ″
1	F	St. Philip & St. James	9 38	15 6	10 0	15 7	3 0
2	S	Camden born, 1551	10 21	16 9	10 42	16 11	3 7
3	D	4 Sun. after Easter	11 1	17 9	11 20	17 11	3 14
4	M	*Pro. Les.* Deut. vi; Matthew i. — vii; Rom. ii.	11 41	18 4	— —	— —	3 21
5	Tu	Procyon sets 11 a 14	0 2	18 6	0 23	18 5	3 27
6	W	St. John, Port. Lat.	0 45	18 8	1 8	18 0	3 32
7	Th	Altair rises 9 a 52	1 33	18 2	1 58	17 1	3 37
8	F	Easter Term ends	2 24	17 3	2 50	15 2	3 41
9	S	Antares souths 1 m 12	3 20	16 0	3 49	14 3	3 44
10	D	Rogation Sunday	4 20	14 9	4 54	13 1	3 47
11	M	Deut. viii; Matthew viii. — ix; Rom. ix.	5 31	14 1	6 7	12 9	3 50
12	Tu	Libra souths 11 a 22	6 41	13 11	7 16	13 0	3 52
13	W	Old May Day	7 52	14 4	8 23	13 9	3 53
14	Th	Ascension Day	8 51	15 1	9 18	14 8	3 53
15	F	Cuvier died, 1832	9 41	15 8	10 6	15 6	3 53
16	S	O'Connell died, 1847	10 26	16 2	10 49	16 1	3 53
17	D	Sun. af. Ascens. Day	11 7	16 4	11 26	16 6	3 52
18	M	*Pro. Les.* Deut. xii; Matthew xv. — xiii; Rom. xvi.	11 45	16 4	— —	— —	3 50
19	Tu	Dunstan, Archbishop	0 2	16 7	0 18	16 1	3 48
20	W	Spica souths 9 a 26	0 36	16 5	0 54	15 7	3 45
21	Th	Arcturus sout. 10 a 13	1 14	16 1	1 33	14 11	3 41
22	F	Trinity Term begins	1 51	15 6	2 10	14 2	3 38
23	S	Queen Victoria b. 24th	2 29	14 8	2 47	13 4	3 33
24	D	Whit Sunday, Pente.	3 7	13 11	3 32	12 7	3 28
25	M	Deut. xvi to v. 18; Matt. xxii. Isaiah xi; 1 Cor. vii.	3 54	13 2	4 18	12 0	3 23
26	Tu	Whit Tuesday	4 46	12 8	5 20	11 8	3 17
27	W	Oxford Term begins	5 54	12 6	6 28	11 10	3 11
28	Th	Wm. Pitt born, 1759	6 58	12 10	7 29	12 7	3 4
29	F	Antares souths 11 a 53	8 1	13 8	8 27	13 9	2 57
30	S	*Proper Lessons.* Genesis i; Matthew iii. — xviii; 1 John v.	8 54	14 9	9 21	15 1	2 49
31	D	Trinity Sunday.	9 46	15 11	10 12	16 2	2 41

Equation of Time. Clock fast (or Sun. slow) subtract from Apparent Time, or add to Mean Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N ☌ ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age	M D.	ASPECTS, AND WEATHER.
1	5 3	5 27	29 5	4 26	7 29	2 32 41	15 0 37	3m4	10a27	11 s 2	13	1	*Changeable*
2	5 50	6 13	30 5	4 24	7 30	2 36 30	15 18 42	3 26	11 20	15 24	14	2	♃ ☌ ☾, 4 m 6
3	6 35	6 56	32 0	4 22	7 32	2 40 19	15 36 31	rises.	morn	— —	F	3	*but inclined*
4	7 19	7 42	33 3	4 20	7 34	2 44 9	15 54 5	9a 18	0 16	18 54	16	4	☿ in Perihel.
5	8 4	8 25	33 7	4 18	7 36	2 48 0	16 11 24	10 28	1 16	21 9	17	5	☿ ☌ ♅, 1 a 8
6	8 47	9 10	33 2	4 16	7 38	2 51 51	16 28 26	11 24	2 17	21 55	18	6	*to fair*
7	9 33	9 57	31 9	4 14	7 39	2 55 43	16 45 12	morn	3 19	21 2	19	7	*and warm*
8	10 19	10 45	29 10	4 12	7 41	2 59 35	17 1 41	0 8	4 18	18 39	20	8	☿ gr. H. L. N.
9	11 10	11 47	27 3	4 10	7 43	3 3 28	17 17 54	0 40	5 15	15 2	21	9	*weather.*
10	— —	0 7	24 11	4 8	7 45	3 7 22	17 33 49	1 5	6 8	10 34	22	10	*Now*
11	0 38	1 8	23 10	4 6	7 47	3 11 16	17 49 26	1 27	6 58	5 34	23	11	*expect*
12	1 43	2 26	24 7	4 5	7 48	3 15 11	18 4 46	1 47	7 46	0 23	24	12	*wind*
13	3 9	3 45	26 6	4 3	7 50	3 19 6	18 19 48	2 5	8 33	4N44	25	13	*and*
14	4 15	4 43	27 11	4 2	7 52	3 23 2	18 34 31	2 24	9 20	9 31	26	14	*rain,*
15	5 7	5 33	29 0	4 0	7 54	3 26 59	18 48 55	2 45	10 8	13 46	27	15	*or frequent*
16	5 56	6 21	29 4	3 59	7 56	3 30 56	19 3 1	3 9	10 56	17 17	28	16	*showers.*
17	6 41	7 2	29 9	3 57	7 57	3 34 54	19 16 47	sets.	11 46	19 52	N	17	☉ Eclip. vis.
18	7 23	7 42	29 10	3 56	7 59	3 38 52	19 30 14	9 a 3	0a36	21 26	1	18	☿ ☌ ♅, 9 a 48
19	7 59	8 17	29 6	3 54	8 0	3 42 51	19 43 20	9 54	1 25	21 54	2	19	☿ gr. elon. E.
20	8 34	8 53	28 11	3 52	8 2	3 46 50	19 56 7	10 36	2 15	21 16	3	20	*Fair*
21	9 10	9 26	28 0	3 51	8 3	3 50 50	20 8 33	11 9	3 2	19 39	4	21	♀ ☌ ☾, 2 m 57
22	9 43	10 0	26 10	3 49	8 5	3 54 50	20 20 39	11 35	3 49	17 7	5	22	*and*
23	10 15	10 32	25 7	3 48	8 7	3 58 51	20 32 23	11 57	4 33	13 51	6	23	*seasonable*
24	10 54	11 13	24 1	3 47	8 8	4 2 53	20 43 47	morn	5 17	9 58	7	24	*weather,*
25	11 34	11 58	22 9	3 45	8 10	4 6 55	20 54 49	0 16	6 0	5 36	8	25	*but*
26	— —	0 28	21 9	3 44	8 11	4 10 57	21 5 30	0 33	6 44	0 55	9	26	♀ gr. H.L.N.
27	0 57	1 29	21 11	3 42	8 13	4 15 0	21 15 49	0 50	7 28	3s57	10	27	*changeable*
28	2 4	2 42	23 6	3 41	8 14	4 19 3	21 25 45	1 8	8 15	8 48	11	28	♄ ☌ ☾, 1 m 35
29	3 20	3 49	26 1	3 40	8 15	4 23 7	21 35 20	1 27	9 5	13 21	12	29	♃ ☌ ☾, 10 m 12
30	4 18	4 46	28 4	3 39	8 17	4 27 11	21 44 32	1 50	9 59	17 18	13	30	*at the end.*
31	5 12	5 40	30 2	3 38	8 18	4 31 16	21 53 22	2 20	10 58	20 13	14	31	☿ in ♌, 11 m 20

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
6 E	140 56 14	139 13 46	137 31 20	135 48 58	134 6 40	132 24 27	130 42 20	129 0 19
7	127 18 25	125 36 38	123 55 0	122 13 31	120 32 10	118 51 0	117 9 59	115 29 9
8	113 48 29	112 8 1	110 27 45	108 47 40	107 7 47	105 28 7	103 48 40	102 9 25
9	100 30 23	98 51 35	97 13 0	95 34 38	93 56 30	92 18 36	90 40 55	89 3 28
10	87 26 15	85 49 16	84 12 31	82 36 0	80 59 42	79 23 39	77 47 49	76 12 13
11	74 36 50	73 1 42	71 26 47	69 52 6	68 17 38	66 43 23	65 9 22	63 35 34
12	62 1 59	60 28 37	58 55 29	57 22 33	55 49 50	54 17 20	52 45 2	51 12 58
13	49 41 5	48 9 25	46 37 58	45 6 43	43 35 40	42 4 49	40 34 10	39 3 43
14	37 33 29	36 3 26	34 33 35	33 3 56	31 34 28	30 5 13	28 36 9	27 7 17
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
19 W	20 9 21	21 32 26	22 55 23	24 18 14	25 40 57	27 3 34	28 26 5	29 48 29
20	31 10 47	32 32 59	33 55 6	35 17 7	36 39 4	38 0 56	39 22 44	40 44 28
21	42 6 8	43 27 45	44 49 20	46 10 52	47 32 22	48 53 50	50 15 17	51 36 44
22	52 58 10	54 19 37	55 41 4	57 2 32	58 24 1	59 45 33	61 7 7	62 28 45
23	63 50 26	65 12 11	66 34 1	67 55 56	69 17 57	70 40 4	72 2 18	73 24 39
24	74 47 8	76 9 46	77 32 33	78 55 30	80 18 37	81 41 54	83 5 23	84 29 4
25	85 52 58	87 17 5	88 41 25	90 6 0	91 30 50	92 55 56	94 21 17	95 46 55
26	97 12 50	98 39 3	100 5 34	101 32 24	102 59 33	104 27 2	105 54 52	107 23 2
27	108 51 33	110 20 27	111 49 42	113 19 20	114 49 21	116 19 45	117 50 33	119 21 45
28	120 53 22	122 25 23	123 57 49	125 30 40	127 3 57	128 37 39	130 11 47	131 46 20

The Sun's Rising and Setting, and the Moon's Rising, Southing, and Setting are given, for Latitude 54° 10′ N., and Longitude 4° 30′ W.

The Moon's Declination is given to the nearest minute for her transit over the meridian of Greenwich.

PHASES OF THE MOON.
- FULL MOON, 1st day, at 11h. 30m. night.
- LAST QUARTER, 8th day, at 1h. 52m. afternoon.
- NEW MOON, 16th day, at 7h. 36m. morning.
- FIRST QUARTER, 24th day, at 10h. 31m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M n.
1	no real ni. this mon.	no real ni. this mon.	15 48	9 a 36	1 a 7	11a30	2 a 52	11a24	2 a 55	2 m 4	8 a 28	1 m42	7 a 20	1
8			15 47	8 45	0 32	11 24	2 58	11 8	2 45	1 36	8 0	1 14	6 53	8
15			15 47	rises.	11 m49	11 14	3 3	10 52	2 36	1 8	7 32	0 47	6 26	15
22			15 46	3 m17	11 10	11 1	3 7	10 35	2 27	0 40	7 5	0 20	5 59	22
29			15 46	2 48	10 44	10 46	3 9	10 17	2 17	0 13	6 38	11a49	5 32	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	M	Nicomede, Martyr	10 35	16 10	10 57	17 7	2 32
2	Tu	Antares souths 11 a 37	11 23	17 9	11 45	18 6	2 23
3	W	W. Harvey died, 1657	— —	— —	0 10	18 3	2 14
4	Th	Corpus Christi.	0 34	18 11	0 59	18 0	2 4
5	F	Boniface, Bishop	1 24	18 9	1 50	17 4	1 54
6	S	J. Bentham died, 1832	2 16	18 1	2 43	16 3	1 44
7	D	1 Sun. after Trinity	3 9	17 0	3 37	15 1	1 33
8	M	[Joshua x; Mark viii. — xxiii; 2 Cor. v.	4 5	15 9	4 33	14 0	1 22
9	Tu	Dr. Rees died, 1825	5 3	14 8	5 36	13 3	1 11
10	W	Arcturus souths 8 a 55	6 11	13 11	6 42	12 9	0 59
11	Th	St. Barnabas, Apos.	7 12	13 6	7 44	13 0	0 47
12	F	Trinity Term ends	8 17	13 8	8 46	13 6	0 35
13	S	Regulus sets 11 a 50	9 16	14 0	9 41	14 3	0 23
14	D	2 Sun. after Trinity	10 5	14 5	10 27	14 11	0 10
15	M	Proper Lessons. [Judges iv; Mark xiv. — v; 2 Cor. ii.	10 48	14 10	11 5	15 7	0 3
16	Tu	J. Wesley born, 1703	11 25	15 2	11 44	15 11	0 15
17	W	St. Alban, Martyr	— —	— —	0 2	15 4	0 28
18	Th	Bat. of Waterloo, 1815	0 21	16 2	0 39	15 4	0 41
19	F	Magna Charta, 1215	0 55	16 2	1 13	15 2	0 54
20	S	Queen's Accession	1 31	16 0	1 48	14 10	1 7
21	D	3 Sun. after Trinity	2 7	15 7	2 26	14 5	1 20
22	M	Proper Lessons. [1 Samuel ii; Luke v. — iii; Galat. v.	2 45	15 1	3 4	13 11	1 33
23	Tu	J. Hampden died, 1643	3 23	14 6	3 45	13 4	1 46
24	W	St. John Baptist	4 7	13 9	4 33	12 10	1 59
25	Th	B. Bannockburn, 1324	5 1	13 3	5 32	12 6	2 12
26	F	Cambridge Term ends	6 5	12 8	6 38	12 7	2 25
27	S	Dr. Dodd execu, 1774	7 12	13 2	7 46	13 3	2 37
28	D	4 Sun. after Trinity	8 20	13 10	8 48	14 6	2 50
29	M	Pro. Les. [1 Saml. xii; Luke xi. — xiii; Ephes. v.	9 20	15 0	9 48	16 0	3 2
30	Tu	St. Peter, Apostle, 29	10 17	16 4	10 42	17 6	3 14

Equation of Time. — Clock after Sun.—Subt. from Apparent Time. Clock before Sun.—Add to Apparent Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
1	6 6	6 31	31 0	3 36	8 19	4 35 21	22 1 49	8 a 8	11a59	21s45	F	1	☾ Eclip. vis.
2	6 59	7 24	32 7	3 34	8 20	4 39 27	22 9 52	9 13	morn	— —	16	2	♄ stationary
3	7 51	8 15	33 6	3 34	8 21	4 43 32	22 17 33	10 2	1 3	21 37	17	3	*Fair*
4	8 39	9 2	33 7	3 33	8 22	4 47 39	22 24 51	10 40	2 5	19 48	18	4	*and*
5	9 26	9 50	32 8	3 33	8 23	4 51 45	22 31 44	11 10	3 5	16 33	19	5	*warm*
6	10 13	10 36	31 4	3 32	8 24	4 55 52	22 38 15	11 33	4 1	12 13	20	6	*weather*
7	11 0	11 25	29 1	3 32	8 25	5 0 0	22 44 21	11 53	4 54	7 14	21	7	*may be*
8	11 50	— —	26 9	3 31	8 26	5 4 7	22 50 4	morn	5 44	1 59	22	8	*expected.*
9	0 15	0 43	24 8	3 31	8 27	5 8 15	22 55 23	0 12	6 32	3N13	23	9	♂ gr. H. L. N.
10	1 14	1 43	23 10	3 30	8 28	5 12 23	23 0 17	0 30	7 19	8 8	24	10	*Showery*
11	2 20	3 0	24 5	3 30	8 29	5 16 32	23 4 47	0 50	8 6	12 32	25	11	☿ in Aphelion
12	3 38	4 10	25 6	3 29	8 30	5 20 41	23 8 53	1 13	8 53	16 16	26	12	*if not*
13	4 40	5 6	26 5	3 29	8 31	5 24 50	23 12 35	1 40	9 42	19 8	27	13	☿ in inf. ☌ ☉
14	5 32	5 56	27 3	3 29	8 31	5 28 59	23 15 52	2 15	10 31	21 2	28	14	*rainy*
15	6 20	6 39	27 10	3 28	8 32	5 33 8	23 18 44	3 3	11 21	21 52	29	15	☿ ☌ ♅, 11 a 19
16	7 1	7 22	28 1	3 28	8 32	5 37 17	23 21 11	sets.	0a10	21 37	N	16	♅ ☌ ☾, 0 m 20
17	7 41	8 2	28 6	3 28	8 32	5 41 27	23 23 14	9a10	0 58	20 20	1	17	*weather*
18	8 28	8 35	28 7	3 28	8 33	5 45 36	23 24 52	9 38	1 45	18 7	2	18	*now*
19	8 52	9 9	28 6	3 28	8 33	5 49 46	23 26 6	10 2	2 30	15 6	3	19	☌ ☌ ☾, 2 a 56
20	9 24	9 41	27 11	3 28	8 33	5 53 56	23 26 54	10 22	3 14	11 26	4	20	*about*
21	9 59	10 15	27 3	3 28	8 34	5 58 5	23 27 18	10 40	3 57	7 16	5	21	☉ enters ♋
22	10 31	10 47	26 7	3 28	8 34	6 2 15	23 27 17	10 56	4 40	2 45	6	22	[Sum. com.
23	11 6	11 26	25 4	3 29	8 34	6 6 24	23 26 51	11 12	5 23	1s58	7	23	*the*
24	11 49	— —	24 2	3 29	8 34	6 10 34	23 26 1	11 40	6 7	6 43	8	24	♄ ☌ ☾, 10 m 22
25	0 13	0 39	22 11	3 29	8 34	6 14 43	23 24 46	11 51	6 54	11 19	9	25	♃ ☌ ☾, 6 a 41
26	1 8	1 38	22 11	3 30	8 34	6 18 52	23 23 6	morn	7 45	15 28	10	26	*latter*
27	2 19	3 1	24 6	3 30	8 34	6 23 1	23 21 1	0 17	8 40	18 52	11	27	*end*
28	3 41	4 12	26 11	3 31	8 34	6 27 10	23 18 32	0 50	9 39	21 8	12	28	*of*
29	4 45	5 14	29 5	3 31	8 34	6 31 19	23 15 38	1 34	10 42	21 53	13	29	*the*
30	5 45	6 14	31 6	3 32	8 34	6 35 27	23 12 20	2 31	11 45	20 57	14	30	*month.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
5E	130 39 30	128 56 38	127 14 3	125 31 45	123 49 45	122 8 3	120 26 40	118 45 36
6	117 4 51	115 24 26	113 44 21	112 4 35	110 25 11	108 46 7	107 7 23	105 29 0
7	103 50 58	102 13 17	100 35 57	98 58 57	97 22 19	95 46 1	94 10 3	92 34 26
8	90 59 10	89 24 13	87 49 37	86 15 20	84 41 23	83 7 46	81 34 28	80 1 28
9	78 28 48	76 56 25	75 24 21	73 52 35	72 21 7	70 49 55	69 19 1	67 48 24
10	66 18 3	64 47 58	63 18 9	61 48 36	60 19 17	58 50 14	57 21 26	55 52 51
11	54 24 31	52 56 25	51 28 32	50 0 52	48 33 26	47 6 12	45 39 10	44 12 21
12	42 45 43	41 19 18	39 53 3	38 27 0	37 1 8	35 35 27	34 9 56	32 44 36
13	31 19 26	29 54 25	28 29 35	27 4 55	25 40 25	24 16 4	22 51 53	21 27 52
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
18W	24 2 31	25 23 50	26 45 10	28 6 29	29 27 49	30 49 10	32 10 32	33 31 54
19	34 53 18	36 14 44	37 36 12	38 57 42	40 19 14	41 40 50	43 2 28	44 24 10
20	45 45 57	47 7 48	48 29 43	49 51 44	51 13 50	52 36 3	53 58 22	55 20 48
21	56 43 22	58 6 3	59 28 53	60 51 51	62 14 59	63 38 17	65 1 45	66 25 24
22	67 49 14	69 13 16	70 37 30	72 1 57	73 26 38	74 51 32	76 16 41	77 42 5
23	79 7 45	80 33 40	81 59 52	83 26 22	84 53 8	86 20 13	87 47 37	89 15 20
24	90 43 22	92 11 45	93 40 28	95 9 33	96 38 59	98 8 47	99 38 58	101 9 31
25	102 40 28	104 11 49	105 43 34	107 15 43	108 48 17	110 21 16	111 54 40	113 28 30
26	115 2 45	116 37 27	118 12 34	119 48 8	121 24 8	123 0 35	124 37 28	126 14 47
27	127 52 33	129 30 44	131 9 22	132 48 25	134 27 53	136 7 46	137 48 4	139 28 46

THE MOON'S SEMI-DIAMETER is given to the nearest second for Greenwich mean noon and midnight on page 26, and the HORIZONTAL PARALLAX on page 27.

THE LUNAR DISTANCES FROM THE SUN are given with a view to assist those who may not have an opportunity of using the Nautical Almanack, and are given for every three hours of Greenwich astronomical mean time. As the rest of the Almanack is adapted to CIVIL time, this distinction must be kept in mind; the *Civil*

PHASES OF THE MOON.

Full Moon,	1st day, at	6h. 46m. morning.
Last Quarter,	7th day, at	10h. 28m. night.
New Moon,	15th day, at	10h. 54m. night.
First Quarter,	23rd day, at	9h. 32m. evening.
Full Moon,	30th day, at	1h. 33m. afternoon.

M D.	Day brek.	Twil end.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus* sets.	♀ *Venus* sout.	♂ *Mars.* sets.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 46	2m41	10m39	10a41	3 a 9	10a11	2 a 14	0 m 7	6 a 31	11a40	5 a 25	1
8			15 46	2 23	10 34	10 22	3 9	9 52	2 4	11a34	6 5	11 14	4 59	8
15			15 46	2 21	10 45	10 2	3 8	9 33	1 54	11 8	5 39	10 47	4 33	15
22			15 47	2 42	11 11	9 41	3 4	9 13	1 43	10 41	5 14	10 20	4 7	22
29			15 47	3 26	11 45	9 17	2 59	8 53	1 33	10 14	4 49	9 53	3 42	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	W	Bat. of Boyne, 1690	11 9	17 6	11 34	18 10	3 25
2	Th	Sir R. Peel died, 1850	11 59	18 2	— —	— —	3 37
3	F	Dog Days begin	0 24	19 6	0 50	18 5	3 48
4	S	Trans. St. Martin	1 14	19 6	1 38	18 1	3 59
5	D	5 Sun. after Trinity	2 3	18 11	2 28	17 2	4 9
6	M	Proper Lessons. [1 Sam. xv; Luke xvii. — xvii; Coloss. i.	2 53	17 10	3 17	16 0	4 20
7	Tu	Old Midsum. Day, 6th	3 40	16 5	4 3	14 8	4 30
8	W	Lyra souths 1 m 28	4 28	14 11	4 54	13 5	4 39
9	Th	Sheridan died, 1816	5 23	13 6	5 58	12 7	4 49
10	F	Columbus born, 1447	6 34	12 6	7 8	12 3	4 58
11	S	Oxford Term ends	7 41	12 2	8 17	12 5	5 6
12	D	6 Sun. after Trinity	8 50	12 5	9 19	13 2	5 14
13	M	Proper Lessons. [2 Samuel xii; Luke xxiv. — xix; 1 Thess. iv.	9 47	13 1	10 11	14 2	5 22
14	Tu	Bastile destroyed, 1789	10 33	13 10	10 52	15 0	5 29
15	W	Swithin, Bishop	11 11	14 6	11 29	15 8	5 36
16	Th	Sir J. Reynolds born	11 46	15 1	— —	— —	5 42
17	F	Dr. Watts born, 1674	0 1	16 4	0 17	15 7	5 48
18	S	Dr. Hooke born, 1635	0 34	16 8	0 51	15 10	5 53
19	D	7 Sun. after Trinity	1 7	16 10	1 26	15 10	5 57
20	M	[2 Samuel xxi; John vii. — xxiv; 1 Tim. iv.	1 42	16 8	1 58	15 8	6 1
21	Tu	Ld. Russel behd. 1683	2 15	16 3	2 34	15 3	6 5
22	W	St. Mary Magdalene	2 53	15 7	3 12	14 7	6 8
23	Th	R. Burns died, 1796	3 33	14 9	3 56	13 9	6 10
24	F	Gibraltar taken 1804	4 20	13 9	4 48	13 1	6 12
25	S	St. James, Apostle	5 22	12 11	5 58	12 8	6 13
26	D	8 Sun. after Trinity	6 34	12 6	7 12	12 11	6 14
27	M	Proper Lessons. [1 Kings xiii; John xiv. — xvii; Titus i.	7 53	13 1	8 31	14 1	6 14
28	Tu	Wilberforce died 1833	9 5	14 3	9 35	15 10	6 13
29	W	Pleiades rises 0 m 37	10 5	15 10	10 34	17 7	6 12
30	Th	Cook's first voy. 1768	11 0	17 5	11 24	19 2	6 10
31	F	Igna. Loyola d. 1556	11 49	18 6	— —	— —	6 7

Clock before the Sun.—Add to Apparent Time.—Subtract from Mean Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	heigh F. I.	SUN. rises. H M	sets. H M	rt. asc. H. M. S.	declin. ° ′ ″	N.	MOON. rises. H. M.	souths H. M.	declin. ° ′	age	M D.	ASPECTS AND WEATHER.
1	6 44	7 11	32 5	3 33	8 33	6 39 36	23 8 38		8a35	morn	— —	F	1	☿ gr. H. L. S.
2	7 39	8 5	33 11	3 34	8 33	6 43 44	23 4 31		9 9	0 48	10s21	16	2	*The month*
3	8 31	8 54	34 6	3 35	8 33	6 47 51	23 0 0		9 36	1 48	14 23	17	3	☉ in Apogee
4	9 16	9 39	34 0	3 36	8 32	6 51 59	22 55 5		9 58	2 44	9 31	18	4	*will probably*
5	10 2	10 24	32 8	3 37	8 32	6 56 6	22 49 46		10 18	3 37	4 10	19	5	☿ ☌ ♅, 1 a 2
6	10 44	11 4	30 7	3 38	8 31	7 0 13	22 44 3		10 36	4 27	1N15	20	6	*commence*
7	11 24	11 45	28 0	3 39	8 31	7 4 19	22 37 57		10 55	5 15	6 25	21	7	☿ gr. elon. W.
8	— —	0 8	25 2	3 40	8 30	7 8 26	22 31 26		11 17	6 3	11 6	22	8	*with wet*
9	0 32	1 2	22 10	3 41	8 29	7 12 31	22 24 33		11 43	6 51	15 6	23	9	*weather.*
10	1 35	2 13	21 11	3 42	8 28	7 16 37	22 17 16		morn	7 40	18 16	24	10	*Next fair*
11	2 54	3 37	22 10	3 43	8 27	7 20 42	22 9 36		0 15	8 28	20 29	25	11	♃ □ ☉, 8 m 20
12	4 13	4 43	24 2	3 44	8 26	7 24 47	22 1 33		0 53	9 18	21 40	26	12	*and warm,*
13	5 12	5 37	25 8	3 45	8 25	7 28 51	21 53 7		1 39	10 7	21 47	27	13	♅ ☌ ☾, 9 m 26
14	6 1	6 23	26 3	3 46	8 24	7 32 54	21 44 19		2 32	10 55	20 52	28	14	♂ in Aphelion
15	6 44	7 5	27 3	3 47	8 23	7 36 58	21 35 9		sets.	11 43	18 58	N	15	☾ in Apogee
16	7 23	7 39	28 3	3 49	8 22	7 41 0	21 25 36		8 a 8	0a29	16 13	1	16	*which*
17	7 58	8 15	29 1	3 50	8 20	7 45 3	21 15 42		8 28	1 13	12 46	2	17	*may*
18	8 32	8 47	29 7	3 51	8 19	7 49 4	21 5 25		8 47	1 56	8 46	3	18	☌ ☌ ☾, 10m31
19	9 5	9 19	29 9	3 53	8 18	7 53 6	20 54 48		9 5	2 39	4 22	4	19	*continne*
20	9 34	9 49	29 4	3 54	8 17	7 57 6	20 43 49		9 22	3 21	0s15	5	20	♀ ☌ ☾, 6 m 51
21	10 7	10 23	28 8	3 56	8 15	8 1 6	20 32 30		9 39	4 4	4 57	6	21	♀ gr. elon. E.
22	10 39	10 57	27 6	3 57	8 14	8 5 6	20 20 50		9 57	4 50	9 31	7	22	*with*
23	11 17	11 38	25 10	3 59	8 12	8 9 5	20 8 49		10 18	5 37	13 45	8	23	♃ ☌ ☾, 5 m 5
24	— —	0 3	24 0	4 0	8 11	8 13 3	19 56 29		10 47	6 29	17 24	9	24	*a few*
25	0 32	1 3	22 7	4 2	8 9	8 17 1	19 43 48		11 26	7 24	20 8	10	25	☿ in Perihel.
26	1 35	2 18	23 1	4 3	8 8	8 20 58	19 30 48		morn	8 23	21 37	11	26	*showers.*
27	3 8	3 53	25 10	4 4	8 6	8 24 54	19 17 28		0 15	9 25	21 34	12	27	♀ ☌ tau Leon.
28	4 29	5 0	28 9	4 6	8 4	8 28 50	19 3 50		1 19	10 28	19 52	13	28	*Still*
29	5 32	6 4	31 6	4 8	8 3	8 32 45	18 49 52		2 37	11 29	16 38	14	29	*more*
30	6 33	7 0	32 8	4 9	8 1	8 36 40	18 35 36		rises.	morn	— —	F	30	☾ in Perigee
31	7 27	7 51	34 8	4 11	7 59	8 40 34	18 21 2		8 a 0	0 28	12 11	16	31	*fair.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
4 E	134 18 33	132 36 31	130 54 52	129 13 35	127 32 41	125 52 12	124 12 6	122 32 24
5	120 53 6	119 14 14	117 35 46	115 57 43	114 20 5	112 42 53	111 6 5	109 29 43
6	107 53 45	106 18 13	104 43 5	103 8 22	101 34 3	100 0 9	98 26 39	96 53 32
7	95 20 48	93 48 28	92 16 31	90 44 56	89 13 43	87 42 51	86 12 22	84 42 13
8	83 12 24	81 42 56	80 13 48	78 44 59	77 16 29	75 48 17	74 20 23	72 52 47
9	71 25 28	69 58 26	68 31 40	67 5 10	65 38 56	64 12 56	62 17 11	61 21 40
10	59 56 22	58 31 18	57 6 27	55 41 49	54 17 23	52 53 8	51 29 5	50 5 12
11	48 41 31	47 18 0	45 54 39	44 31 28	43 8 26	41 45 34	40 22 50	39 0 15
12	37 37 49	36 15 31	34 53 22	33 31 21	32 9 28	30 47 43	29 26 6	28 4 38
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
18 W	28 15 41	29 37 24	30 59 17	32 21 19	33 43 29	35 5 48	36 28 17	37 50 54
19	39 13 40	40 36 35	41 59 39	43 22 53	44 46 17	46 9 51	47 33 35	48 57 30
20	50 21 36	51 45 53	53 10 22	54 35 2	55 59 55	57 25 1	58 50 19	60 15 51
21	61 41 36	63 7 36	64 33 50	66 0 19	67 27 3	68 54 3	70 21 20	71 48 53
22	73 16 43	74 44 50	76 13 15	77 41 59	79 11 1	80 40 22	82 10 2	83 40 3
23	85 10 23	86 41 4	88 12 6	89 43 30	91 15 15	92 47 22	94 19 51	95 52 43
24	97 25 58	98 59 36	100 33 37	102 8 2	103 42 50	105 18 3	106 53 39	108 29 40
25	110 6 5	111 42 54	113 20 7	114 57 45	116 35 46	118 14 11	119 53 1	121 32 13
26	123 11 49	124 51 48	126 32 10	128 12 53	129 53 58	131 35 24	133 17 11	134 59 17

day commences at *Midnight*, and the *Astronomical day* at the following *Noon*, being twelve hours later; thus the hours named 15, 18, and 21, on the 9th January, are according to Civil reckoning, 3, 6, and 9 in the morning of the 10th of January, and

PHASES OF THE MOON. LAST QUARTER, 6th day, at 10h. 5m. morning. NEW MOON, 14th day, at 2h. 3m. afternoon. FIRST QUARTER, 22nd day, at 6h. 20m. morning. FULL MOON 28th day, at 8h. 55m. evening.

d	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no	night	15 48	8 a 10	0 a 0	9 a 7	2 a 57	8 a 45	1 a 28	10 a 3	4 a 39	9 a 41	3 a 31	1
8	1m17	10a49	15 49	8 8	0 30	8 42	2 48	8 24	1 17	9 37	4 15	9 15	3 6	8
15	1 52	10 15	15 50	8 1	0 53	8 14	2 37	8 3	1 7	9 11	3 51	8 48	2 41	15
22	2 18	9 45	15 51	7 46	1 9	7 44	2 23	7 42	0 56	8 45	3 28	8 22	2 16	22
29	2 41	9 17	15 53	7 29	1 20	7 13	2 4	7 21	0 45	8 19	3 4	7 55	1 51	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	S	Lammas Day	0 11	20 1	0 33	19 0	6 Clock 4
2	D	9 Sun. after Trinity	0 55	20 3	1 18	18 9	6 ck 0
3	M	Proper Lessons. [1 Kings xviii; John xxi. — xix; Heb. v.	1 40	19 8	2 2	17 11	5 56
4	Tu	Neptune souths 3 m 35	2 25	18 4	2 45	16 8	5 51
5	W	Altair souths 10 a 48	3 6	16 8	3 27	15 2	5 46
6	Th	Transfiguration	3 51	14 9	4 15	13 6	5 40
7	F	Name of Jesus	4 40	12 11	5 10	12 2	5 33
8	S	G. Canning died, 1827	5 49	11 6	6 28	11 5	5 26
9	D	10 Sun. after Trinity	7 7	10 10	7 47	11 7	5 18
10	M	Pro. Less. [1 Kings xxi; Acts vii. — xxii; Heb. xii.	8 24	11 3	8 58	12 5	5 10
11	Tu	Andromeda sou. 2m10	9 24	12 1	9 49	13 6	5 1
12	W	Lyra souths 9 a 9	10 12	13 3	10 32	14 9	4 52
13	Th	Old Lammas Day	10 50	14 5	11 7	15 10	4 42
14	F	Printing invend., 1437	11 24	15 5	11 40	16 9	4 31
15	S	Bonaparte I. b. 1769	11 54	16 3	— —	— —	4 20
16	D	11 Sun. after Trinity	0 9	17 5	0 24	16 8	4 8
17	M	[2 Kings v; Acts xiv. — ix; 1 Peter i.	0 39	17 8	0 57	16 11	3 56
18	Tu	Pleaides rises 9 a 16	1 12	17 7	1 31	16 10	3 44
19	W	Neptune souths 2m35	1 47	17 2	2 6	16 4	3 30
20	Th	R. Bloomfield d., 1823	2 25	16 5	2 42	15 7	3 17
21	F	C. Rumford d., 1814	3 3	15 3	3 24	14 7	3 3
22	S	B.Bosworth field,1485	3 49	14 0	4 14	13 5	2 48
23	D	12 Sun. after Trinity	4 46	12 8	5 28	12 8	2 33
24	M	Proper Lessons. [2 Kings x; Acts xxi. — xviii; 2 Peter iii.	6 12	12 1	6 54	12 10	2 17
25	Tu	Altair souths 9 a 30	7 37	12 7	8 18	14 1	2 1
26	W	Prince Albert b. 1819	8 54	14 0	9 26	15 11	1 45
27	Th	Thomson died, 1748	9 54	15 10	10 22	17 10	1 28
28	F	St. Augustine, Bp.	10 45	17 7	11 7	19 3	1 11
29	S	St. John Baptist bhd.	11 29	18 9	11 49	20 3	0 53
30	D	13 Sun. after Trinity	— —	— —	0 11	19 4	0 35
31	M	Proper Lessons. [2 Kings xix; Acts xxviii. — xxiii; Jude.	0 33	20 4	0 54	19 1	0 17

Equation of Time. Clock before Sun.—Add to Apparent Time, or subtract from Mean Time.

M. D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ N.	MOON. rises. H. M.	souths H. M.	declin ° ′	age	M. D.	ASPECTS AND WEATHER
1	8 14	8 35	35 7	4 13	7 57	8 44 28	18 6 9	8a19	1m23	6s57	17	1	*Expect wet*
2	8 58	9 19	35 4	4 15	7 56	8 48 20	17 50 59	8 40	2 16	1 24	18	2	☌ ☌ alph. leo.
3	9 38	9 59	33 9	4 17	7 54	8 52 13	17 35 31	9 2	3 7	4 N 4	19	3	☿ in Sup. ☌ ☉
4	10 17	10 35	31 6	4 18	7 52	8 56 4	17 19 46	9 25	3 57	9 6	20	4	☿ gr. H.L.N.
5	10 52	11 13	28 6	4 20	7 50	8 59 56	17 3 43	9 50	4 46	13 30	21	5	*weather or*
6	11 33	11 55	25 1	4 22	7 48	9 3 46	16 47 25	10 18	5 35	17 4	22	6	*very showery*
7	— —	0 20	21 11	4 24	7 46	9 7 36	16 30 49	10 52	6 25	19 40	23	7	*to begin*
8	0 54	1 29	20 0	4 25	7 44	9 11 25	16 13 58	11 34	7 14	21 13	24	8	*the*
9	2 11	2 59	20 6	4 27	7 42	9 15 14	15 56 51	morn	8 4	21 43	25	9	♅ ☌ ☾, 6 a 8
10	3 44	4 21	22 6	4 29	7 40	9 19 2	15 39 28	0 27	8 52	21 10	26	10	*month.*
11	4 48	5 14	24 5	4 31	7 38	9 22 50	15 21 56	1 26	9 40	19 37	27	11	☾ in Apogee
12	5 38	6 0	26 4	4 32	7 36	9 26 37	15 3 58	2 29	10 26	17 10	28	12	*Now*
13	6 21	6 40	27 4	4 34	7 34	9 30 24	14 45 51	3 33	11 11	13 58	29	13	*more*
14	7 0	7 17	28 10	4 36	7 32	9 34 10	14 27 30	sets.	11 55	10 9	N	14	*changeable.*
15	7 33	7 49	30 2	4 38	7 30	9 37 55	14 8 55	7a13	0a38	5 53	1	15	☿ ☌ ☾, 10 a 3
16	8 5	8 20	31 0	4 40	7 28	9 41 40	13 50 6	7 29	1 21	1 19	2	16	☌ ☌ ☾, 4 m 55
17	8 37	8 51	31 5	4 41	7 25	9 45 25	13 31 5	7 46	2 4	3s21	3	17	♀ ☌ ♄, 0 a 52
18	9 9	9 23	31 2	4 43	7 23	9 49 9	13 11 50	8 5	2 48	7 57	4	18	♄ ☌ ☾, 5 m 44
19	9 41	9 59	30 4	4 45	7 21	9 52 52	12 52 23	8 27	3 35	12 16	5	19	♅ ☌ ☾, 5 a 11
20	10 14	10 31	29 0	4 47	7 18	9 56 35	12 32 44	8 53	4 24	16 3	6	20	*Still*
21	10 49	11 10	26 11	4 49	7 16	10 0 17	12 11 53	9 25	5 17	19 3	7	21	☿ ☌, sig. leo.
22	11 32	11 59	24 5	4 50	7 14	10 3 59	11 52 51	10 7	6 12	20 59	8	22	*showery.*
23	— —	0 36	22 4	4 52	7 11	10 7 41	11 32 37	11 3	7 11	21 35	9	23	♀ at grt. bri.
24	1 14	1 57	22 5	4 54	7 9	10 11 22	11 12 12	morn	8 11	20 41	10	24	♀ in Aphelion
25	2 49	3 38	25 3	4 55	7 7	10 15 2	10 51 37	0 13	9 11	18 16	11	25	*Inclined*
26	4 18	4 51	28 8	4 57	7 4	10 18 42	10 30 52	1 33	10 10	14 30	12	26	*to wet.*
27	5 20	5 51	31 10	4 59	7 2	10 22 22	10 9 56	2 59	11 6	9 43	13	27	☿ in ♍ 10 a 35
28	6 17	6 42	33 2	5 0	7 0	10 26 1	9 48 51	rises.	morn	— —	F	28	*Fair*
29	7 5	7 28	35 2	5 2	6 57	10 29 40	9 27 37	6a44	0 1	4 20	15	29	*and*
30	7 52	8 14	36 0	5 4	6 55	10 33 19	9 6 13	7 4	0 54	1s13	16	30	*warm.*
31	8 34	8 53	35 6	5 6	6 53	10 36 57	8 44 40	7 26	1 45	6 34	17	31	♄ ☌ eta. virgi.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
2E	138 44 46	137 5 15	135 26 8	133 47 24	132 9 5	130 31 10	128 53 41	127 16 36
3	125 39 57	124 3 44	122 27 56	120 52 34	119 17 39	117 43 9	116 9 5	114 35 26
4	113 2 13	111 29 25	109 57 3	108 25 5	106 53 31	105 22 22	103 51 37	102 21 16
5	100 51 17	99 51 41	97 52 28	96 23 37	94 55 7	93 26 59	91 59 11	90 31 42
6	89 4 34	87 37 45	86 11 14	84 45 2	83 19 7	81 53 29	80 28 8	79 3 3
7	77 38 13	76 13 38	74 49 18	73 25 12	72 1 19	70 37 39	69 14 12	67 50 56
8	66 27 52	65 4 59	63 42 17	62 19 44	60 57 21	59 35 7	58 13 2	56 51 4
9	55 29 15	54 7 33	52 45 58	51 24 29	50 3 7	48 41 51	47 20 40	45 59 34
10	44 38 34	43 17 38	41 56 46	40 35 59	39 15 16	37 54 37	36 34 2	35 13 31
11	33 53 4	32 32 41	31 12 22	29 52 8	28 31 59	27 11 55	25 51 58	24 32 8
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
16W	21 58 6	23 20 40	24 43 36	26 6 52	27 30 27	28 54 19	30 18 28	31 42 53
17	33 7 33	34 32 28	35 57 37	37 23 1	38 48 39	40 14 30	41 40 36	43 6 56
18	44 33 29	46 0 16	47 27 17	48 54 32	50 22 2	51 49 45	53 17 43	54 45 56
19	56 14 23	57 43 5	59 12 3	60 41 15	62 10 44	63 40 28	65 10 28	66 40 44
20	68 11 16	69 42 6	71 13 12	72 44 35	74 16 15	75 48 13	77 20 29	78 53 3
21	80 25 55	81 59 5	83 32 34	85 6 21	86 40 27	88 14 53	89 49 37	91 24 41
22	93 0 4	94 35 46	96 11 48	97 48 10	99 24 51	101 1 51	102 39 12	104 16 51
23	105 54 50	107 33 8	109 11 46	110 50 42	112 29 57	114 9 30	115 49 21	117 29 30
24	119 19 56	120 50 40	122 31 39	124 12 55	125 54 26	127 36 11	129 18 11	131 0 23

in any other part of the Almanack would be set down as such. The letters E. and W. inserted in the first column refer to the position of the Sun; E. East, W. West

The Planets

Mercury [☿] will be visible in the mornings about the 8th March, 7th July, and

PHASES OF THE MOON.
- Last Quarter, 5th day, at 1h. 9m. morning.
- New Moon, 13th day, at 4h. 42m. morning.
- First Quarter, 20th day, at 1h. 33m. afternoon.
- Full Moon, 27th day, at 6h. 2m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. sets.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	2m52	9 a 6	15 54	7 a 20	1 a 24	6 a 59	1 a 55	7 a 12	0 a 40	8 a 8	2 a 55	7 a 44	1 a 41	1
8	3 10	8 44	15 55	7 0	1 29	6 24	1 28	6 51	0 29	7 42	2 32	7 18	1 16	8
15	3 27	8 21	15 57	6 37	1 29	5 49	0 55	6 30	0 18	7 17	2 10	6 51	0 52	15
22	3 45	8 0	15 59	6 13	1 21	rises.	0 16	rises.	0 7	6 52	1 47	6 25	0 27	22
29	3 58	7 40	16 1	5 46	1 2	6 m24	11 m33	6 m 3	11 m56	6 27	1 25	5 58	0 3	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Tu	Giles, Abbot	1 14	19 7	1 34	18 3	0 2
2	W	Lyra souths, 7 a 46	1 54	18 3	2 14	16 11	0 21
3	Th	Cromwell died, 1658	2 35	16 5	2 54	15 4	0 40
4	F	John Horne d., 1808	3 14	14 6	3 37	13 8	0 59
5	S	Aldebaran rises 9 a 49	4 3	12 6	4 32	12 1	1 19
6	D	14 Sun. after Trinity	5 5	10 11	5 44	11 1	1 39
7	M	Proper Lessons. [Jeremiah v; Mat. vii. — xxii; Rom. vii.	6 26	10 2	7 9	11 1	1 59
8	Tu	Nativity B. V. Mary	7 49	10 6	8 26	11 10	2 19
9	W	Altair souths 8 a 31	8 57	11 7	9 21	13 3	2 39
10	Th	Tea first import. 1391	9 43	13 0	10 4	14 8	3 0
11	F	Mahomed born, 569	10 23	14 5	10 39	16 0	3 20
12	S	Day 12h. 55m. long	10 55	15 8	11 11	17 1	3 41
13	D	15 Sun. aft. Trinity	11 25	16 8	11 38	17 8	4 2
14	M	Proper Lessons. [Jere. xxxv; Matt. xiv. — xxxvi; Rom. xiv.	11 55	17 4	—	—	4 23
15	Tu	Neptune souths 0m47	0 11	18 2	0 29	17 8	4 44
16	W	James II died, 1701	0 45	18 1	1 2	17 7	5 5
17	Th	Lambert, Bishop	1 20	17 7	1 38	17 1	5 26
18	F	Geo. I and II landed	1 59	16 8	2 20	16 2	5 47
19	S	Battle Poictiers, 1356	2 42	15 6	3 3	15 1	6 8
20	D	16 Sun. after Trinity	3 29	13 11	3 56	13 9	6 29
21	M	Proper Lessons. [Ezekiel ii; Matt. xxi. — xiii; 1 Cor. v.	4 32	12 7	5 14	12 10	6 50
22	Tu	St. Matthew, Ap. 21st	6 0	11 10	6 45	13 0	7 11
23	W	Arietes souths 1 m 53	7 27	12 7	8 8	14 4	7 32
24	Th	Charles I. dethroned	8 43	14 0	9 10	16 1	7 53
25	F	Porson died, 1808	9 37	15 10	10 1	17 10	8 14
26	S	St. Cyprian, Abp.	10 25	17 6	10 45	19 1	8 34
27	D	17 Sun. after Trinity	11 6	18 6	11 27	19 9	8 55
28	M	Proper Lessons. [Ezekiel xiv; Matt. xxviii. — xviii; 1 Cor. xii.	11 47	19 0	—	—	9 15
29	Tu	St. Michael	0 5	19 8	0 26	18 10	9 35
30	W	St. Jerome	0 46	18 11	1 7	18 1	9 54

Clock after Apparent Noon.

Apparent from Mean.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
1	9 11	9 30	33 10	5 8	6 51	10 40 35	8 22 59	7a52	2m36	11N23	18	1	*Fair and mild for some days.*
2	9 48	10 7	31 5	5 10	6 48	10 44 13	8 1 10	8 22	3 27	15 25	19	2	☿ ☌ ♄, 10m4
3	10 22	10 39	28 6	5 12	6 46	10 47 50	7 39 13	8 56	4 17	18 29	20	3	♅ ☌ ☾, 2 m 4
4	10 58	11 21	25 0	5 14	6 43	10 51 27	7 17 9	9 34	5 8	20 30	21	4	*Now*
5	11 47	— —	21 7	5 16	6 40	10 55 4	6 54 57	10 19	5 58	21 25	22	5	☿ ☌ ♀, 11m2
6	0 14	0 49	19 1	5 18	6 38	10 58 41	6 32 38	11 15	6 47	21 15	23	6	*expect showery if not rainy*
7	1 27	2 14	19 2	5 20	6 36	11 2 17	6 10 13	morn	7 35	20 4	24	7	
8	3 3	3 47	21 3	5 21	6 33	11 5 54	5 47 41	0 18	8 22	17 58	25	8	
9	4 20	4 45	23 11	5 23	6 31	11 9 30	5 25 4	1 22	9 8	15 3	26	9	
10	5 8	5 30	26 5	5 25	6 28	11 13 6	5 2 20	2 29	9 52	11 29	27	10	
11	5 51	6 9	27 6	5 26	6 26	11 16 42	4 39 32	3 37	10 35	7 23	28	11	
12	6 27	6 46	29 5	5 28	6 23	11 20 18	4 16 39	4 47	11 19	2 55	29	12	
13	7 1	7 16	31 0	5 30	6 21	11 23 53	3 53 42	sets.	0 a 2	1s44	N	13	♂ ☌ ☾, 10 a 2
14	7 34	7 52	32 0	5 31	6 18	11 27 29	3 30 40	6a12	0 47	6 23	1	14	♄ ☌ ☾, 5 a 1
15	8 10	8 25	32 6	5 33	6 16	11 31 4	3 7 35	6 34	1 33	10 49	2	15	*weather,*
16	8 41	8 58	32 3	5 35	6 13	11 34 40	2 44 26	7 0	2 22	14 48	3	16	☿ gr. elon. E
17	9 14	9 34	31 3	5 37	6 11	11 38 15	2 21 13	7 29	3 14	18 2	4	17	♀ ☌ ♄, 8m3
18	9 53	10 11	29 9	5 38	6 8	11 41 51	1 57 59	8 7	4 8	20 17	5	18	♅ □ ☉, 0 a 1
19	10 29	10 51	27 6	5 40	6 6	11 45 26	1 34 41	8 57	5 5	21 18	6	19	*which*
20	11 14	11 46	24 8	5 42	6 3	11 49 2	1 11 22	10 2	6 3	20 55	7	20	*may continue*
21	— —	0 22	22 5	5 44	6 1	11 52 37	0 48 1	11 16	7 1	19 7	8	21	*more*
22	1 2	1 48	22 6	5 46	5 58	11 56 13	0 24 39	morn	7 58	16 1	9	22	☉ ent ♎
23	2 40	3 28	25 6	5 48	5 56	11 59 50	0 1 16	0 36	8 54	11 48	10	23	[Aut. com
24	4 6	4 34	28 10	5 50	5 53	12 3 24	0s22 8	2 0	9 48	6 50	11	24	*or less to*
25	5 3	5 29	31 10	5 52	5 51	12 7 0	0 45 33	3 25	10 40	1 28	12	25	*the end of*
26	5 55	6 18	33 1	5 54	5 48	12 10 36	1 8 58	4 49	11 32	3N55	13	26	
27	6 42	7 4	34 7	5 56	5 46	12 14 12	1 32 22	rises.	morn	— —	F	27	☿ gr. H.L.S
28	7 26	7 46	35 3	5 57	5 43	12 17 49	1 55 46	5a52	0 23	9 0	15	28	♀ in inf. ☌ ☉
29	8 7	8 26	34 7	5 59	5 41	12 21 25	2 19 9	6 20	1 14	13 26	16	29	☿ stationary
30	8 47	9 2	33 1	6 1	5 39	12 25 2	2 42 31	6 53	2 6	17 0	17	30	*the month.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1E	131 39 40	130 6 39	128 34 2	127 1 48	125 29 57	123 58 30	122 27 26	120 56 46
2	119 26 28	117 56 34	116 27 2	114 57 52	113 29 4	112 0 38	110 32 33	109 4 49
3	107 37 25	106 10 22	104 43 38	103 17 13	101 51 6	100 25 18	98 59 48	97 34 35
4	96 9 38	94 44 57	93 20 32	91 56 22	90 32 26	89 8 44	87 45 16	86 22 0
5	84 58 57	83 36 5	82 13 24	80 50 53	79 28 33	78 6 22	76 44 20	75 22 26
6	74 0 39	72 39 0	71 17 28	69 56 1	68 34 40	67 13 24	65 52 13	64 31 5
7	63 10 1	61 49 0	60 28 1	59 7 5	57 46 10	56 25 16	55 4 23	53 43 30
8	52 22 38	51 1 44	49 40 50	48 19 55	46 58 58	45 38 0	44 16 59	42 55 56
9	41 34 51	40 13 43	38 52 32	37 31 18	36 10 1	34 48 41	33 27 19	32 5 53
10	30 44 25	29 22 55	28 1 24	26 39 52	25 18 20	23 56 49	22 35 21	21 13 57
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
15W	27 11 54	28 40 7	30 8 40	31 37 30	33 6 38	34 36 2	36 5 42	37 35 38
16	39 5 49	40 36 14	42 6 54	43 37 48	45 8 56	46 40 17	48 11 53	49 43 42
17	51 15 44	52 47 59	54 20 28	55 53 9	57 26 4	58 59 12	60 32 33	62 6 7
18	63 39 54	65 13 54	66 48 7	68 22 33	69 57 12	71 32 3	73 7 8	74 42 25
19	76 17 55	77 53 39	79 29 35	81 5 43	82 42 5	84 18 39	85 55 26	87 32 26
20	89 9 38	90 47 3	92 24 40	94 2 29	95 40 31	97 18 44	98 57 10	100 35 47
21	102 14 35	103 53 35	105 32 46	107 12 8	108 51 40	110 31 22	112 11 15	113 51 16
22	115 31 27	117 11 47	118 52 15	120 32 50	122 13 33	123 54 23	125 35 19	127 16 21
23	128 57 27	130 38 39	132 19 53	134 1 11	135 42 30	137 23 51	139 5 12	140 46 33
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
30E	138 51 10	137 21 24	135 51 57	134 22 49	132 54 1	131 25 32	129 57 23	128 29 33

26th October—the times of its greatest western elongation; and in the evenings about the 25th January, 19th May, and 16th September, when at its greatest eastern elongation. The most favourable time for observation will be at the elongation in January.

PHASES OF THE MOON.
- Last Quarter, 4th day, at 7h. 21m. evening.
- New Moon, 12th day, at 6h. 42m. evening.
- First Quarter, 19th day, at 8h. 6m. evening.
- Full Moon, 26th day, at 5h. 55m. evening.

M D.	Day brek.	Twil. end.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	4 m 3	7 a 36	16 1	5 a 38	0 a 53	6 m 8	11 m21	6 m 3	11 m53	6 a 20	1 a 19	6 m 0	11 m56	1
8	4 18	7 19	16 3	rises.	0 7	5 15	10 42	6 3	11 42	5 55	0 57	5 38	11 31	
15	4 30	7 0	16 5	5 m44	11 a14	4 28	10 9	6 2	11 31	5 30	0 35	5 15	11 7	15
22	4 44	6 46	16 7	4 56	10 43	3 53	9 43	6 2	11 21	5 5	0 13	4 51	10 43	22
29	4 56	6 31	16 9	5 1	10 38	3 29	9 23	6 2	11 11	4 40	11 m52	4 27	10 18	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	Th	Cambridge T. begins	1 25	17 7	1 44	16 11	10 14 Clock after
2	F	F. Arago died, 1853	2 4	16 0	2 23	15 6	10 33
3	S	R. Barclay died, 1690	2 44	14 2	3 5	13 11	10 52
4	D	18 Sun. after Trinity	3 28	12 5	3 54	12 4	11 10 Sun
5	M	Proper Lessons. [Ezekiel xx; Mark vii. — xxiv; 2 Cor. iii.	4 25	10 11	5 0	11 3	11 28 Subtract from Apparent Time,
6	Tu	Faith, V. & M.	5 42	10 2	6 21	11 1	11 46
7	W	☿ souths 4 m 37	7 0	10 4	7 41	11 8	12 3
8	Th	Dr. Kippis died, 1795	8 14	11 5	8 44	12 11	12 20
9	F	St. Denys, Archbishop	9 7	12 10	9 26	14 6	12 36
10	S	Oxford Term begins	9 44	14 3	10 4	15 9	12 52
11	D	19 Sun. after Trinity	10 22	15 8	10 39	16 11	13 8
12	M	Pro. Less. [Daniel iii; Mark xv. — vi; 2 Cor. xi.	10 54	16 9	11 12	17 9	13 23
13	Tu	Trans. King Edward	11 27	17 7	11 43	18 3	13 37
14	W	Pleiades rises 5 a 34	— —	— —	0 3	18 1	13 51
15	Th	Virgil born, B.C. 70	0 20	18 3	0 39	18 1	14 5 Add to Mean Time.
16	F	Battle of Leipsic, 1813	0 59	17 9	1 20	17 7	14 17
17	S	Ethelreda, V. Q.	1 41	16 11	2 5	16 9	14 30
18	D	20 Sun. after Trinity	2 28	15 7	2 54	15 7	14 42
19	M	Pro. Les. [Joel ii; Luke iv. Micah vi; Gala. iv.	3 22	14 3	3 52	14 4	14 53
20	Tu	Neptune souths 10a22	4 27	12 9	5 6	13 5	15 3
21	W	Battle Trafalgar, 1805	5 50	12 2	6 32	13 6	15 13
22	Th	Dr. Arnold died, 1802	7 12	12 9	7 50	14 5	15 22
23	F	R. Exch. found. 1667	8 21	14 0	8 49	15 10	15 31
24	S	Chaucer died, 1400	9 15	15 6	9 41	17 1	15 39
25	D	21 Sun. after Trinity	10 5	16 9	10 27	18 0	15 46
26	M	Proper Lessons. [Haba. ii; Luke ii. Prov. i; Ephes. v.	10 46	17 8	11 7	18 5	15 53
27	Tu	Neptune souths 9 a 54	11 25	18 1	11 43	18 5	15 59
28	W	St. Sim. & St. Jude	— —	— —	0 1	18 1	16 4
29	Th	Bristol Riots, 1831	0 21	17 9	0 40	17 7	16 8
30	F	St. Marcellus	1 0	16 10	1 18	16 8	16 12
31	S	All-hallow Eve	1 36	15 7	1 57	15 7	16 15

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	9 20	9 38	30 9	6 3	5 36	12 28 40	3 5 51	7a30	2m58	19N31	18	1	*Now*
2	9 53	10 11	28 2	6 5	5 33	12 32 17	3 29 10	8 14	3 49	20 56	19	2	♄ ☌ ☉, 8 m 2
3	10 29	10 49	25 2	6 7	5 31	12 35 55	3 52 26	9 7	4 39	21 12	20	3	♂ ☌ ♄, 3 m 26
4	11 11	11 38	21 11	6 9	5 28	12 39 33	4 15 40	10 8	5 29	20 25	21	4	*expect*
5	— —	0 8	19 5	6 10	5 26	12 43 11	4 38 50	11 12	6 16	18 40	22	5	*very*
6	0 45	1 21	18 11	6 12	5 23	12 46 50	5 1 57	morn	7 2	16 5	23	6	*changeable*
7	2 6	2 55	20 7	6 14	5 21	12 50 30	5 25 1	0 17	7 47	12 47	24	7	*weather.*
8	3 35	4 7	23 5	6 16	5 19	12 54 9	5 48 0	1 24	8 30	8 55	25	8	*Rain*
9	4 31	4 51	26 2	6 18	5 16	12 57 49	6 10 55	2 32	9 14	4 37	26	9	*or*
10	5 10	5 32	28 5	6 20	5 14	13 1 30	6 33 46	3 42	9 57	0 3	27	10	*probably*
11	5 51	6 11	29 5	6 22	5 11	13 5 12	6 56 31	4 53	10 42	4s37	28	11	♀ ☌ ☾, 3 m 38
12	6 28	6 48	31 1	6 24	5 9	13 8 53	7 19 10	sets.	11 28	9 11	N	12	♄ ☌ ☾, 6 m 36
13	7 5	7 22	32 5	6 25	5 7	13 12 35	7 41 44	5 a 2	0a16	13 23	1	13	♃ ☌ ☾, 11 a 49
14	7 44	8 1	33 0	6 27	5 4	13 16 17	8 4 10	5 35	1 9	16 56	2	14	*sleet.*
15	8 19	8 38	32 10	6 29	5 2	13 20 0	8 26 31	6 13	2 3	19 33	3	15	*Cloudy*
16	8 57	9 16	31 11	6 31	5 0	13 23 44	8 48 44	6 57	3 0	20 57	4	16	☿ in ♌, 0 a 36
17	9 38	9 58	30 3	6 33	4 57	13 27 28	9 10 49	7 53	3 58	20 59	5	17	♀ stationary
18	10 20	10 44	28 3	6 35	4 54	13 31 13	9 32 46	9 3	4 56	19 37	6	18	☿ ☌ ♄, 10 a 20
19	11 10	11 41	25 6	6 37	4 52	13 34 59	9 54 35	10 23	5 53	16 56	7	19	☿ stationary
20	— —	0 14	23 2	6 39	4 50	13 38 44	10 16 15	11 45	6 48	13 9	8	20	*and*
21	0 53	1 33	23 3	6 41	4 48	13 42 31	10 37 46	morn	7 40	8 35	9	21	☿ in Perihel.
22	2 23	3 9	25 8	6 43	4 46	13 46 18	10 59 8	1 7	8 32	3 30	10	22	☿ ☌ ♄, 2 m 45
23	3 43	4 13	28 6	6 45	4 43	13 50 6	11 20 19	2 28	9 22	1N44	11	23	*cold.*
24	4 40	5 7	30 9	6 47	4 41	13 53 55	11 41 21	3 49	10 12	6 50	12	24	*New*
25	5 33	5 58	32 3	6 49	4 39	13 57 44	12 2 11	5 9	11 3	11 29	13	25	*more*
26	6 20	6 43	32 9	6 51	4 37	14 1 34	12 22 51	rises.	11 54	15 25	F	26	☿ gr. elon. W.
27	7 3	7 22	33 2	6 53	4 35	14 5 25	12 43 19	4a48	morn	— —	15	27	*fair*
28	7 42	8 1	32 9	6 55	4 33	14 9 16	13 3 35	5 20	0 46	18 25	16	28	*and*
29	8 19	8 38	31 8	6 57	4 31	14 13 8	13 23 39	6 0	1 38	20 19	17	29	*settled.*
30	8 55	9 11	29 11	6 59	4 29	14 17 1	13 43 30	6 49	2 29	21 5	18	30	♅ ☌ ☾, 7 a 7
31	9 31	9 48	28 0	7 0	4 27	14 20 55	14 3 8	7 50	3 20	20 44	19	31	♃ ☌ ☉, 4 a 48

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ″ ′	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour ° ′ ″
1E	127 2 2	125 34 50	124 7 56	122 41 20	121 15 2	119 49 2	118 23 19	116 57 52
2	115 32 42	114 7 48	112 43 9	111 18 45	109 54 36	108 30 40	107 6 59	105 43 30
3	104 20 13	102 57 9	101 34 16	100 11 33	98 49 1	97 26 39	96 4 25	94 42 20
4	93 20 24	91 58 34	90 36 51	89 15 15	87 53 44	86 32 18	85 10 56	83 49 38
5	82 28 24	81 7 12	79 46 2	78 24 53	77 3 46	75 42 39	74 21 31	73 0 23
6	71 39 13	70 18 1	68 56 47	67 35 30	66 14 9	64 52 44	63 31 14	62 9 40
7	60 47 59	59 26 13	58 4 20	56 42 20	55 20 13	53 57 57	52 35 34	51 13 1
8	49 50 20	48 27 29	47 4 28	45 41 17	44 17 56	42 54 24	41 30 41	40 6 47
9	38 42 42	37 18 25	35 53 56	34 29 15	33 4 23	31 39 20	30 14 5	28 48 38
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
14W	21 14 22	22 47 26	24 20 51	25 54 33	27 28 31	29 2 45	30 37 13	32 11 55
15	33 46 49	35 21 55	36 57 12	38 32 41	40 8 20	41 44 9	43 20 7	44 56 15
16	46 32 31	48 8 55	49 45 28	51 22 8	52 58 56	54 35 51	56 12 52	57 50 1
17	59 27 15	61 4 36	62 42 2	64 19 33	65 57 10	67 34 52	69 12 39	70 50 31
18	72 28 27	74 6 27	75 44 31	77 22 40	79 0 52	80 39 7	82 17 26	83 55 48
19	85 34 13	87 12 41	88 51 11	90 29 44	92 8 19	93 46 56	95 25 35	97 4 16
20	98 42 58	100 21 42	102 0 26	103 39 12	105 17 58	106 56 45	108 35 32	110 14 19
21	111 53 5	113 31 52	115 10 37	116 49 21	118 28 4	120 6 45	121 45 24	123 24 1
22	125 2 35	126 41 7	128 19 34	129 57 58	131 36 18	133 14 34	134 52 44	136 30 49
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
30E	135 31 31	134 6 41	132 42 6	131 17 45	129 53 36	128 29 41	127 5 58	125 42 27
31	124 19 8	122 56 0	121 33 3	120 10 16	118 47 39	117 25 12	116 2 54	114 40 44

VENUS [♀] will be an evening star to the 28th September, then a morning star to the end of the year; its greatest brilliancy as an evening star will be on the 23rd August, and as a morning star on the 5th November.

PHASES OF THE MOON.

Last Quarter,	3rd day, at	3h. 34m. afternoon.
New Moon,	11th day, at	7h. 59m. morning.
First Quarter,	18th day, at	3h. 5m. morning.
Full Moon,	25th day, at	9h. 1m. morning.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5 m 2	6 a 24	16 10	5 m 13	10 m 41	3 m 22	9 m 16	6 m 2	11 m 7	6 m 54	11 m 43	4 m 20	10 m 8	1
8	5 13	6 13	16 11	5 48	10 53	3 11	9 4	6 3	10 57	6 36	11 21	3 57	9 43	8
15	5 24	6 5	16 13	6 29	11 8	3 8	8 56	6 4	10 48	6 18	10 59	3 34	9 18	15
22	5 34	5 58	16 14	7 11	11 24	3 10	8 50	6 5	10 39	6 0	10 38	3 11	8 53	22
29	5 44	5 53	16 15	7 51	11 42	3 17	8 47	6 6	10 30	5 41	10 16	2 47	8 28	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	D	22 Sun. after Trinity	2 18	14 2	2 38	14 4	16 17
2	M	Prov. ii; Heb. xi. to v. 33 & xii to v. 3 — iii; Rev. xix. to v. 17	3 0	12 10	3 21	13 1	16 18
3	Tu	Michael. T. beg., 2nd	3 45	11 7	4 15	12 1	16 18
4	W	Wm. III. land. 1688	4 48	10 10	5 26	11 7	16 18
5	Th	Gunpowder Plot	5 54	10 8	6 39	11 9	16 16
6	F	Leonard, Confessor	7 14	11 5	7 45	13 0	16 14
7	S	1st English Paper, 1665	8 13	12 9	8 39	14 2	16 11
8	D	23 Sun. after Trinity	9 4	14 0	9 25	15 1	16 7
9	M	Proper Lessons. Prov. xi; Luke xxiv. — xii; 1 Thes. iv.	9 46	15 2	10 6	16 3	16 2
10	Tu	P. of Wales born, 9th	10 24	16 5	10 43	17 2	15 57
11	W	St. Martin, Bishop	11 4	17 6	11 22	17 10	15 50
12	Th	Procyon rises 9 a 31	11 40	18 2	— —	— —	15 43
13	F	Britius, Bishop	0 1	18 2	0 21	18 5	15 35
14	S	Leibnitz died, 1716	0 44	17 11	1 7	18 2	15 26
15	D	24 Sun. after Trinity	1 31	17 2	1 55	17 6	15 16
16	M	Proper Lessons. Prov. xiii; John vii. — xiv; 1 Tim. iv.	2 21	16 1	2 47	16 5	15 6
17	Tu	Hugh, Bishop	3 15	14 9	3 42	15 3	14 54
18	W	Capella souths 1 m 20	4 15	13 7	4 51	14 4	14 42
19	Th	Regulus rises 10 a 51	5 27	12 10	6 4	13 11	14 29
20	F	Edmund, King	6 41	12 11	7 18	14 2	14 15
21	S	Princess of Prussia b.	7 53	13 7	8 24	14 10	14 0
22	D	25 Sun. after Trinity	8 51	14 6	9 17	15 8	13 45
23	M	Proper Lessons. Prov. xv; John xiv. — xvi; Titus i.	9 44	15 7	10 8	16 5	13 28
24	Tu	Pleiades souths 11 a 26	10 31	16 6	10 51	16 10	13 11
25	W	Michaelmas Term ends	11 10	17 0	11 28	16 11	12 54
26	Th	Procyon rises 8 a 36	11 46	17 1	— —	— —	12 35
27	F	Aldebaran sou. 0 m 6	0 4	16 7	0 23	17 0	12 16
28	S	St. Andrew, Ap. 30th	0 41	16 2	1 0	16 7	11 56
29	D	Advent Sunday	1 18	15 5	1 36	15 11	11 35
30	M	Proper Lessons. Isaiah i; John xxi. — ii; Heb. v.	1 55	14 7	2 16	15 2	11 14

Equation of Time. Clock after Sun.—Subtract from Apparent Time, or Add to Mean Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height. F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	10 5	10 24	25 9	7 2	4 25	14 24 50	14 22 33	8a55	4m9	19N22	20	1	*Changeable,*
2	10 42	11 2	23 3	7 4	4 23	14 28 45	14 41 44	10 2	4 55	17 6	21	2	☾ in Apogee
3	11 29	11 57	21 2	7 6	4 21	14 32 41	15 0 41	11 9	5 41	14 5	22	3	*but fair*
4	— —	0 31	19 10	7 8	4 19	14 36 38	15 19 23	morn	6 24	10 28	23	4	*and*
5	1 5	1 42	20 4	7 10	4 17	14 40 36	15 37 50	0 17	7 7	6 23	24	5	♀ great. bril.
6	2 34	3 2	23 2	7 12	4 15	14 44 35	15 56 2	1 25	7 50	1 59	25	6	*for the*
7	3 34	4 2	25 9	7 14	4 13	14 48 35	16 13 57	2 34	8 34	2s37	26	7	*season.*
8	4 28	4 50	27 6	7 16	4 11	14 52 35	16 31 37	3 46	9 19	7 13	27	8	♀ ☌ ☾, 1 m 59
9	5 12	5 34	29 7	7 18	4 9	14 56 36	16 49 0	5 1	10 7	11 36	28	9	☿ ☌ ♂, 4 a 53
10	5 54	6 16	30 8	7 20	4 7	15 0 38	17 6 5	6 18	10 58	15 29	29	10	♂ ☌ ☾, 9 m 39
11	6 40	6 59	31 9	7 22	4 5	15 4 41	17 22 53	sets.	11 52	18 34	N	11	♀ in ♐, 5 a 3
12	7 19	7 42	32 10	7 24	4 3	15 8 45	17 39 23	4a49	0a50	20 31	1	12	*Now*
13	8 2	8 24	33 1	7 26	4 2	15 12 50	17 55 35	5 46	1 50	21 5	2	13	☿ ☌ ♃, 8 a 58
14	8 46	9 7	32 7	7 28	4 0	15 16 56	18 11 27	6 55	2 49	20 9	3	14	*expect*
15	9 29	9 52	31 3	7 30	3 59	15 21 2	18 27 1	8 13	3 48	17 49	4	15	☾ in Perigee
16	10 14	10 39	29 5	7 32	3 57	15 25 9	18 42 15	9 33	4 44	14 18	5	16	*some*
17	11 2	11 31	27 0	7 34	3 56	15 29 17	18 57 9	10 55	5 37	9 56	6	17	*stormy*
18	— —	0 2	24 10	7 36	3 54	15 33 26	19 11 43	morn	6 29	5 2	7	18	*weather,*
19	0 32	1 5	23 11	7 38	3 53	15 37 36	19 25 56	0 16	7 18	0 6	8	19	*with*
20	1 45	2 30	24 11	7 40	3 51	15 41 46	19 39 48	1 36	8 7	5 s 9	9	20	*rain*
21	3 13	3 47	26 10	7 42	3 50	15 45 57	19 53 18	2 55	8 56	9 52	10	21	♂ ☌ ♃, 7 a 12
22	4 15	4 42	28 7	7 43	3 48	15 50 9	20 6 27	4 12	9 46	14 0	11	22	*or sleet.*
23	5 10	5 36	29 11	7 45	3 47	15 54 22	20 19 13	5 26	10 37	17 19	12	23	♀ ☌ ♄, 11 a 23
24	6 2	6 24	30 6	7 47	3 46	15 58 36	20 31 37	6 38	11 28	19 39	13	24	☾ Eclip. vis.
25	6 46	7 6	30 9	7 49	3 45	16 2 50	20 43 38	rises.	morn	— —	F	25	*Still*
26	7 25	7 45	30 8	7 51	3 44	16 7 5	20 55 16	4a48	0 20	20 54	15	26	*inclined*
27	8 4	8 21	30 3	7 52	3 43	16 11 21	21 6 31	5 45	1 11	21 0	16	27	♅ ☌ ☾, 1 m 40
28	8 39	8 56	29 6	7 54	3 42	16 15 38	21 17 21	6 46	2 1	20 2	17	28	*to rain*
29	9 12	9 29	28 3	7 56	3 41	16 19 55	21 27 48	7 48	2 49	18 6	18	29	*or snow.*
30	9 48	10 3	27 0	7 57	3 40	16 24 13	21 37 50	8 52	3 35	15 23	19	30	☾ in Apogee

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1E	113 18 42	111 56 47	110 35 0	109 13 18	107 51 43	106 30 12	105 8 47	103 47 25
2	102 26 7	101 4 52	99 43 39	98 22 28	97 1 18	95 40 9	94 18 59	92 57 49
3	91 36 38	90 15 24	88 54 8	87 32 49	86 11 27	84 50 0	83 28 28	82 6 50
4	80 45 6	79 23 16	78 1 18	76 39 13	75 16 58	73 54 35	72 32 2	71 9 19
5	69 46 25	68 23 20	67 0 2	65 36 33	64 12 50	62 48 54	61 24 44	60 0 20
6	58 35 41	57 10 46	55 45 36	54 20 10	52 54 27	51 28 26	50 2 9	48 35 34
7	47 8 41	45 41 29	44 13 59	42 46 10	41 18 2	39 49 34	38 20 47	36 51 40
8	35 22 13	33 52 26	32 22 19	30 51 52	29 21 5	27 49 57	26 18 30	24 46 42
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
13W	28 27 0	30 7 2	31 47 10	33 27 22	35 7 39	36 47 58	38 28 20	40 8 44
14	41 49 10	43 29 36	45 10 3	46 50 30	48 30 55	50 11 19	51 51 41	53 32 1
15	55 12 19	56 52 33	58 32 43	60 12 50	61 52 52	63 32 49	65 12 40	66 52 26
16	68 32 7	70 11 42	71 51 10	73 30 31	75 9 45	76 48 52	78 27 52	80 6 44
17	81 45 29	83 24 5	85 2 33	86 40 53	88 19 5	89 57 8	91 35 3	93 12 49
18	94 50 26	96 27 54	98 5 13	99 42 24	101 19 25	102 56 16	104 32 59	106 9 32
19	107 45 56	109 22 11	110 58 16	112 34 12	114 9 58	115 45 34	117 21 1	118 56 18
20	120 31 26	122 6 2	123 41 11	125 15 49	126 50 17	128 24 35	129 58 43	131 32 41
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
29E	133 31 15	132 9 33	130 47 57	129 26 27	128 5 2	126 43 41	125 22 26	124 1 14
30	122 40 5	121 18 5	119 57 56	118 36 55	117 15 55	115 54 56	114 33 57	113 12 58

MARS [♂] will appear in the evenings to 2nd October, then as a morning star to the end of the year.

JUPITER [♃] will be a morning star to 12th April, an evening star thence to the 31st October, then a morning star to the end of the year.

SATURN [♄] will be a morning star to the 23rd March, an evening star to the 22nd October, then a morning star to the end of the year.

PHASES OF THE MOON.
- LAST QUARTER, 3rd day, at 0h. 14m. afternoon.
- NEW MOON, 10th day, at 8h. 23m. night.
- FIRST QUARTER, 17th day, at 11h. 46m. morning.
- FULL MOON, 25th day, at 2h. 50m. morning.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5m48	5 a50	16 16	8 m 2	11 m47	3m19	8m46	6m 6	10m28	5 m35	10 m10	2 m40	8 m21	1
8	5 53	5 50	16 17	sets.	0 a 7	3 30	8 45	6 7	10 20	5 16	9 48	2 16	7 56	8
15	6 1	5 51	16 17	3 a 50	0 28	3 43	8 45	6 8	10 13	4 57	9 26	1 51	7 30	15
22	6 4	5 53	16 18	4 14	0 50	3 58	8 47	6 8	10 5	4 37	9 4	1 26	7 5	22
29	6 6	5 58	16 18	4 47	1 10	4 15	8 50	6 9	9 59	4 17	8 42	1 1	6 39	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.	
1	Tu	Regulus rises 10 a 3	2 34	13 9	2 53	14 4	10	52
2	W	Mariners' Comp. inv.	3 14	12 11	3 36	13 5	10	29
3	Th	James II. abdi. 1688	3 59	12 1	4 24	12 8	10	5
4	F	♅ souths 0 m 42	4 56	11 7	5 31	12 3	9	41
5	S	Bible translated, 1611	6 4	11 7	6 37	12 4	9	17
6	D	2 Sunday in Advent	7 9	12 0	7 40	12 11	8	51
7	M	Proper Lessons. [Isaiah v; Acts vii to v. 30 — xxiv; Heb. xii.	8 12	13 0	8 39	14 0	8	26
8	Tu	Conception V. Mary	9 7	14 10	9 31	15 1	7	59
9	W	Neptune souths 7 a 2	9 54	15 9	10 19	16 4	7	33
10	Th	Pleiades souths 10a23	10 43	17 1	11 4	17 3	7	5
11	F	Chas. XII. died, 1718	11 26	18 2	11 48	18 0	6	38
12	S	Cromwell Protec. 1653	— —	— —	0 12	19 0	6	10
13	D	3 Sunday in Advent	0 36	18 5	1 0	19 2	5	42
14	M	Proper Lessons. [Isaiah xxv; Acts xiii. — xxvi; 1 Peter i.	1 24	17 11	1 48	18 8	5	13
15	Tu	♅ souths 11 a 53	2 14	17 1	2 41	17 9	4	44
16	W	Cambridge Term ends	3 8	16 0	3 33	16 6	4	15
17	Th	Oxford Term ends	3 57	14 8	4 25	15 3	3	45
18	F	♅ souths 11 a 41	4 55	13 7	5 29	14 1	3	16
19	S	Dr. S. Johnson d. 1784	6 4	12 11	6 40	13 5	2	46
20	D	4 Sunday in Advent	7 15	12 9	7 51	13 4	2	16
21	M	Pro. Les. [Isaiah xxx; Acts xx. — xxxii; 2 Peter iii.	8 26	13 4	8 53	13 9	1	46
22	Tu	St. Thomas. 21st	9 22	14 1	9 46	14 4	1	17
23	W	Rigel souths 11 a 0	10 12	15 0	10 35	16 10	0	47
24	Th	Pleiades souths 9 a 28	10 55	15 9	11 15	15 5	0	17
25	F	Christmas Day	11 33	16 4	11 52	15 10	0	13
26	S	St. Stephen	— —	— —	0 8	16 8	0	43
27	D	1 Sun. after Christ.	0 25	15 10	0 44	16 9	1	13
28	M	Proper Lessons. [Isaiah xxxvii; Rev. i. — xxxviii; — xxii.	1 0	15 9	1 19	16 7	1	42
29	Tu	Neptune souths 5 a 44	1 38	15 5	1 54	16 2	2	11
30	W	Sirius souths 0 m 7	2 11	15 0	2 31	15 7	2	41
31	Th	Silvester, Bishop	2 48	14 4	3 6	14 10	3	9

Equation of Time. Clock after Sun.—Subtract from Apparent Time. Clock before Sun.—Add to Mean Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	Age.	M D.	ASPECTS AND WEATHER.
1	10 18	10 36	25 7	7 59	3 39	16 28 31	21 47 27	9a58	4m19	12 0	20	1	☿ in Sup. ♂ ☉
2	10 56	11 16	23 9	8 0	3 39	16 32 51	21 56 39	11 7	5 2	8 7	21	2	*Snow*
3	11 38	— —	22 4	8 2	3 38	16 37 11	22 5 26	morn	5 44	3 53	22	3	*or rain*
4	0 5	0 36	21 3	8 3	3 37	16 41 31	22 13 48	0 16	6 26	0s34	23	4	☿ in Aphelion
5	1 6	1 38	21 7	8 5	3 37	16 45 52	22 21 43	1 26	7 10	5 6	24	5	*may*
6	2 18	2 53	23 4	8 6	3 36	16 50 14	22 29 13	2 36	7 55	9 32	25	6	♄ ♂ ☾, 11m59
7	3 33	4 3	25 9	8 7	3 36	16 54 37	22 36 16	3 48	8 44	13 39	26	7	*now be*
8	4 32	4 56	28 1	8 8	3 35	16 59 0	22 42 52	5 4	9 37	17 9	27	8	♃ ♂ ☾, 2 a 49
9	5 21	5 48	30 2	8 10	3 35	17 3 22	22 49 2	6 24	10 33	19 43	28	9	♀ gr. elon. W.
10	6 15	6 39	31 0	8 11	3 35	17 7 47	22 54 45	sets.	11 33	21 0	N	10	*expected.*
11	7 3	7 27	32 7	8 13	3 35	17 12 11	23 0 0	4a35	0a34	20 47	1	11	☿ ♂ ☾, 5 m 5
12	7 53	8 16	33 9	8 14	3 34	17 16 35	23 4 48	5 55	1 36	19 0	2	12	*Fair*
13	8 39	9 2	34 0	8 15	3 34	17 21 0	23 9 9	7 17	2 35	15 49	3	13	*and*
14	9 24	9 48	32 11	8 16	3 34	17 25 25	23 13 2	8 39	3 32	11 36	4	14	*frosty*
15	10 12	10 35	31 7	8 17	3 34	17 29 51	23 16 27	10 1	4 25	6 42	5	15	♀ in Perihel.
16	10 56	11 17	29 4	8 18	3 35	17 34 17	23 19 25	11 23	5 16	1 32	6	16	*changing*
17	11 42	— —	26 9	8 19	3 35	17 38 43	23 21 54	morn	6 5	3s36	7	17	*into*
18	0 7	0 36	24 5	8 19	3 35	17 43 9	23 23 55	0 43	6 54	8 26	8	18	*showery*
19	1 6	1 41	23 6	8 20	3 35	17 47 35	23 25 29	2 0	7 43	12 44	9	19	*and*
20	2 24	3 7	24 3	8 20	3 35	17 52 1	23 26 34	3 15	8 33	16 17	10	20	*dull*
21	3 47	4 17	25 7	8 21	3 36	17 56 28	23 27 10	4 28	9 23	18 57	11	21	*weather.*
22	4 47	5 12	26 11	8 21	3 36	18 0 54	23 27 19	5 36	10 14	20 34	12	22	☉ enters ♈
23	5 39	6 5	27 10	8 22	3 37	18 5 21	23 26 59	6 36	11 4	21 6	13	23	[Win. com.
24	6 27	6 50	28 3	8 22	3 37	18 9 47	23 26 11	7 27	11 54	20 33	14	24	☿ gr. H. L. S.
25	7 10	7 31	29 0	8 22	3 38	18 14 14	23 24 55	rises.	morn	— —	F	25	*Snow*
26	7 48	8 6	29 5	8 22	3 39	18 18 40	23 23 10	5a35	0 43	19 0	16	26	*or*
27	8 25	8 40	29 6	8 23	3 39	18 23 6	23 20 57	6 41	1 30	16 34	17	27	♀ ♂ ♃, 2 m 55
28	8 58	9 15	29 4	8 23	3 40	18 27 32	23 18 16	7 47	2 15	13 26	18	28	*stormy*
29	9 30	9 45	28 7	8 23	3 41	18 31 58	23 15 7	8 53	2 58	9 44	19	29	*weather*
30	10 4	10 17	27 10	8 23	3 42	18 36 23	23 11 30	10 0	3 40	5 38	20	30	*now about.*
31	10 33	10 48	26 8	8 23	3 43	18 40 49	23 7 25	11 7	4 22	1 19	21	31	☉ in Perigee

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 E	111 51 58	110 30 57	109 9 55	107 48 49	106 27 41	105 6 29	103 45 13	102 23 52
2	101 2 26	99 40 53	98 19 15	96 57 29	95 35 35	94 13 33	92 51 22	91 29 1
3	90 6 29	88 43 47	87 20 54	85 57 49	84 34 30	83 10 59	81 47 14	80 23 14
4	78 58 59	77 34 29	76 9 43	74 44 39	73 19 19	71 53 40	70 27 43	69 1 28
5	67 34 53	66 7 58	64 40 43	63 13 7	61 45 10	60 16 51	58 48 11	57 19 8
6	55 49 42	54 19 54	52 49 42	51 19 6	49 48 7	48 16 44	46 44 56	45 12 45
7	43 40 9	42 7 8	40 33 43	38 59 54	37 25 41	35 51 3	34 16 1	32 40 35
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..	.. .. ..	. .. ..	.. .. ..
12 W	22 59 43	24 43 19	26 26 58	28 10 37	29 54 16	31 37 53	33 21 26	35 4 56
13	36 48 20	38 31 38	40 14 49	41 57 53	43 40 47	45 23 32	47 6 7	48 48 32
14	50 30 44	52 12 45	53 54 32	55 36 6	57 17 27	58 58 33	60 39 24	62 20 1
15	64 0 21	65 40 26	67 20 14	68 59 47	70 39 2	72 18 0	73 56 42	75 35 6
16	77 13 13	78 51 2	80 28 34	82 5 48	83 42 45	85 19 24	86 55 45	88 31 49
17	90 7 36	91 43 5	93 18 17	94 53 12	96 27 49	98 2 10	99 36 14	101 10 1
18	102 43 31	104 16 46	105 49 44	107 22 26	108 54 53	110 27 4	111 58 59	113 30 39
19	115 2 5	116 33 15	118 4 11	119 34 52	121 5 19	122 35 32	124 5 31	125 35 17
20	127 4 48	128 34 7	130 3 12	131 32 4	133 0 42	134 29 10	135 57 23	137 25 25
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
29 E	131 57 24	130 36 40	129 15 54	127 55 5	126 34 13	125 13 17	123 52 18	122 31 14
30	121 10 5	119 48 51	118 27 32	117 6 6	115 44 33	114 22 52	113 1 4	111 39 8
31	110 17 3	108 54 48	107 32 23	106 9 48	104 47 1	103 24 3	102 0 52	100 37 29

Uranus [♅] will be best observed in the evenings of January to May, and in the mornings from July to the end of the year.

Neptune—This newly discovered Planet will be best observed when near its opposition on the 29th September, its Right Ascension at Noon on that day being 0h. 11m. 16sec., and Declination 0° 28′ 41″ North.

M D.	JANUARY. Noon	JANUARY. Midn	FEBRUARY. Noon	FEBRUARY. Midn.	MARCH. Noon.	MARCH. Midn.	APRIL. Noon.	APRIL. Midn.	MAY. Noon.	MAY. Midn.	JUNE. Noon.	JUNE. Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	14 47	14 46	14 47	14 49	14 51	14 53	15 19	15 24	15 50	15 55	16 30	16 34	1
2	14 45	14 44	14 51	14 53	14 56	14 59	15 29	15 35	16 1	16 7	16 36	16 38	2
3	14 44	14 44	14 56	14 59	15 3	15 7	15 40	15 45	16 12	16 16	16 38	16 37	3
4	14 44	14 45	15 2	15 5	15 11	15 15	15 50	15 55	16 20	16 23	16 35	16 31	4
5	14 46	14 48	15 8	15 12	15 19	15 23	15 59	16 2	16 24	16 25	16 27	16 23	5
6	14 50	14 52	15 16	15 20	15 28	15 32	16 5	16 8	16 25	16 24	16 17	16 11	6
7	14 54	14 57	15 24	15 28	15 36	15 40	16 9	16 11	16 23	16 20	16 5	15 59	7
8	15 0	15 4	15 32	15 37	15 44	15 47	16 12	16 12	16 18	16 14	15 53	15 47	8
9	15 8	15 12	15 41	15 46	15 51	15 54	16 12	16 12	16 10	16 6	15 41	15 35	9
10	15 17	15 22	15 51	15 56	15 57	16 0	16 11	16 10	16 2	15 58	15 29	15 24	10
11	15 27	15 33	16 1	16 6	16 3	16 5	16 9	16 7	15 53	15 49	15 19	15 14	11
12	15 39	15 46	16 10	16 15	16 7	16 10	16 5	16 3	15 44	15 40	15 10	15 6	12
13	15 52	15 59	16 19	16 22	16 11	16 13	16 0	15 57	15 36	15 31	15 2	14 59	13
14	16 6	16 13	16 25	16 27	16 14	16 14	15 54	15 51	15 27	15 23	14 56	14 53	14
15	16 19	16 25	16 28	16 29	16 14	16 14	15 47	15 44	15 19	15 15	14 51	14 49	15
16	16 30	16 34	16 28	16 26	16 13	16 11	15 40	15 35	15 11	15 7	14 47	14 46	16
17	16 38	16 40	16 24	16 20	16 9	16 6	15 31	15 27	15 4	15 1	14 45	14 44	17
18	16 41	16 41	16 16	16 11	16 2	15 58	15 22	15 18	14 58	14 55	14 44	14 44	18
19	16 40	16 37	16 5	15 58	15 54	15 49	15 13	15 9	14 52	14 50	14 45	14 46	19
20	16 33	16 28	15 52	15 45	15 44	15 38	15 5	15 1	14 48	14 47	14 47	14 49	20
21	16 22	16 15	15 38	15 31	15 32	15 27	14 58	14 55	14 46	14 46	14 52	14 55	21
22	16 8	16 0	15 24	15 18	15 21	15 16	14 52	14 50	14 46	14 47	14 59	15 4	22
23	15 52	15 44	15 12	15 6	15 10	15 6	14 49	14 48	14 48	14 50	15 9	15 15	23
24	15 37	15 29	15 2	14 57	15 1	14 58	14 48	14 48	14 53	14 56	15 21	15 28	24
25	15 22	15 16	14 54	14 51	14 54	14 52	14 49	14 51	15 0	15 5	15 35	15 42	25
26	15 10	15 4	14 49	14 48	14 50	14 49	14 54	14 57	15 10	15 16	15 50	15 58	26
27	15 0	14 56	14 47	14 47	14 48	14 49	15 1	15 6	15 23	15 30	16 6	16 13	27
28	14 52	14 50	14 48	14 49	14 49	14 51	15 11	15 16	15 37	15 44	16 21	16 27	28
29	14 48	14 46	.. ..	.. ..	14 53	14 56	15 23	15 29	15 52	15 59	16 33	16 38	29
30	14 45	14 45	.. ..	.. ..	15 0	15 4	15 35	15 42	16 7	16 14	16 41	16 44	30
31	14 45	14 46	.. ..	.. ..	15 8	15 13	.. ..	.. ..	16 20	16 26	.. ..	.. ..	31

M D.	JULY. Noon.	JULY. Midn.	AUGUST. Noon.	AUGUST. Midn.	SEPT. Noon.	SEPT. Midn.	OCTOBER. Noon.	OCTOBER. Midn.	NOVEMBER Noon	NOVEMBER Midn.	DECEMBER Noon.	DECEMBER Midn.	D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	16 45	16 45	16 29	16 23	15 46	15 39	15 18	15 12	14 51	14 49	14 47	14 48	1
2	16 43	16 40	16 16	16 8	15 32	15 25	15 7	15 2	14 48	14 48	14 50	14 52	2
3	16 36	16 31	16 1	15 53	15 18	15 12	14 58	14 55	14 48	14 49	14 56	15 0	3
4	16 25	16 18	15 45	15 37	15 6	15 1	14 52	14 50	14 51	14 53	15 4	15 10	4
5	16 11	16 4	15 30	15 23	14 57	14 54	14 48	14 48	14 56	15 0	15 15	15 22	5
6	15 56	15 49	15 16	15 10	14 51	14 49	14 48	14 48	15 4	15 9	15 28	15 36	6
7	15 42	15 35	15 5	15 0	14 47	14 46	14 50	14 52	15 15	15 20	15 43	15 50	7
8	15 28	15 22	14 56	14 53	14 46	14 46	14 54	14 58	15 26	15 32	15 57	16 4	8
9	15 16	15 10	14 50	14 48	14 47	14 48	15 1	15 5	15 38	15 44	16 11	16 16	9
10	15 6	15 1	14 46	14 45	14 50	14 53	15 9	15 14	15 50	15 55	16 21	16 26	10
11	14 58	14 54	14 44	14 44	14 55	14 58	15 18	15 23	16 0	16 5	16 29	16 31	11
12	14 51	14 49	14 44	14 45	15 1	15 5	15 28	15 32	16 8	16 11	16 32	16 32	12
13	14 47	14 45	14 46	14 47	15 8	15 12	15 37	15 41	16 14	16 16	16 31	16 29	13
14	14 44	14 44	14 49	14 51	15 16	15 20	15 45	15 49	16 17	16 17	16 26	16 22	14
15	14 43	14 43	14 54	14 56	15 24	15 28	15 53	15 56	16 17	16 16	16 18	16 13	15
16	14 44	14 44	14 59	15 3	15 32	15 36	15 59	16 1	16 14	16 13	16 8	16 3	16
17	14 45	14 47	15 6	15 10	15 40	15 45	16 4	16 6	16 11	16 8	15 58	15 52	17
18	14 49	14 51	15 14	15 19	15 49	15 53	16 7	16 9	16 5	16 3	15 47	15 42	18
19	14 54	14 57	15 23	15 28	15 57	16 1	16 10	16 10	15 59	15 56	15 37	15 32	19
20	15 1	15 5	15 34	15 39	16 5	16 9	16 11	16 11	15 53	15 49	15 27	15 23	20
21	15 9	15 15	15 45	15 51	16 12	16 15	16 11	16 10	15 45	15 42	15 19	15 15	21
22	15 20	15 26	15 57	16 3	16 18	16 20	16 9	16 7	15 38	15 34	15 11	15 7	22
23	15 33	15 39	16 9	16 15	16 22	16 23	16 5	16 3	15 30	15 26	15 4	15 1	23
24	15 47	15 54	16 20	16 25	16 23	16 22	16 0	15 57	15 22	15 18	14 58	14 55	24
25	16 1	16 9	16 29	16 32	16 21	16 18	15 53	15 49	15 14	15 10	14 52	14 50	25
26	16 16	16 22	16 35	16 36	16 15	16 11	15 44	15 39	15 6	15 2	14 48	14 47	26
27	16 28	16 34	16 36	16 35	16 7	16 1	15 34	15 29	14 59	14 56	14 46	14 45	27
28	16 38	16 42	16 33	16 30	15 56	15 49	15 24	15 19	14 53	14 51	14 44	14 45	28
29	16 44	16 44	16 26	16 21	15 43	15 37	15 14	15 9	14 49	14 47	14 45	14 46	29
30	16 44	16 42	16 15	16 8	15 30	15 24	15 4	15 0	14 47	14 46	14 48	14 51	30
31	16 39	16 34	16 1	15 54	.. ..	.. ..	14 57	14 54	.. ..	.. ..	14 54	14 58	31

JANUARY.		FEBRUARY		MARCH		APRIL.		MAY.		JUNE.		M
Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	D.
′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
54 11	54 5	54 11	54 17	54 24	54 33	56 5	56 25	57 56	58 20	60 28	60 41	
54 1	53 59	54 24	54 33	54 43	54 55	56 45	57 5	58 42	59 3	60 51	60 56	
53 58	53 58	54 42	54 52	55 8	55 22	57 25	57 43	59 22	59 38	60 56	60 52	
54 0	54 3	55 3	55 15	55 37	55 52	58 1	58 18	59 51	60 0	60 44	60 33	
54 7	54 13	55 28	55 41	56 8	56 24	58 32	58 45	60 7	60 10	60 18	60 0	
54 19	54 27	55 55	56 9	56 39	56 55	58 57	59 6	60 10	60 7	59 40	59 19	
54 36	54 46	56 24	56 40	57 10	57 24	59 13	59 18	60 1	59 52	58 57	58 34	
54 58	55 11	56 56	57 12	57 38	57 51	59 21	59 23	59 42	59 29	58 11	57 48	
55 25	55 41	57 29	57 47	58 4	58 16	59 23	59 21	59 16	59 1	57 26	57 5	
55 58	56 17	58 5	58 22	58 27	58 37	59 18	59 14	58 45	58 29	56 44	56 25	10
56 37	56 58	58 40	58 58	58 47	58 56	59 9	59 2	58 13	57 56	56 7	55 50	11
57 21	57 45	59 15	59 31	59 5	59 12	58 55	58 47	57 40	57 24	55 34	55 19	12
58 9	58 34	59 45	59 58	59 19	59 24	58 37	58 27	57 8	56 52	55 6	54 54	13
58 59	59 23	60 8	60 16	59 27	59 29	58 16	58 4	56 36	56 21	54 43	54 33	14
59 46	60 8	60 21	60 22	59 29	59 28	57 51	57 37	56 7	55 52	54 24	54 17	15
60 27	60 43	60 20	60 14	59 24	59 18	57 23	57 7	55 38	55 25	54 10	54 5	16
60 56	61 4	60 5	59 52	59 10	58 59	56 52	56 35	55 12	55 0	54 1	53 59	17
61 8	61 8	59 35	59 16	58 46	58 32	56 19	56 3	54 49	54 38	53 58	53 58	18
61 2	60 52	58 55	58 31	58 15	57 57	55 46	55 31	54 29	54 21	54 1	54 5	19
60 38	60 19	58 7	57 41	57 37	57 17	55 16	55 2	54 14	54 9	54 11	54 18	20
59 57	59 52	57 15	56 50	56 56	56 35	54 49	54 38	54 6	54 5	54 28	54 41	21
59 6	58 38	56 25	56 2	56 14	55 55	54 29	54 21	54 5	54 8	54 55	55 11	22
58 9	57 40	55 41	55 21	55 36	55 18	54 16	54 13	54 13	54 21	54 30	55 51	23
57 12	56 45	55 3	54 48	55 2	54 48	54 12	54 14	54 31	54 43	56 14	56 39	24
56 19	55 55	54 35	54 25	54 37	54 27	54 18	54 25	54 58	55 15	57 5	57 32	25
55 33	55 13	54 18	54 13	54 21	54 16	54 35	54 47	55 35	55 57	58 1	58 30	26
54 56	54 41	54 10	54 11	54 15	54 15	55 1	55 18	56 20	56 46	58 59	59 26	27
54 29	54 19	54 13	54 18	54 19	54 25	55 37	55 58	57 12	57 40	59 53	60 17	28
54 12	54 6	.. ..	.. ..	54 34	54 44	56 20	56 43	58 7	58 35	60 38	60 56	29
54 4	54 3	.. ..	.. ..	54 57	55 12	57 8	57 32	59 2	59 27	61 9	61 18	30
54 4	54 7	.. ..	.. ..	55 29	55 46	.. ..	.. ..	59 50	60 11	.. ..	.. ..	31

JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER		DECEMBER		M
Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	D.
′ ″	′ ″	″ ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
61 22	61 21	60 24	60 1	57 47	57 20	56 2	55 42	54 25	54 19	54 9	54 13	1
61 15	61 4	59 35	59 8	56 53	56 27	55 22	55 5	54 15	54 13	54 20	54 30	2
60 49	60 30	58 39	58 10	56 3	55 41	54 50	54 38	54 14	54 18	54 41	54 56	3
60 9	59 44	57 42	57 13	55 21	55 3	54 27	54 20	54 24	54 33	55 13	55 32	4
59 19	58 52	56 47	56 21	54 47	54 34	54 15	54 12	54 44	54 58	55 54	56 17	5
58 24	57 57	55 58	55 36	54 24	54 16	54 13	54 15	55 14	55 32	56 42	57 8	6
57 30	57 4	55 16	54 59	54 10	54 7	54 20	54 28	55 51	56 12	57 34	58 1	7
56 40	56 17	54 44	54 31	54 6	54 7	54 37	54 49	56 33	56 55	58 27	58 53	8
55 55	55 36	54 21	54 12	54 10	54 15	55 2	55 16	57 17	57 39	59 16	59 37	9
55 18	55 2	54 6	54 2	54 22	54 30	55 31	55 48	58 0	58 20	59 56	60 11	10
54 48	54 36	53 59	53 59	54 40	54 50	56 5	56 22	58 38	58 54	60 23	60 30	11
54 26	54 17	54 0	54 2	55 2	55 14	56 39	56 56	59 8	59 19	60 34	60 34	12
54 10	54 4	54 6	54 11	55 28	55 41	57 13	57 29	59 28	59 34	60 30	60 23	13
54 0	53 57	54 18	54 25	55 55	56 10	57 44	57 58	59 38	59 39	60 12	59 59	14
53 56	53 56	54 34	54 44	56 25	56 40	58 11	58 22	59 38	59 35	59 43	59 26	15
53 57	54 0	54 55	55 7	56 55	57 10	58 33	58 42	59 30	59 24	59 8	58 49	16
54 4	54 9	55 20	55 34	57 25	57 41	58 51	58 58	59 16	59 7	58 29	58 10	17
54 16	54 25	55 49	56 6	57 56	58 11	59 4	59 9	58 57	58 47	57 50	57 31	18
54 35	54 47	56 23	56 42	58 26	58 41	59 12	59 15	58 35	58 24	57 13	56 55	19
55 0	55 15	57 1	57 22	58 55	59 9	59 17	59 17	58 11	57 59	56 38	56 22	20
55 32	55 51	57 43	58 4	59 22	59 33	59 16	59 14	57 45	57 32	56 6	55 51	21
56 11	56 34	58 26	58 48	59 43	59 51	59 10	59 4	57 18	57 3	55 37	55 24	22
56 57	57 22	59 10	59 31	59 57	60 1	58 57	58 48	56 49	56 34	55 11	55 0	23
57 48	58 15	59 50	60 8	60 1	59 59	58 38	58 26	56 19	56 4	54 49	54 39	24
58 42	59 9	60 23	60 35	59 53	59 45	58 12	57 56	55 49	55 34	54 30	54 22	25
59 34	59 59	60 44	60 49	59 33	59 19	57 40	57 22	55 20	55 6	54 15	54 9	26
60 21	60 41	60 50	60 47	59 2	58 43	57 3	56 44	54 54	54 42	54 4	54 1	27
60 57	61 9	60 40	60 28	58 21	57 59	56 25	56 6	54 32	54 23	54 0	54 1	28
61 17	61 20	60 12	59 54	57 35	57 11	55 48	55 30	54 16	54 11	54 3	54 8	29
61 18	61 11	59 32	59 7	56 48	56 25	55 14	54 59	54 8	54 8	54 15	54 24	30
61 0	60 43	58 42	58 14	.. ..	.. ..	54 46	54 34	.. ..	.. ..	54 35	54 49	31

Mean Refraction.

App Alt.	Refr.	App Alt.	Refr	App. Alt	Refr	App. Alt.	Refr	App. Alt.	Refr
° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
0 0	33 0	5 0	9 54	10 0	5 15	20 0	2 35	34 0	1 24
0 5	32 10	5 5	9 46	10 10	5 10	20 10	2 34	34 30	1 23
0 10	31 22	5 10	9 38	10 20	5 5	20 20	2 32	35 0	1 21
0 15	30 35	5 15	9 30	10 30	5 0	20 30	2 31	35 30	1 20
0 20	29 50	5 20	9 23	10 40	4 56	20 40	2 29	36 0	1 18
0 25	29 6	5 25	9 15	10 50	4 51	20 50	2 28	36 30	1 17
0 30	28 23	5 30	9 8	11 0	4 47	21 0	2 27	37 0	1 16
0 35	27 41	5 35	9 1	11 10	4 43	21 10	2 26	37 30	1 14
0 40	27 0	5 40	8 54	11 20	4 39	21 20	2 25	38 0	1 13
0 45	26 20	5 45	8 47	11 30	4 34	21 30	2 24	38 30	1 11
0 50	25 42	5 50	8 41	11 40	4 31	21 40	2 23	39 0	1 10
0 55	25 5	5 55	8 34	11 50	4 27	21 50	2 21	39 30	1 9
1 0	24 29	6 0	8 28	12 0	4 23	22 0	2 20	40 0	1 8
1 5	23 54	6 5	8 21	12 10	4 20	22 10	2 19	41 0	1 5
1 10	23 20	6 10	8 15	12 20	4 16	22 20	2 18	42 0	1 3
1 15	22 47	6 15	8 9	12 30	4 13	22 30	2 17	43 0	1 1
1 20	22 15	6 20	8 3	12 40	4 9	22 40	2 16	44 0	0 59
1 25	21 44	6 25	7 57	12 50	4 6	22 50	2 15	45 0	0 57
1 30	21 15	6 30	7 51	13 0	4 3	23 0	2 14	46 0	0 55
1 35	20 46	6 35	7 45	13 10	4 0	23 10	2 13	47 0	0 53
1 40	20 18	6 40	7 40	13 20	3 57	23 20	2 12	48 0	0 51
1 45	19 51	6 45	7 35	13 30	3 54	23 30	2 11	49 0	0 49
1 50	19 25	6 50	7 30	13 40	3 51	23 40	2 10	50 0	0 48
1 55	19 0	6 55	7 25	13 50	3 48	23 50	2 9	51 0	0 46
2 0	18 35	7 0	7 20	14 0	3 45	24 0	2 8	52 0	0 44
2 5	18 11	7 5	7 15	14 10	3 43	24 10	2 7	53 0	0 43
2 10	17 48	7 10	7 11	14 20	3 40	24 20	2 6	54 0	0 41
2 15	17 26	7 15	7 6	14 30	3 38	24 30	2 5	55 0	0 40
2 20	17 4	7 20	7 2	14 40	3 35	24 40	2 4	56 0	0 38
2 25	16 44	7 25	6 57	14 50	3 33	24 50	2 3	57 0	0 37
2 30	16 24	7 30	6 53	15 0	3 30	25 0	2 2	58 0	0 35
2 35	16 4	7 35	6 49	15 10	3 28	25 10	2 1	59 0	0 34
2 40	15 45	7 40	6 45	15 20	3 26	25 20	2 0	60 0	0 33
2 45	15 27	7 45	6 41	15 30	3 24	25 30	1 59	61 0	0 32
2 50	15 9	7 50	6 37	15 40	3 21	25 40	1 58	62 0	0 30
2 55	14 52	7 55	6 33	15 50	3 19	25 50	1 57	63 0	0 29
3 0	14 36	8 0	6 29	16 0	3 17	26 0	1 56	64 0	0 28
3 5	14 20	8 5	6 25	16 10	3 15	26 10	1 55	65 0	0 26
3 10	14 4	8 10	6 22	16 20	3 12	26 20	1 55	66 0	0 25
3 15	13 49	8 15	6 18	16 30	3 10	26 30	1 54	67 0	0 24
3 20	13 34	8 20	6 15	16 40	3 8	26 40	1 53	68 0	0 23
3 25	13 20	8 25	6 11	16 50	3 6	26 50	1 52	69 0	0 22
3 30	13 6	8 30	6 8	17 0	3 4	27 0	1 51	70 0	0 21
3 35	12 53	8 35	6 5	17 10	3 3	27 15	1 50	71 0	0 19
3 40	12 40	8 40	6 1	17 20	3 1	27 30	1 49	72 0	0 18
3 45	12 27	8 45	5 58	17 30	2 59	27 45	1 48	73 0	0 17
3 50	12 15	8 50	5 55	17 40	2 57	28 0	1 47	74 0	0 16
3 55	12 3	8 55	5 52	17 50	2 55	28 15	1 46	75 0	0 15
4 0	11 51	9 0	5 48	18 0	2 54	28 30	1 45	76 0	0 14
4 5	11 40	9 5	5 45	18 10	2 52	28 45	1 44	77 0	0 13
4 10	11 29	9 10	5 42	18 20	2 51	29 0	1 42	78 0	0 12
4 15	11 18	9 15	5 39	18 30	2 49	29 30	1 40	79 0	0 11
4 20	11 8	9 20	5 36	18 40	2 47	30 0	1 38	80 0	0 10
4 25	10 58	9 25	5 34	18 50	2 46	30 30	1 37	81 0	0 9
4 30	10 48	9 30	5 31	19 0	2 44	31 0	1 35	82 0	0 8
4 35	10 39	9 35	5 28	19 10	2 43	31 30	1 33	83 0	0 7
4 40	10 29	9 40	5 25	19 20	2 41	32 0	1 31	84 0	0 6
4 45	10 20	0 45	5 23	19 30	2 40	32 30	1 30	86 0	0 4
4 50	10 11	9 50	5 20	19 40	2 38	33 0	1 28	88 0	0 2
4 55	10 2	9 55	5 18	19 50	2 37	33 30	1 26	90 0	0 0

Dip of The Horizon

Height of the Eye.	Dip of the Horizon.	Height of the Eye.	Dip of the
ft.	′ ″	ft.	′
1	0 59	19	4
2	1 24	20	4
3	1 42	21	4
4	1 58	22	4
5	2 12	23	4
6	2 25	24	4
7	2 36	25	4
8	2 47	26	5
9	2 57	27	5
10	3 7	28	5
11	3 16	29	5
12	3 25	30	5
13	3 33	31	5
14	3 41	32	5
15	3 49	33	5
16	3 56	34	5
17	4 4	35	5
18	4 11	38	6

Dip at Differe Distances.

Miles.	Height of t Eye in Feet.				
	5	10	15	20	25
	′	′	′	′	′
¼	11	23	34	45	57
½	6	12	17	23	28
¾	4	8	12	15	19
1	3	6	9	12	15
1¼	3	5	7	10	12
1½	3	4	6	8	10
2	2	4	5	7	8
2½	2	3	4	6	7
3	2	3	4	5	6
3½	2	3	4	5	6
4	2	3	4	5	5
5	2	3	4	4	5
6	2	3	4	4	5

Table Of Correction

To be applied to t Rising and Setting the Sun, Moon, a Planets, when vie ed from elevatio above the sea level Subtract from Risi add to Setting.

ft	s.	ft.	m.s.	ft.	m
5	16	50	0 51	120	1
10	23	60	0 56	140	1
15	28	70	1 1	160	1
20	30	80	1 5	180	1
30	38	90	1 8	200	1
40	46	100	1 10	300	2

ght Ascensions, and Declinations, and Semi-diurnal Arcs,

FOR LATITUDE 54° 10′,

Of the Principal Fixed Stars

NAMES.	Magnitude.	Right Ascension. H. M. S.	Annual Variations ″	Declination. ° ′ ″	Annual Variations ″	Semi-diurnal Arcs. H. M.
ndromedæ	2	0 1 19	+ 3·08	N 28 20 2	+19·90	9 19
egasi (Algenib)	3·2	0 6 11	+ 3·08	14 25 18	+20·03	7 27
assiopeæ	Var.	0 32 45	+ 3·36	55 47 8	+19·81	sets not
eti	2	0 36 42	+ 3·01	S 18 44 22	+19·82	4 12
rsæ Minor.(Polaris)	2	1 8 59	+18·84	N 88 34 45	+19·18	sets not
ripani (Achernar)..	1	1 32 36	+ 2·24	S 57 56 0	+18·43	rises not
rietes.	2	1 59 27	+ 3·36	N 22 48 46	+17·25	8 27
eti	2·3	2 55 7	+ 3·13	3 32 59	+14·38	6 23
ersei	2	3 14 33	+ 4·24	49 22 12	+13·22	sets not
auri	3	3 39 21	+ 3·55	23 40 43	+11·50	8 34
auri (Aldebaran) ..	1	4 28 4	+ 3·43	16 13 51	+ 7·67	7 39
urigæ (Capella)....	1	5 6 34	+ 4·42	45 51 15	+ 4·22	sets not
rionis (Rigel).. . .	1	5 7 57	+ 2·88	S 8 21 46	+ 4·50	5 17
auri	2	5 17 38	+ 3·79	N 28 29 16	+ 3·50	9 21
rionis	2	5 25 0	+ 3·06	S 0 24 13	+ 3·02	6 1
eporis	3	5 26 41	+ 2·64	17 55 23	+ 2·92	4 10
rionis	2	5 29 16	+ 3·04	1 17 31	+ 2·68	5 57
olumbæ	2	5 34 41	+ 2·18	34 8 56	+ 2·22	sets not
rionis	Var.	5 47 45	+ 3·25	N 7 22 41	+ 1·08	6 45
rgus (Canopus) .. .	1	6 20 55	+ 1·33	S 52 37 19	− 1·82	rises not
anis Majoris (Sirius)	1	6 39 7	+ 2·64	16 31 52	− 4·62	4 27
eminorum (Castor)	2·1	7 25 51	+ 3·84	N 32 11 7	− 7·40	10 13
anis Minoris (Proc.)	1	7 32 7	+ 3·14	5 34 25	− 8·87	6 35
eminorum (Pollux)	1·2	7 36 56	+ 3·68	28 21 14	− 8·28	9 20
Hydræ.....	2	9 20 51	+ 2·95	S 8 4 0	−15·37	6 49
eonis (Regulus)....	1·2	10 1 4	+ 3·20	N 12 38 7	−17·40	7 17
rsæ Majoris.....	2	10 55 15	+ 3·77	62 29 23	−19·34	sets not
eonis	2·3	11 6 49	+ 3·20	21 16 25	−19·66	8 16
eonis....	2	11 42 4	+ 3·06	15 20 16	−20·09	7 34
rsæ Majoris.....	2·3	11 46 36	+ 3·19	54 27 22	−20·02	sets not
rucis	1	12 19 0	+ 3·26	S 62 20 19	−19·94	rises not
orvi	2·3	12 27 11	+ 3·13	22 38 19	−19·98	3 44
irginis(Spica).. ...	2	13 17 59	+ 3·15	10 26 43	−18·95	5 5
entauri	1	13 54 11	+ 4·15	59 42 36	−17·69	rises not
ootis (Arcturus)....	1	14 9 25	+ 2·73	N 19 53 50	−18·93	8 5
entauri.....	1	14 30 20	+ 4·03	S 60 15 54	−15·06	rises not
ootis	2·3	14 39 0	+ 2·62	N 27 39 12	−15·42	9 13
ibræ	2·3	14 43 18	+ 3·30	S 15 28 13	−15·24	4 34
rsæ Minoris.....	2	14 51 9	− 0·26	N 74 42 54	−14·75	sets not
ibræ	2	15 9 38	+ 3·22	S 8 52 30	−13·60	5 14
oronæ Borealis	2	15 28 53	+ 2·54	N 27 10 40	−12·36	9 8
erpentis	2·3	15 37 31	+ 2·95	6 51 33	−11·63	6 42
corpii (Antares)....	1·2	16 21 1	+ 3·67	S 26 7 29	− 8·44	3 15
rianguli Australis ..	2	16 34 12	+ 6·27	68 46 12	− 7·44	rises not
erculis....	Var.	17 8 24	+ 2·73	N 14 32 57	− 4·44	7 29
raconis.....	3·2	17 27 20	+ 1·35	52 24 14	− 2·85	sets not
yræ (Vega)	1	18 32 18	+ 2·03	38 39 29	+ 3·10	sets not
yræ	Var.	18 45 1	+ 2·21	33 12 20	+ 3·88	10 31
quilæ..... ...	3	19 34 45	+ 2·85	10 16 55	+ 8·45	7 2
quilæ (Altair).....	1·2	19 44 6	+ 2·93	8 30 33	+ 9·17	6 51
quilæ	4	19 48 35	+ 2·94	6 4 1	+ 8·66	6 37
avonis	2	20 14 48	+ 4·80	S 57 10 11	+11·08	rises not
ygni	2·1	20 36 46	+ 2·04	N 44 47 32	+12·66	sets not
ephei....	3·	21 15 18	+ 1·44	62 0 21	+15·10	sets not
quarii	3	21 24 21	+ 3·16	S 6 10 19	+15·60	5 29
ephei....	3	21 26 53	+ 0·80	N 69 57 34	+15·70	sets not
quarii	3	21 58 45	+ 3·08	S 0 59 3	+17·29	5 58
ruis	2	21 59 35	+ 3·82	47 37 20	+17·16	rises not
iscium Australis....	1·2	22 50 4	+ 3·33	30 20 51	+19·95	2 29
egasi (Markab)	2	22 57 56	+ 2·98	N 14 28 8	+19·30	7 27

General Tide Table,

By which the times of High Water may be CORRECTLY FOUND *on* ANY *Day.*

N.B.—ADD to the time of High Water in the Tide Table in this Almanack, the Hour and Minutes in the Column opposite the Place required.

ENGLAND	H.	M.
Alderney Pier	7	35
Alne River	3	35
Barnstaple Bar	6	20
Berwick	3	8
Blakeney	7	40
Blythe	3	35
Boston	8	5
Bridgewater	7	35
Bridlington	5	20
Bridport	6	50
Carlisle	0	50
Chatham	1	44
Christchurch	9	40
Dartmouth	6	55
Exmouth Bar	7	15
Falmouth	6	20
Flamboro' Head	5	20
Flatholm	7	18
Fowey	6	20
Gravesend	2	20
Guernsey (Eng.Chan)	7	20
Hartlepool	4	35
Hull	6	50
Humber River	6	20
Ilfracombe	6	20
Ipswich	0	50
Jersey (En. Ch.)	7	0
Land's End	5	20
London Bridge	2	57
Longships	5	20
Lyme Regis	7	20
Needles Point	10	35
Newcastle	4	50
Penzance	5	20
Plymouth Dock	6	20
Poole	9	50
Portsmouth Dock	0	30
Ramsgate	0	36
Robin Hood's Bay	4	35
Scarborough	5	15
Scilly Islands	5	0
Sheerness	1	29
Shields	3	50
Southampton	0	30
Spithead	10	20
St. Ives	5	20
Sunderland	3	50
Tees River	4	20
Torbay	6	50
Tynemouth Bar	3	40
Weymouth	7	20
Whitby	4	35
Wisbeach	8	20
Yarmouth Roads	9	30
Yarmouth, Isle Wight	10	20

WALES.	H.	M.
Aberdovey	8	20
Aberystwith	8	20
Barmouth	8	45
Bardsey Island	9	5
Burrey Harbour	6	50
Cardiff	6	50
Cardigan Bar	7	50
Caermarthen Bar	7	0
Carnarvon Bar	9	50
Denbigh	3	5
Fisgard Bay	7	20
Milford Haven	6	35
Newport	7	35
Pembroke	6	54
Skerries	10	35
Smalls and Swansea	6	40
Strumble Head	7	5

IRELAND.	H.	M.
Arklow	10	5
Baltimore	4	35
Bantry Bay	4	36
Broadhaven	6	50
Cork Harbour	5	20
Crookhaven	4	20
Donaghadee	10	5
Donegal Bar	5	55
Downing Bay	6	10
Dungarvon	5	20
Foyn's Island	4	50
Galway Bay	5	20
Kinsale	5	20
Limerick	6	50
Lough Swilly	8	20
Londonderry	6	50
Malbay	4	50
Newry	0	50
Port Rush	6	35
Saltees	6	30
Shannon	4	35
Skerries	5	35
Sligo Bay	5	35
Tory Island	6	50
Tralee Bay	4	35
Valentia Harbour	4	20
Waterford	6	40
Wexford	8	20
Wicklow	9	50
Youghal	5	50

SCOTLAND.	H.	M.
Aberdeen	2	2
Banff	0	20
Buchanness	0	50
Burnt Island	3	20
Cromarty	0	
Dee (River)	1	
Dunbar	2	
Dundee	3	
Eyemouth	3	
Leith Pier	3	
Montrose	2	
Tay Bar	2	
Wick	10	

SHETLANDS.	H.
Balta	3
Brassa Sound	10
Lerwick Harbour	10
Westra	0

ORKNEYS.	H.
Cairston	9
Fair Isle	10
Pomona	3
Ronaldsha	10

FOREIGN PORTS.	H.
Amsterdam	3
Antwerp	6
Bahia, Brazil	5
Bilboa, Spain	4
Biscay, Spain	5
Bonny River, Africa	5
Bordeaux	3
Bremen, Germany	6
Brest, France	4
Cadiz, Spain	3
Calabar, Africa	5
Calcutta	3
Carthagena, S. Amer	2
Charleston Bar, U.S.	7
Charante, France	4
Cape Coast, Africa	4
Cape Good Hope town	3
Fort St. John, N.A.	9
Funchal, Madeira	1
Hamburg	6
Rio Janeiro, Brazil	3
St. John's, N.Foundl.	8
Lisbon	4
L'Orient, France	4
New York E. River	9
Oporto, Portugal	4
Panama, S. A.	3
Pernambuca, S. A	8
Philadelphia, U. S.	3
Quebec, Canada	7
Rotterdam	3
Santa Cruz, S.A.	9
Whampoa, China	3

The Tides at the following places are nearly the same as the Tide-Table:—

Ardglass,	Chester	Dublin	Hastings	Mull of Galloway	St. Helen
Arran Island	Conway	Dumfries	Kingstown	Newhaven	Strangford
Bangor	Cowes	Dundalk	Killough	Pargate	Stromness
Balbriggan	Copeland Island	Dundrum	Kirkcudbright	Preston	Troon
Belfast	Deal	Folkstone	Lancaster	Pentland Frith	Warren's Poin
Beaumaris	Dover	Glasgow	Liverpool	Ramsgate	Ulverston, and
Carlingford	Downs	Greenock	Maryport	Rothsay	Whitehaven.
Carrickfergus	Drogheda	Harwich	Margate	Roseness	

ISLE OF MAN INFORMATION.

Manx Legislature

The Hon. Francis Pigott, Lieut.-Governor
Sec. to his Excellency.... James Burman

COUNCIL.

Hon.&Rt.Rev.H.Powys,D.D.,Lord Bishop
Charles R. Ogden .... Attorney-General
Hon. W. L. Drinkwater, South. Deemster
Hon. J. C. Stephen, Northern Deemster
Wm. W. Christian ..... Water-Bailiff
Hon. Mark H. Quayle, Clerk of the Rolls
Ven. Joseph C. Moore ..... Archdeacon
Richard Jebb ..... Vicar General
James Burman ..... Clerk of Council

HOUSE OF KEYS.

Edw. Moore Gawne, Speaker, Kentraugh
Robert John Moore, Secretary ..... Peel
John F. Crellin ..... Orrisdale
Evan Gell .... Whitehouse
Frederick J. D. Lamothe ..... Ramsey
Alexander Spittall .... Laureston
Richard Quirk ..... . Rheaby, Patrick
Frank Matthews ..... Glenmoore
Henry Murray..... Thornton
William Callister ..... Thornhill
J. G. Bennett ..... Willaston
Edward Curphey Farrant.. Ballakillingan
Patrick T. Cuninghame .... . Ballanorris
George P. Goldie ..... . Marown
John Gell .... Kennaa
Philip Killey ..... . Douglas
John M. Jeffcott ..... Castletown
Ridgway Harrison..... Douglas
William Harrison ..... German
W. F. Moore .. .. Cronkbourne
William Haslam ..... Ballaglass
William Farrant ..... Ballamoore
J. S. Goldie Taubman..... Nunnery
Edward Faulder..... Ellerslie

Committee of the Legislature

FOR REGULATING ALL MATTERS RELATIVE TO HIGHWAYS, BRIDGES, &c.

W. Callister, E. C. Farrant, F. Matthews, Ridgway Harrison, and J. M. Jeffcott.

Surveyor-General, R. Anderson, Douglas

Constituted Authorities

HIGH BAILIFFS.

Senhouse Wilson ..... Douglas
James Gell..... Castletown
Frederick Tellett..... ..... Ramsey
Robert J. Moore ..... Peel

Coroner-General for holding Inquests of Death.... W. W. Christian, Andreas
Registrar of Deeds .. S. Wilson, Douglas
Registrar General of Births and Marriages ...James Burman, Castletown
Deputy Registrars do.—R. Harrison, Douglas; James Gell, Castletown; Robert J. Moore, Peel; F. Tellett, Ramsey
Episcopal Registrar .... . Samuel Harris
Deputy Episc. Registrar ....
Archdeacon's Registrar.. R. H. L. Brown
Seneschal ..... L. Adamson, Douglas
Crown Solicitor .. A. W. Adams, Douglas
Visiting Magistrate for Gaol of Castle Rushen ..... James Gell, Castletown
Regulator of Weights and Measures .. F. L. Gelling, Castletown
Agent for Woods and Forests ...F. C. Skrimshire, Douglas
Tithe Agent.....S. Harris, Douglas
Southern Deemster's Clerk, R. Harrison
Northern Deem. do., ...F. B. Clucas

Magistrates

The Members of the Council....
The High Bailiff of Castletown..
The High Bailiff of Douglas ....
The High Bailiff of Ramsey ....
The High Bailiff of Peel ..... } For the time being.

Thomas Moore ..... Ballown
Mark H. Quayle, C.R. ..... Castletown
Wm. Watson Christian ..... Ballacurry
James Campbell ..... New Zealand
Samuel Pollock ..... Strathallan House
Evan Gell ..... Whitehouse
Richard Quirk .... Rheaby
Cesar Bacon .... Seafield
William Callister..... Thornhill
Ewan Cameron..... Ballatessen
Clarence Horatio Cary .... Beach House
John Frissell Crellin .... Orrisdale
Edward Moore Gawne.... ... Kentraugh
Alexander Taubman Goldie . .. Douglas
John Berkely Harrison .... Douglas
Richard Simpson ..... The Cliff
J. G. Bennett.. ..... Williston
P. T. Cunninghame ..... Ballanorris
William Farrant ..... Ballamoar
John Gell..... Kennaa
William Haslam .. . . Ballaglass
F. Matthews .... Glenmoore
W. F. Moore ..... Cronkbourne
G. H. Newton .... Westham
J. S. Goldie Taubman..... Nunnery
Samuel Harris..... Marathon

CLERKS—James Spittall..... Douglas
Henry C. Gill.... Castletown
F. J. D. Lamothe .. Ramsey
John Kelly ..... Peel

Members of Manx Bar

* Members of the House of Keys.

William Corlett .... Ballamona
Frederick Tellett, H.B. ..... Ramsey
Frederick L. Gelling .. .. Castletown
James Quirk .... Douglas

William W. Christian ..... Andreas
William Clague ..... Peel
Mark H. Quayle, C.R..... Castletown
George Wm. Dumbell ..... Douglas
* Frederick J. D. Lamothe .. . . Ramsey
Henry B. Watts ..... Douglas
J. C. Stephen, Deemster ..... Ramsey
Frederick B. Clucas ..... Ramsey
Edward H. Frizelle ..... Peel
Senhouse Wilson, H.B. ..... Douglas
Robert J. Kelly ..... Ramsey
* Robert J. Moore, H.B .. .. Peel
Thomas C. Howard..... New Zealand
*John M. Jeffcott ....Castletown
Laurence Craigie .... Douglas
Edward C. Fleetwood ..... Douglas
*Ridgway Harrison .. .. Douglas
Samuel Harris .... Douglas
Edward Callow .... Manchester
Charles J. Stewart .... Lancashire
Chas. R. Ogden.... . ..... Liverpool
John Kelly ..... Peel
Thomas C. Callow ..... Douglas
James Gell, H.B..... Castletown
Daniel F. Wilson ..... . Ramsey
J. G. M'Hutchin .. .. Australia
Samuel S. Rogers..... Australia
James Spittall ..... Douglas
Alfred Walter Adams ..... . Douglas
Frederick Call ..... Australia
James Burman .. .. Douglas
A. N. Laughton .... Douglas
Thomas A. Corlett, jun. ..... Ramsey
Laurence W. Adamson ..... Douglas
Henry C. Gill .... Castletown
J. C. Tobin Harrison ..... Douglas
Richard Tuton ... . Douglas
John Thomas Clucas ..... Castletown
Richard Sherwood ..... Douglas
Alured Dumbell .... Ramsey
Henry Evans Gelling..... Castletown
Henry T. Lamothe..... Ramsey
Claudius Cannell ..... Douglas

Notaries Public

DOUGLAS. — John Moore, Henry B. Watts, J.C.T. Harrison, Senhouse Wilson, James Spittall, Ridgway Harrison, T. C. Callow, A. N. Laughton, R. Tuton

CASTLETOWN.—Frederick L. Gelling, H. C. Gill.

RAMSEY.—Fred. B. Clucas, Robt. J. Kelly, D. F. Wilson

PEEL.—J. Kelly

Commissioner

To take Affidavits for Courts of Queen's Bench, Exchequer, and Common Pleas, Ireland—R. J. Kelly, Ramsey

Coroners

Glenfaba..... Philip Clucas
Michael .... William Teare
Garff..... ..... . John Chrystall
Ayre ..... John Stephen
Middle .... George Maley
Rushen..... . James Thompson

Sumners

Sumner-General .... S. Harris
Kirk Maughold ..... John Bridson
—— Lonan . ..... Jas. Cannon
—— Onchan ... . William Clifford
—— Braddan ..... William Clifford
—— Marown ..... T. Christian
—— Santon..... Wm. Corlett
—— Malew .... Wm. Corlett
—— Arbory ..... . Robert Shimmin
—— Christ Rushen..... John Hodsun
—— Patrick ..... . P. Clucas
—— German ..... Robert Kewin
—— Michael ..... Edward Cannell
—— Andreas ..... Matthias Curphey
—— Bride ....John Kneale
Ballaugh ..... John Stephen
Jurby ..... J. Moughtin
Lezayre..... ..... . John Cain

Chief Constables

James Martin .... Castletown
John Sayle ..... Douglas
Claude Bennett ... . Ramsey
Matthias Collister..... Peel

Officers of Customs

PORT DOUGLAS.

Collector ..... R. S. D'Ousely
Collector's First Clerk .... N. W. Walker
Collector's 2nd Clerk and Assistant Landing-waiter ..... } G. A. M'Cammon
Searcher, Landing-waiter, Coast-wtr. and Tide Surveyor } R. J, Weaver
Locker and Weigher .. Terence Carroll
Tide Waiters and Boatmen.. Wm. Kirkbride, J. Quine, R. Quine, John Kelly R. Gelling, and G. Wainman.

CREEK OF DERBYHAVEN.

Principal Coast Officer ....R. Q. Crellin
Tide Waiters and Boatmen, W. Archer, J. Watterson, W. Bell, and Jas. Lawson

CREEK OF PEEL.

Principal Coast Officer .. Leslie Lockhart
Tide Waiters and Boatmen .. J. Cowley and J. J. Corlett

PORT RAMSEY.

Collector ..... A. Macdonald
Landing-waiter, Searcher, Coast-waiter, and Tide Surveyor .. .. } G. A. Adams
Tide Waiters and Boatmen.. Thos. Corlett, S. Farrington, and J. Quayle

Customs Brokers

H. Johnson ....Market Place, Douglas
W. Berey ..... North Quay, Douglas

Vice Consuls

Danish ..... W. F. Moore
Swedish and Norwegian .. . H. B. Noble

Harbour Masters

Douglas..... { .... John Clague / Deputy, Robert Gelling
Ramsey .... Charles Teare
Castletown . .....J. Caveen
Peel ....R. Kerruish
Port St. Mary .....Thomas Qualtrough

Commissioners of Harbours

R. Quirk, Receiver General

R. S. D'Ousely
James Gell
R. J. T. Quayle
Henry Graves
R. J. Weaver
James Corlett
Robert J. Moore
William Callister
William F. Moore

Douglas Town Commissioners.

G. Torrance, J. Mylrea, R. Gell, J. Kelly, N. S. Moore, T. Kewley, C. Cleator H. Wallace, T. Quayle.

C. Craine, Clerk to Commissioners.

Receiver of Droits of Admiralty

R. S. D'Ousely ....Douglas

Agents for Lloyd's

Southern District, William Berey, Douglas
Also for the Underwriters of Glasgow and Liverpool
Northern District..Hugh Brown, Ramsey

Bankers

Bank of Mona, Douglas—(Draw on Prescott, Grote, & Co., London) — J. S. Jackson, Manager
Douglas and Isle of Man Bank—(Draw on Glynn, Mills, & Co., London)—Dumbell, Son, & Howard.
Bank for Savings, Thomas-st, Douglas —J. Spittall, Secretary

Law Courts

COMMON LAW.—*Castletown*, Feb. 10.—May 12—June 30—October 6—*Ramsey*, Feb. 17—May 19—July 7—October 13.

CHANCERY AND EXCHEQUER.—At Castle Rushen, on the first THURSDAY in each month; the months of Jan., August, and Sept. excepted; besides which, SPECIAL COURTS are held as occasion may require.

ADMIRALTY, OR WATER-BAILIFF'S.—At Castletown, weekly.

DEEMSTERS' SUMMARY.—At Castle-Rushen, Douglas, Ramsey, and Peel, every fortnight.

VICAR'S GENERAL.—At Douglas, Castletown, Peel, and Ramsey once monthly.

CHAPTER.—Half-yearly, in Spring and Autumn.

HIGH BAILIFFS'.—At Castletown, Douglas, Peel, and Ramsey, weekly.

BARON.—Held in April and October.

MAGISTRATES'.—Fortnightly.

Isle of Man Post-Office

Atholl Street, Douglas....Miss Macadam

SUB-POST-OFFICES & RECEIVING HOUSES.

Duke Street, Douglas ..... R. Cain
Pillar Letter Box, Osborne Terrace, Douglas
Shore Road, Douglas.....J. Clague
Crescent, Douglas .....Geo. M. Jones
Ballaughton, near Douglas.... J. Aspell
Ballasalla .....H. Caugherty
CASTLETOWN ....Walter Wallace
Wall Box, the Green, Castletown..
Port St. Mary .....Miss Harley
Union Mills .... .W. Dalrymple
Crosby .....R. Kelly
St. John's .....Mary Quayle
PEEL.....John Morrison
Onchan .....J. Lewin
Laxey .....J. Kinley
RAMSEY .... John Hampton
Wall Box, Sandy Road, Ramsey ..
Kirk Andreas..... ..Fred. Radcliffe
Sulby .....W. H. Ward
Ballaugh .....J. C. Bishop
Michael..... .....J. Cannan
Jurby ....A. Joughin
St. Mark's..... ..... .P. Mylrea
Foxdale .....E. Buzzo
Glenmay ....W. Quayle
Maughold .....D. Kinrade
Bride ....R. Pass
Colby ....H. Moore
Port Erin .....H. McComb

LIVERPOOL INFORMATION.

Pilot Boat Stations.

NOTICE.—From the Liverpool Pilot Boats is shown a single Light at the Mast Head.

The boat having the turn to board displays a red and white Flag at the masthead by day; by night, a white light, and exhibits a flare-up light every 15 minutes; the other boats a white light only.

The TWO western boats cruise off Point Lynas, and as far to the westward as the Middle Mouse, and to the eastward until Priestholm Island bears S.S.W.

The THIRD western boat cruises from Point Lynas to S.S.W. off west end of Great Ormshead, to board any vessels that may pass the first and second boats.

The FOURTH western boat cruises from eastern limit of third boat's station, and eastward to N.N.E. from west end of Bar Land.

The FIFTH, or first Hoylake boat cruises to the westward so as to keep sight of the Northwest Light-Ship from the deck.

The SIXTH, or second Hoylake boat, to board vessels after they pass the line of the Northwest Light-Ship and point of Air, when the first boat is not within a reasonable distance, and after high water to take pilots from vessels outward bound.

Rates of Pilotage.

For all Vessels trading Foreign.

INWARD. PER FOOT.

	s.	d.
From the length of the west end of the Great Ormshead, bearing S. by W., or before Penman Bachan be shut in with the Great Ormshead, at the rate of	9	0
From the eastward of the Great Ormshead, as above.....	8	0
From the only house now on Great Hilbre Island, bearing S.S.W. by the compass or shall be piloted from the road of Hoylake only, or from the Buoy of the Fairway in Formby Channel	4	0

OUTWARD.

	s.	d.
Whether through the Rock or Formby Channel	4	0

No vessel, trading to Foreign Parts, inward or outward bound, is to refuse a Pilot; but if such vessel has passed the Brazil Buoy in the Rock Channel, or the Middle Patch Buoy in Formby Channel, or if a Pilot-boat falls in with a vessel in the narrows of the Channels in stormy weather, that she cannot board her without eminent danger, the pilot shall then lead the way, and in either case be entitled to such Pilotage as shall be awarded by the Committee at their next meeting.

For coasting Vessels, and those trading to and from Ireland, the Islands of Faro or Ferro, Jersey, Guernsey, Alderney, Sark and Man.

INWARDS.

	s.	d.
From the length of the Great Ormshead, as above, at the rate of	4	6
From the eastward of the Great Ormshead, as above.....	4	0
From the only house now on Great Hilbre Island, &c., as above	2	0

OUTWARD. PER FOOT.

	s.	d.
Whether through the Rock or Formby Channel	2	0

No coasting vessel to pay for less than eight feet of water, nor any vessel to pay for odd inches under half a foot. No coasting vessel, inward or outward bound of the burthen of one hundred tons or upwards, (unless she be in ballast,) is to refuse a Pilot, as the master or owner, &c., must pay the full Pilotage, if one is offered. No vessel to be deemed a coaster unless she has been six months in that trade.

EXTRA PAY. PER DAY.

	s.	d.
For every day of attendance whilst in the River, except the day of going to sea with such ships or vessels as shall be outward bound, and the day of returning from sea and the day of docking for such as shall be inward bound	5	0
And if the attendance of a Pilotboat be requested	42	0

Though the Pilot or boat be not employed a whole day, to be paid for a day.

CHARGES ON THE MERSEY.—For taking a vessel from one dock to another, £1; from Liverpool to Garston, £2, and vice versa.

Pilots' Rules and Regulations.

Any person acting as Pilot without a license, to forfeit £20.

Pilots refusing to conduct or assist ships in distress, to forfeit £10, and license.

Masters of vessels forcibly taking Pilots beyond the limits of port, to forfeit not more than £20, nor less than £5.

Pilots misbehaving to have their license recalled, and if they act afterwards the same penalties as if they were not Pilots.

Vessels liable to pay pilotage coming into port, to display signal for a Pilot, under a penalty of £5.

Reward for Pilots assisting ships in distress to be settled by the Committee.

Compensation to be made to Pilots for taking vessels out of port which have been forced back, to be fixed by the Committee.

When in stormy weather, a vessel cannot be boarded with Pilots' small boat, the vessel should be steered with the wind on the quarter, the yards braced bye, when the large boat sheers under the lee quarter and the Pilot jumps on board.

Life-Boats.

All masters and others, entering or quitting the port, and requiring the assistance of the Life Boats are requested to hoist the Distress Signal, in order that they may be dispatched to their assistance as soon as possible. Vessels aground on the Banks, and not hoisting the Distress Signal, will be supposed not to require the assistance of the Life Boats.

Life Boat Stations.

At Liverpool, on the North Landing Stage, and on the North Pier of the Prince's Basin, two boats; the key kept at the Marine Surveyor's Office, Custom-house, at the Dock Master's Office, Waterloo Dock, and at the Life Boat Master's house, Pownall Street. Magazines, two boats; the key kept at the Life Boat Master's house. Hoylake, one boat; the key kept at the Lower Hoylake Light-house. Point of Air, two boats; the key kept at the Master's house. Formby, one boat; the key kept at the Life Boat House by the keeper. Hilbre Island, one boat.

Bidston Hill Signals.

SIGNALS OF DISTRESS.—For vessels in distress or on shore in the Rock Channel.

or about Hoyle—Coming in: On the oblique pole to the southward of the lighthouse—for every ship, a ball with a flag half-mast; for every snow, a cone, broad end up and a flag half-mast; for every brig or small vessel, a cone, small end up and a flag half-mast. Going out; the same as above, but a broad pendant instead of a flag.

N.B. For vessels in distress to the southward, when on shore to the main, the ball or cone to be put on the outside of the flag or pendant; but if on shore on Hoyle Bank, then the ball or cone to be put on the inside of the flag or pendant.

In Formby Channel.—The same signals to the northward of the Lighthouse.

Pilot Boats, Masters, &c.

No.	Names.	First and Second Masters.
1,	Queen (schooner)..	Wm. Hughes, Fairfield-crescent, Fairfield. R. Taggart, Olive Cottage, St. George's Road, West Derby Road.
2,	Leader (schooner)..	Joseph Powell, Islington; John Currin, 173, Duke-st.
3,	The Duke (schooner)	J. Williams, Liscard, Cheshire; Thomas Parry, Sackville-st.
4,	Auspicious (cutter)..	J. Shepherd, 40, Wesley-st.; C. Christie, Upper Warwick-st.
5,	Victoria and Albert..	Isaac Williams, Back Lane, Wallasey Cheshire; Peter Dickinson, Lower Mersey View, North-shore.
6,	Pioneer (schooner)..	T. Parry, 18, Stafford-st.; T. Davies, Sackville-st.
7,	George Canning .	W. Rowlands, Gt. Mersey-st.; John Williams, Raglan-terrace, Netherfield Road, North.
8,	Albert Edward, Prince of Wales	John Bark, Stanley-crescent, North-shore; John Blackley, Lower Mersey View, North Shore.
9,	Liver (cutter)....	T. Crane, 3, Gt. Oxford-st.; W. Lancaster, Rock View, Bootle.
10,	Criterion (schooner)..	J. Wilson, 146, Falkner-st.; H. Williams, 16, Percy-st.
11,	Mersey (cutter)..	Richard Parry, Cazneau-st.; R. Williams, Clarence-st., Everton.
12,	Perseverance (cutter)..	George Bark, Juvinal-st.; John Tunstall.

Superintendent of Pilots, Robert J. Simpson, Church-st., Woodside, Cheshire.

The Pilot Committee meet for the transaction of business, every Monday, at 12 o'clock, at the Committee Room, South End of Prince's Dock.

Mersey Docks and Harbour Board.

OFFICERS.

Mr. John North, Solicitor.—Office, Dock Office.
Mr. George Fosbery Lyster, Engineer of the Docks, &c.—Office, south side of Coburg Dock.
Mr. John Harrison, Secretary.
Mr. J. G. Jefferson, Treasurer.
Lieut. M. T. Parks, R.N., Marine Surveyor.—Office, Dock Office.
———— Water Bailiff.—Office, George's Pier.
Mr. Wm. Marrow, Receiver of Duties on Tonnage.
Mr. John Evans, Receiver of Duties on Goods Inwards.
Mr. Wm. Laidlaw, Receiver of Duties on Goods Outwards
Mr. T. L. Burgess, Receiver of Duties on Goods Coastwise
Mr. Richard Jones, Receiver of Duties at Runcorn.
Mr. R. Cowan, Superintendent of Albert Dock Warehouses.
Mr. W. D. Turner, Superintendent of Stanley Dock Warehouses.
Mr. J. Ayre, Superintendent of Wapping Warehouses.
Mr. W. H. Sloman, Superintendent of Birkenhead Warehouses.
Mr. Thomas Hogdson, Harbour Master. Office, George's Dock Passage.
Mr. John Garniss, South Assistant Harbour Master. Office, south end of Wapping Dock.
Mr. Henry T. Cox, North Assistant Harbour Master. Office, Sandon Graving Docks.
Lieut. James Hookey, R.N., Birkenhead Assistant Harbour Master. Office, Morpeth Dock Entrance.

Dock Masters.

Canada.....Alexander Douglas
Huskisson .....Hugh Ross
Sandon .....Thomas Barnes
Wellington & Half-tide..Shad. Williams
Nelson & Bramley Moore..Edw. Edwards
Salisbury, Collingwood, and Stanley .....Edward Carey
Clarence Half-tide, Clarence, and Trafalgar .. ...Thomas Stirzaker
Waterloo and Victoria....Joseph Woods
Prince's .....William Asbridge
George's.....Charles Purnell
Canning and Half-tide....Thos. Prenton
Albert and Salthouse Docks, and Wapping Basin .....William Foyle
King's and Wapping .....Joseph Curry
Queen's and Half-tide .....John Curry
Coburg .....George Corfield
Brunswick .....J. H. Henrichson
Toxteth and Harrington ..Thomas King

The Dock Master's Offices are at the entrance of the respective Docks.

Dock and Basin Signals.

All vessels are allowed to enter the Docks when signals are not hoisted at the respective pierheads. All owners, masters, and consignees are, however, recommended to register their vessels as expeditiously as possible, in order the better to secure their right of turn to accommodation at the Dock quays.

DOCK SIGNALS.

HUSKISSON—Flag on N. pier of Sandon Basin entrance.

SANDON—Flag on N. side of gateway.

WELLINGTON AND HALE-TIDE—Flag on S. pier of Sandon Basin entrance.

NELSON AND BRAMLEY-MOORE—Flag on N. pier of Salisbury Dock entrance.

SALISBURY, COLLINGWOOD, AND STANLEY—Flag on S. pier of Salisbury Dock entrance.

CLARENCE AND HALF-TIDE—Flag on N. pier of Clarence Half-tide entrance.

TRAFALGAR—Flag on S. pier of Clarence Half-tide Dock entrance.

WATERLOO AND VICTORIA—Flag on N. pier of Prince's Basin entrance.

PRINCE'S NORTH ENTRANCE—Flag on S. pier of Prince's Basin entrance.

PRINCE'S SOUTH ENTRANCE—Flag on N. Pier of George's Basin entrance.

GEORGE'S—Flag on S. pier of George's Basin entrance.

CANNING AND HALF-TIDE—Flag on N. pier of Canning Half-tide entrance.

ALBERT AND SALTHOUSE—Flag on S. pier of Canning Half-tide entrance.

KING'S—Flag on N. pier of King's and Queen's Basin entrance.

WAPPING—Flag on N. end of the King's Parade.

QUEEN'S—Flag on S. pier of King's and Queen's Basin entrance.

COBURG—Flag on S. pier of Coburg entrance.

BRUNSWICK—Flag on S. side of entrance

TOXTETH—Flag on N. side of entrance

HARRINGTON—Flag on S. side of entrance.

BASIN SIGNALS.

SANDON—Ball on the north side.

PRINCE'S—Ball on S. pier of entrance.

GEORGE'S—Ball on S. pier of entrance.

Abstract of Dock Laws.

Goods causing obstruction on the Dock quays, may be removed by the Trustees at expense of owners.

Such a quantity of cargo or ballast to be kept on board each vessel as to enable it to be safely removed; penalty £50.

Harbour and Dock Masters may remove vessels in dock, or from one dock to another, at owner's expense; penalty for obstructing them, disobeying their orders, or using abusive or offensive language to them, £10.

Vessels on which dues, &c., are owing may be detained until such are paid.

Shipowners have a lien for freight and all other lawful claims on goods discharged into dock warehouses.

Manifest of all goods imported or exported to be delivered at the dock Office within 14 days after the discharge inwards or clearance outwards; penalty £20.

Collector, &c., not to receive entry of any vessel until the dock and light duties are paid; penalty £20.

No ballast to be thrown into the docks; penalty £2.

After ballast is discharged to be carted away as the trustees of the docks shall appoint; penalty £2.

Vessels not to come into dock under sail; penalty £5.

Persons willfully & maliciously damaging docks, &c., adjudged guilty of felony.

Water-bailiff empowered to remove vessels lying in the river; penalty for obstructing him, £10.

Persons firing cannon, &c., within the port, (except signal guns of distress) to forfeit £10 for every offence.

CUMBERLAND INFORMATION.

Members of Parliament, &c.

WHITEHAVEN—G. Lyall, Esq, 17 Park Crescent, Regent's Park, London, W.C.

COCKERMOUTH—J. Steel, Esq, 13 Bury Street, London. Lord Nass, 79 Eccleston Square, Palmerston House, London

EASTERN DIVISION—Hon. Chas. W. G. Howard, Naworth Castle; 56 Park-street Grosvenor Square, London. W. Marshall Esq, Paterdale Hall; 85 Easton Square, London

WESTERN DIVISION. — Hon. Percy Wyndham. H. Lowther, Esq., 21, Wilton Crescent, London.

CARLISLE—E. Potter, Esq., Manchester; Reform Club, London. Wilfred Lawson, Esq., Braytow, Boodles, London. S.W.

Lord Lieutenant ..... Earl of Lonsdale
Clerk of the Peace .. T. H. Hodgson, Esq
County Treasurer, Mr. Dobson, Carlisle.
Gov. of Gaol.. Mr. T. H. Redin, Carlisle.
County Coroners.. { Wm. Carrick, Esq. / W. Lumb, jun., Esq.

Quarterly Sessions

Easter, in the first week after 31st March
Midsummer, first week after 24th June.
Michaelmas, first week after 11th Oct.
Christmas, first week after 28th Dec.

The Easter, Midsummer, Michaelmas and Christmas Sessions for Cumberland are held at Carlisle.

Bankers

WHITEHAVEN—The Whitehaven Joint Stock Banking Company, Peter Cameron, Manager.—London Joint Stock Bank, 5, Prince's Street.

Bank of Whitehaven, G. W. Brown, Manager.—Price, Marryat, & Co., 54, King William Street, City.

J. M. Head & Co's. (of Carlisle) Branch Bank, W. Miller, Manager.—Masterman & Co., 35, Nicholas Lane, London.

Savings Bank.—Open Saturdays from 6 to 8, p.m.—F. J. Lowes, Sec.

WORKINGTON. — Cumberland Union Banking Company, W. B. Gordon, Manager.—Barclay, Bevan, & Co., 54, Lombard Street.

J. M. Head & Co's. (of Carlisle) Branch Bank, John Allison, Agent—Masterman and Co., 35, Nicholas Lane, London.

MARYPORT.—Branch of the Cumberland Union Banking Company, Joseph Thompson, Agent.—Barclay, Bevan, and Co., 54, Lombard Street.

COCKERMOUTH.—Branch of the Cumberland Union Banking Company, John S. Hellon, Agent.—Barclay, Bevan, and Co., 54, Lombard Street.

WHITEHAVEN AND WEST CUMBERLAND BENEFIP LAND AND BUILDING SOCIETY. —Public-office, Lowther-street; open on Saturdays from six to eight, p.m.—S. Armstrong, Secretary.

The Whitehaven and Furness Junction Railway.

Trains leave Bransty Station four times daily (Sundays excepted) for Bootle, Ulverstone, Broughton, Fleetwood, Preston, Manchester, Liverpool, &c. This is the nearest route to Preston, Manchester, Liverpool, &c.—(*See West Cumberland Railway Guide.*)

The Whitehaven and Maryport Junction Railway.

Trains leave Bransty Station four times daily (Sundays excepted) for Workington, Maryport, Wigton, Carlisle, and Cockermouth; three times daily for Edinburgh, London, Birmingham, Liverpool, Manchester, Preston, Newcastle, York, and Darlington.—(*See West Cumberlaad Railway Guide.)*

The Whitehaven, Cleator, and Egremont Railway.

Trains leave Whitehaven three times daily (Sundays excepted) for Cleator Moor, Frizington, Woodend, and Egremont.—(*See West Cumberland Railway Guide.*)

Steamers and Traders.

LIVERPOOL.—The Whitehaven Steam Navigation Company's powerful and commodious first-class steamers sail regularly with goods and passengers.—Fares: Cabin, 7s., Deck, 4s. Passengers are conveyed, in connection with the Railway Companies, between Newcastle, Carlisle, Dalston, and Wigton, to Liverpool at a through fare. Passengers by Railway arrive at Whitehaven by the last train before the steamer's sailing, and those from Liverpool being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and Second class, 10s.; Deck and Third class, 4s. Agents—Carlisle, Edward Jobling; Liverpool, Fisher, Wilson, & Co.; Whitehaven, J. and J. Hodgson.

BELFAST. — The Whitehaven Steam NavigationCompany's steamers sailregularly with goods and passengers.—Fares: Cabin, 10s., Deck, 3s. Passengers are conveyed, in connection with the Railway Companies, between Carlisle, Dalston, and Wigton, to Belfast, at a through fare. Those from Carlisle, &c., arriving inWhitehaven by the last train before the steamer's sailing, and those from Belfast being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and Second class, 12s.; Deck and Third class, 5s. Agents—Belfast, R. Henderson and Son, Donegal Quay; Carlisle, Edward Jobling; Whitehaven, J. & J. Hodgson.

DUBLIN.—The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers. Fares: Cabin 15s., Deck, 6s. Passengers and goods are conveyed between Carlisle, Dalston, and Wigton, to Dublin, at a through fare, arriving in Whitehaven by the last train before the steamer's sailing, and those from Dublin being forwarded by first train after the steamer's arrival in Whitehaven. Agents—Allen Nicholl, Dublin; Whitehaven, J. & J. Hodgson.

DOUGLAS.—The Whitehaven Steam Navigation Company's steamers sail regularly during the summer months to Dublin, calling at Douglas, Isle of Man, to land and receive passengers. Fares: Cabin, 6s., Deck, 3s. Agents:—William Berey, Douglas; J. & J, Hodgson, Whitehaven.

RAMSEY, ISLE OF MAN.—The steamer "Mona's Isle," sails regularly twice a month between Whitehaven and Ramsey. —Fares: Saloon, 6s., Fore Cabin, 3s.— Agents, Frost and Nelson, Shipbrokers, Whitehaven; W. Crennell, Ramsey.

LONDON. — The Whitehaven Steam Navigation Company, in connection with the Belfast Screw Steam Company, sail a vessel once a week. Agents:—Belfast, Robert Henderson; London, Ogilby, Moore, & Co., Ingram Court, Fenchurch Street; Whitehaven. J. & J, Hodgson.

DUNDRUM. — The "Ansbro'," and "Robert Burns," screw steamers, sail regularly between Dundrum and Whitehaven. Agents—Chas. Fisher & Co., 36, King Street, Whitehaven.

DOUGLAS, ISLE OF MAN.—The smack "Black Diamond," Capt. Joseph Skelly, sails regularly once a week with goods between Whitehaven and Douglas.

Carriers

Leave Whitehaven for Harrington, Workington, Cockermouth, Keswick, and Egremont, every Tuesday, Thursday, and Saturday; for Wigton, every Wednesday; and for Gosforth, every Tuesday, Thursday, and Saturday.

Rates for the Steam Tugs

Vessels employed in the Coal or Coasting Trade, shall pay every voyage, on clearing for sea, one half-penny per Ton Register. Vessels arriving from a Foreign Port or from a Discharging Port, one penny per Ton Register.

Vessels engaged in the Coal or Coasting Trade, pay an additional half-penny per ton when they require the use of the Steam Tug, Outward, and the same, Inwards.

Foreign Vessels as above, one penny per ton.

That the limits for towing vessels into, and out of the harbour for one half-penny and one penny per ton respectively, be as follows, viz:—say a line drawn from St. Bee's Head to Mickleham Pit, on the Hill north of Parton, and two lines intersecting the above, from Redness Point and Tom Hurd Rock, bearing N.W. by N. and S.E. by S. by compass.

If the vessel first in turn be not afloat, or not ready for the Tug Boat, then she is to take the first that is.

Vessels wanting the use of the Steam Tug, are to hoist the Union Jack on the Main Top Gallant Mast Head.

Harbour Boat Rates

A boat is stationed at the Old Quay Watch House to attend on vessels entering the Port, and also to give assistance to those outward bound, charges are as follows, viz.:—

	s.	d.
Vessels of 120 tons and upwards	4	0
Vessels from 100 to 120	3	6
Vessels from 80 to 100	3	0
Vessels from 60 to 80	2	6
Vessels from 40 to 60	2	0
Vessels from 20 to 40	1	6
All vessels less than 20	1	0

FOREIGN LADEN VESSELS.

Under 120 tons	4	0
Above 120 tons	6	0

The Harbour Boat to be paid as above by all vessels entering the port; but if not employed by those leaving it, no charge to be demanded.

Rates for the Gridiron

Every vessel, previous to going on, must be entered at the Harbour Office, and payment made according to the established rates, for which she may remain on four tides, counting the tide going on and the tide coming off.

	On Entry s	On Entry d	Every Tide above four s	Every Tide above four d
Vessels not exc. 50 tons	5	0	1	0
Above 50 & not exc. 100	7	6	2	6
.. 100.....150	10	0	3	4
.. 150. 200	15	0	5	0
.. 200.....250	20	0	6	8
.. 250..... ... 300	25	0	8	4

Post Office, Whitehaven.—WILLIAM B. GIBSON, POSTMASTER.

Arrivals.—*Week days*—London and all parts 9h., a.m.; 8h. 35m., p.m. *Sundays*—London and all parts 10h. 35m., a.m. Despatches.—*Week days*—Local parts, 9h. 30m. a.m.; North mail, 2h. 35m. p.m.; London and all parts, 6h. 15m. p.m. *Sundays*—North mail, 7h. 50m. a.m.; Local parts, 11h. 30m. a.m.; London and all parts, 5h. p.m. The letter box is closed 15 minutes before each despatch. Letters bearing one additional stamp will be forwarded for the first ten minutes. The deliveries by letter carriers commence during the week days at 9h. 35m. a.m., and 8h. 55m. p.m.; and on Sundays at 12h. 45m, p.m.

POST OFFICES IN CONNECTION WITH THE WHITEHAVEN POST OFFICE.
Those marked thus † are empowered to grant and pay Money Orders.

OFFICES.	ARRIVAL.	DESPATCH.	RECEIVER.
Sandwith	10 30 a.m.	4 55 p.m.	J. Fisher.
† St. Bees	7 15 ..	8 58 a.m.	W. Geldart.
Ditto	11 25 ..	4 10 p.m.	Ditto.
Parton	10 30 ..	4 50 ..	E. Lightfoot.
Distington	12 10 ..	3 20 ..	E. Lawrence.
Hensingham	9 40 ..	5 26 ..	J. Sumpton.
Cleator Lane End	10 1 ..	5 5 ..	C. McGinn.
Cleator	10 51 ..	4 5 ..	J. Harkness.
† Cleator Moor	11 30 ..	3 20 ..	Jno. Atkinson.
† Egremont	10 12 ..	4 54 ..	G. Selkirk.
Beckermont	10 34 ..	4 32 ..	J. Gilliot.
Calderbridge	10 45 ..	4 21 .	M. Moore.
Gosforth	11 0 ..	4 6 ..	P. Leech.
Holm Rook	11 22 ..	3 44 ..	J. Birkett.
Eskdale	12 21 p.m.	9 30 a.m.	W. Russell.
Wasdale	1 41 ..	5 10 p,m.	M. Pharoah.
† Ravanglass	11 41 .	3 25 .	H. Jackson.
Waberthwaite	12 16 ..	2 50 ..	J. Woodall.
† Bootle	12 46 ..	2 20 .	J. Parker.

MERSEY DOCKS AND HARBOUR.

Tabular Statement, showing the Area of Water, Quay Space, Width of Entrance, and Depth of Sill for each Dock, also the length of Graving Docks. &c.

The Old Dock contains an area of 3 acres 1890 yds., and 557 lineal yds. quay space
Its Passage do 675½ do., 90 do.

The level of the Old Dock Sill is the Datum to which the Depth of Sills refer, and is preserved on a Tide Gauge on the west side of the Centre Pier of the entrances to the Canning Half-tide Dock.

LIVERPOOL DOCKS.	Width of Entrance.		Sill under Old Dock Datum.		Coping at Hollow Quoins above Sill		Water Area.		Quay Space	
	Ft.	In.	Ft.	In.	Ft.	In.	Acr.	Yd.	Mile.	Yd.
North Carrier's Dock .. West Passage	40	0	6	0	33	0	2	3423		641
South ditto ..... West Passage	40	0	6	0	33	0	1	4515		615
Canada Half-tide Dock	..	..	..	..	..	..	3	4380		468
West Entrance	60	0	7	9	35	9				
Northern West Lock Entrance.....	32	0	6	0	34	0				
Southern West Lock Entrance	20	0	6	0	34	0				
North Passage	20	0	3	0	30	0				
South Passage	80	0	7	9	35	9				
Canada Dock	..	..	..	..	..	..	17	4043		1272
South Passages..... East	50	0	6	6	35	6				
West	80	0	6	6	35	6				
Canada Lock	100	0	7	9	35	9	1	3479		487
Huskisson Dock	..	..	..	..	..	..	14	3451		1039
Huskisson Branch Dock.....	..	..	..	..	..	..	7	592		910
Huskisson East Lock	80	0	6	6	44	6	0	4682		342
Huskisson West Lock.....	45	0	6	0	32	0	0	3650		330
Sandon Dock..... West Entrance	70	0	6	6	37	5	10	100		867
Wellington Half-tide Dock, East Entr.	70	0	6	9	37	6	3	813		400
West Entrance	50	0	6	6	34	6				
Wellington Dock..... West Passage	70	0	6	6	37	6	7	4120		820
Bramley-Moore Dock .. North Passage	60	0	6	0	32	0	9	3106		935
South Passage	60	0	6	0	32	0				
Nelson Dock ..... South Passage	60	0	6	6	32	6	7	4786		803
Stanley Dock ..... West Passage	51	0	5	8	34	8	7	120		753
Collingwood Dock .. ...West Passage	60	0	6	9	32	9	5	244		553
Salisbury Dock	..	..	..	..	..	..	3	2146		406
West Entrances ..... North	60	0	6	11	32	11				
South	50	0	6	11	32	11				
Clarence Graving Dock Basin ....North Passage	45	0	4	9	30	9	1	1056		291
....South Passage	45	0	4	6	31	0				
Clarence Half-tide Dock .. West Entr.	50	0	5	6	34	0	4	1794		635
Clarence Dock..... West Passage	47	0	3	2	29	2	6	273		914
Trafalgar Lock .. Nth. & Sth. Passages	45	0	6	7	30	5	0	2937		256
Trafalgar Dock .. ..South Passage	45	0	4	11	31	4	5	4546		764
Victoria Dock.. .....South Passage	40	0	4	11	31	3	5	3559		755
Waterloo Dock	..	..	..	..	..	..	5	3056		737
Waterloo Lock ..... .North Passage	45	0	6	5	33	0	0	2937		256
South Entrance	45	0	6	8	33	3				
Prince's Dock & Locks, North Entrance	45	0	5	11	34	1	11	3889		1613
South Entrance	44	11	5	11	34	1				
George's Dock & Passage, North Entr.	41	11	4	6	29	0	5	2593		1001
South Passage	40	1	4	6	28	11				
Manchester Dock..... West Entrance	32	10	*Note*†		23	0	1	595		339
Manchester Lock ..... West Entrance	33	8	3	9	28	0	0	315		57
Canning Dock ..... West Passage	45	0	6	1	32	3	4	376		585
Canning Half-tide Basin.....	..	..	..	.	..	..	2	2688		429
Two West Entrances ..... each	45	0	6	3	34	6				
Albert Dock... .....North Passage	45	0	6	4	32	4	7	3542		885
East Passage	45	0	6	0	32	0				
Salthouse Dock .....North Passage	45	0	6	0	32	0	6	2019		784
Wapping Basin .....West Passage	40	0	6	0	31	0	1	3151		454
North and South Passages .. each	50	0	6	0	32	0				

† The Sill of the Manchester Dock is 3 inches *above* Old Dock Datum.

LIVERPOOL DOCKS.	Width of Entrance.	Sill under Old Dock Datum	Coping at Hollow Quoins above Sill	Water Area	Quay Space
	Ft. In.	Ft. In.	Ft. In.	Acr. Yd.	Mile. Yd.
Wapping Dock ..... West Passage	50 0	6 0	32 0	5 499	815
South Passage	50 0	6 0	32 0		
King's Dock ..... South Passage	42 0	5 0	31 1	7 3896	875
Basin to Queen's Dock	.. ..	.. ..	.. ..	3 3542	445
West Entrances..... North	70 0	6 9	37 9		
South	50 0	6 9	37 9		
Queen's Dock .... West Passage	50 0	6 0	32 0	10 1564	1214
South Passage	60 0	6 6	35 3		
Coburg Dock..... . West Entrance	70 1	6 0	32 3	8 26	1053
Brunswick Dock .... . North Passage	60 0	6 6	33 6	12 3010	1086
Brunswick Half-tide Dock, East Pass.	42 0	5 6	31 6	1 3388	491
West Entrance	45 0	6 0	32 6		
Toxteth Dock..... ... West Entrance	40 0	5 0	31 0	1 469	393
Harrington Dock..... West Entrance	29 9	1 2	24 3	0 3740	315
Total Water Area and Quay Space of the Liverpool Docks				228 630	16 923

LIVERPOOL BASINS.		Height of Piers above Old Dock Sill			
Canada Basin.....	250 0	32 0	.. ..	6 4528	546
Sandon Basin..... ...	200 0	31 0	. ..	6 904	702
Prince's Basin	156 0	27 10	.. ..	4 1549	509
Seacombe Basin	52 0	.. ..	.. ..	0 1805	188
George's Basin	147 0	25 0	.. ..	3 1852	455
George's Ferry Basin	70 0	.. ..	.. ..	0 1344	169
Manchester Basin.....	36 0	.. ..	.. ..	0 2568	288
South Ferry Basin	60 0	.. ..	.. ..	0 2927	205
Harrington Basin..	40 0	. ..	.. .	0 3917	308
Total Water Area and Quay Space of the Liverpool Basins				23 2034	1 1600
Ditto ditto ditto Docks				228 630	16 923
Total.....				251 2664	18 763

BIRKENHEAD DOCKS.					
Wallasey Pool ..... Western Float	.. ..	.. ..	.. ..	52 319	2 210
Ditto .... Eastern ditto	.. ..	.. ..	.. ..	59 3786	1 1506
Ditto .... Passage	100 0	7 6	33 6		
Ditto, Basin near Canada Works, West	50 0	.. ..	.. .	1 2554	543
Ditto, ditto..... East	50 0	.. ..	.. ..	1 84	390
Ditto, Railway Company's Basin.....	.. ..	. ..	.. ..	0 606	113
Egerton Dock ..... West Passage	70 0	7 0	28 6	3 4011	754
Morpeth Dock..... West Passage	70 0	5 3	30 0	3 1189	790
East Entrance	50 0	5 0	30 0		
Total Water Area and Quay Space of the Birkenhead Docks ..				121 2869	5 786
Ditto ditto Liverpool Docks and Basins..				251 2664	18 763
TOTAL.....				373 693	23 1549

LIVERPOOL GRAVING DOCKS.	Width of Entrance.	Sill under Old Dock Datum	Coping at Hollow Quoins above Sill	Length at Bottom	Total Length at Bottom
	Ft. In.	Ft. In.	Ft. In.	Lineal Yd	Lineal Yd
Canada Lock and Graving Dock.....	100 0	7 9	35 9	. ..	167
Huskisson Lock and Graving Dock ..	80 0	6 6	44 6	.. ..	132
Sandon Graving Docks, No. 1—East..	60 0	3 6	29 6	180	
No. 2 ..	70 0	3 6	29 6	180	
No. 3 ..	60 0	3 6	29 6	180	
No. 4 ..	70 0	3 6	29 6	180	
No. 5 ..	45 0	3 6	29 6	180	

GRAVING DOCKS, Continued.	Width of Entrance.	Sill under Old Dock Datum.	Coping at Hollow Quoins above Sill	Length at Bottom.	Total Length at Bottom.
	Ft. In.	Ft. In.	Ft. In.	Lineal Yd	Lineal Yd
Sandon Graving Docks, No. 6—West	45 0	3 6	29 6	180	
Clarence Graving Docks—					1080
No. 1—Outer Gates	45 0	3 0	29 6	135	
No. 1—Inner Gates	45 0	0 6	18 6	97	
No. 2—Outer Gates	45 0	3 0	29 6	138	
No. 2—Inner Gates	32 10	0 6	18 6	96	
					466
Canning Graving Docks ....No. 1....	35 9	†	21 6½	147	
No. 2....	35 9	0 0½	23 4	160	
					307
Queen's Graving Docks ....No. 1....	42 0	1 8¼	29 4	146	
No. 2....	70 1	3 6	30 11	145	
					291
Brunswick Graving Docks ..No. 1....	42 0	2 6	29 0	133	
No. 2....	42 0	2 6	29 0	133	
					266
Total measure at the bottom.....					2709

† Sill 1 foot 8½ inches ABOVE Old Dock Datum.

LIVERPOOL CORPORATION DOCKS.	Width of Entrance.	Level of Sill. Above Datum.	Level of Sill. Below Datum.	Level of Coping above Sill.	Water Area.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Acre. Yd
River Craft Dock, Lock, & Eagle Basin	.. ..	.. ..	.. ..	.. ..	
Outer Gates	30 0	0 3	.. ..	25 1	1 3416
Inner Gates.....	30 0	1 3	.. ..	24 7	
Duke of Bridgewater's Dock—					
Outer Gates.....	40 0	.. ..	4 6	30 0	
Middle Gates	28 10	0 6	.. ..	22 3	2 1336
Inner Gates....	40 0	.. ..	6 0	31 0	

A Tide-Guage Table for the Entrance of the Mersey,

Adapted to shew the *Height of Water* above low-water level of ordinary Spring Tides, at any required period.

When it is High Water at or near either of the following times.	H. W.	Last ½ h. flood, or first ½ h. ebb.	5 hours' flood, or 1 hour's ebb.	¾ flood, or ¼ ebb.	4 hours' flood, or 2 hours' ebb.	3½ hours' flood, or 2½ hs.' ebb	Half-Tide.	2½ hours' flood, or 3½ hs.' ebb.	2 hours' flood, or 4 hours' ebb.	¼ flood, or 3¼ ebb.	1 hours' flood, or 5 hours' ebb	1st ½ h. flood, or last ½ h. ebb	L. W.
hour.	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*
12 o'clo	30	29	27	25	22	19	16	13	10	8	5	3	2
11 or 1	29	28	27	25	22	19	16	13	10	8	6	4	3
10 or 2	27	26	25	24	21	19	16	13	11	9	7	6	5
9 or 3	26	25	24	23	21	18	16	13	11	9	8	7	6
8 or 6	25	24	23	22	20	18	16	14	12	10	9	8	7
7 or 5	24	23	22	21	20	18	16	14	12	11	10	9	8
6	23	22	21	20	19	18	16	14	13	12	11	10	9

Graving Dock Rates

FOR	Vessels under 50 tons. £	s.	50 and under 100. £	s.	For every progressive 50 tons. £	s.
2 Tides, the tide in & next tide out	1	16	2	2	0	6
3 ——, includ. going in & coming out	2	2	2	9	0	7
4 ——	2	8	2	16	0	8
5 ——	2	14	3	3	0	9
6 ——	3	0	3	10	0	10
7 ——	3	6	3	17	0	11
8 ——	3	12	4	4	0	12
9 ——	3	18				
10 ——	4	4				
11 ——	4	10				
12 ——	4	16				
2 Neaps	12	0	16	0	2	0
3 ——	18	0	24	0	3	0
4 ——	24	0	32	0	4	0
5 ——	30	0	40	0	5	0
6 ——	36	0	48	0	6	0
7 ——	42	0	56	0	7	0
8 ——	48	0	64	0	8	0

Latitude and Longitude of Liverpool

Lat. of the Observatory .. 53° 24′ 47·8″ N.
Longitude in Time .... 12m. 0·11s. before Greenwich Time.

Isle of Man Fairs

JANUARY.—5. St. Mark's, Malew.

FEBRUARY.—2. Greeba—12. Kirk Bride.—27. Baldwin.

MARCH.—17. St. John's.—25. Ramsey. 28. Peel.

APRIL.—5. Jurby.

MAY.—1. St. John's.—3 Sulby Claddagh.—10. Laxey.—12. St. Mark's.—15 Ballaugh.—26. Kirk Santon.

JUNE.—4. Sulby.—16, Kirk Michael.

JULY.—5. St. John's.—23. Sulby.

AUGUST.—5. Laxey.—12. Ballasalla.—26. Ballaugh.

SEPTEMBER.—29. Ballasalla.

OCTOBER.—10. Michael.—28. Arbory.

NOVEMBER.—1. St. John's.—8. Ramsey.—12. Douglas.—18. St. John's.

DECEMBER.—6. Colby, Kirk Arbory.—11. Kirk Andreas.

Those falling on Saturday, Sunday, or Monday, to be held on the following Tuesday—except the Tynwald Fair, which must be held on the 5th July, unless that day fall on a Sunday.

Cumberland—Abbey-Holme, Tuesday before Whitsunday, Oct. 29.—Alston Moor, last Thursday in May, Friday before 27th Sept., 1st Thur. in Nov.—Arclecdon Ap. 24, 1st Friday in June, 17 Sep.—Bootle, April 5, 26, August 3, Sep. 24.—Brampton, April 22, 2nd Wed. after Whit. 2nd Wed. after 15th Sept.—Carlisle, Sat. next Whit., Aug. 26, Sept. 16, Sat, nearest 11th Nov.—Cockermouth, Feb. 18, Mon. before Easter. 1st and 3rd Wed. in May, Oct. 10.—Egremont, Feb. 18, 3rd Frid. in May, Sept. 13.—Ennerdale, 2nd Tues. in Sep.—Eskdale, 2nd Mon. in Sep. Garrigill, 3rd Fri. in May. 1st Fri. in Sep.—Gosforth, April 25, Oct. 18.—Hesket Newmarket, every alternate Fri. from May till Whit., last Thur. in Aug., 2nd Thur. in Oct.—Ireby, Feb. 21, Oct. 18—Keswick, 3rd Thursday after 1st May, Oct. 11, Sat. after 29th Oct.—Kirkoswald Thur. before Whit. Sun., Aug. 5.—Longtown, Thur. before Whit. Sun., Thur. before Sept. 30.—Nether Wasdale, 1st Mon. in Sep.—Newlands, 1st Fri. in Sep.—Penrith, March 1, April 24, 25, 3rd Tues. in Oct., Tues. after Nov. 11.—Ravenglass, May 6, June 8, Aug. 5.—Rosely Hill, Whit Mon., and every alter. Mon. till Michael.—Skinburnness, June 24—Threldkeld, 1st Thur. in Sept.—Uldale, August 22.—Ulpha, Mon. before Easter. July, 5.—Whitehaven, Aug. 12. Wigton, Feb. 20, April 5.—Workington, Wed. before Holy Thursday, Oct, 18.

Cheshire—Altringham, Ap. 22, Aug. 5, Nov. 22.—Budworth, Feb. 13, Ap. 5, Oc, 2,—Congletown, May 12, July 5. Nov. 22, —Chester, Feb. 23, April 27, July 5, Oct. 2, Nov. 24.—Knutsford, Whit. Tues. July 10, Nov. 8.—Macclesfield, May 6, June 22, July 11, Oct. 4, Nov. 11.—Malpas, Ap. 5, July 25. Dec. 8.—Middlewhich, Holy Th., Aug. 6.—Nantwich, Feb. 4, Mar. 15, Sep. 4, Dec. 11.—Northwich, August 2, Dec. 6.—Over, May 16, Sep. 25.—Sandbach, East. Tues., Tues. after Sept. 10.—Stockport, March 4, 25, May 1, Oct. 23.—Tarporley, May 1, last Monday in Aug.. Dec. 11.—Winsford, May 8, Nov. 25.

Lancashire—Blackburn, Easter. Mon., May 12, Oct. 17, every fortnight on Wed. from Feb. till Oc.—Bolton-le-moors 1st Mon. after Jan. 5, and every Mon. fortnight till May 12, July 30, 31, Oct. 13, 14.—Burnley, March 6, East. Eve., May 6, 13, July 10, Oct. 11.—Broughton-in-F., Aug. 1.—Bury, March 5, May 3, 2nd Thursday after Whit. S., Sept. 18.—Cartmell, March 22, Whit. Mon., Oct. 24, Nov. 5.—Chorley, March 26, May 5, Aug. 20.—Clithero, March 24, 25, August 1, 2, the 5th Thur. and Fri. after St. Michael's day.—Conistone, 3rd Saturday in sept.—Darwen Holy Thurs. 1st Thurs. in Oct.—Dalton, April 28, June 6, Oct. 23.—Great Harwood, Mar. 3, Aug. 21.—Haslingden, May 8, July 1, Oct. 10,—Hawkshead Mon. before Holy Thurs., Whit Mon. Oct. 2.—Inglewhile, Oct. 5.—Kirkham, June 24.—Lancaster, May 1, July 5, Aug. 11, Oc, 10, —Lverpool, July 25, Nov. 11; Horse fair every alternate Wednesday.—Longridge, May 13, Nov. 6.—Mancheser, Whit Mon. Oct. 1, Nov. 6.—Middleton, Thurs. after March 11, Thurs. after April 15, 2d Thur. after Sept. 29.—Newburg, June 21.—Newbury, June 21.—Newchurch, April 29, Sept. 30.—Newton, May 17, July 15, and every Mon. fortnight, Aug, 12.—Oldham, May 2.—Ormskirk, Whit Mon., Sept. 8.—Poulton, Feb. 6, Ap. 13, Nov, 3.—Prescot, June 12, Aug. 24, 25, Nov. 1.—Preston, 1st Satur. after Jan 6, March 27, Aug. 25, lasts 10 days. Nov. 7.—Rufford, May 19. —Radcliff Bridge, April 29, 30, Sep. 21, 2. —Rochdale May 14, Whit Tues., Nov. 7. —Ulverstone, March 22, October 27.—Warrington, July 18, Nov. 30, each lasts 10 days; every Wed. fortnight.—Wigan, Holy Thursday, June 27, Oct. 28.

Irish Fairs—Antrim

Ahoghill, June 4, Aug. 26, Dec. 5, Antrim, Jan. 1, May 12, Aug. 1, Nov. 12. Armoy, Jan. 25, Feb. 25, Mar. 29, May 25, Aug. 16, Nov. 12, Dec, 25. Ballinagabob, July 26, Ballindery, second Monday in Feb., May, Aug, and Nov. Ballintoy, June 3, Sept, 4, Oct. 14. Ballacary, 2nd Mon. in Jan., 3rd Mon. in April, August, and Nov. Ballycastle, Easter Tues., last Tues. in May, Aug., Oct., and Nov., July 26. Ballyclare, last Tues. in Jan., 2nd Tues. in May, July, and Nov. *o. s.* Ballymena, July 26, Oct. 21. Ballamoney, May 5, July 10, Oct. 6. Ballanbernice, 1st Tues. aft. 12th Jan, and Feb. Ballynure, May 15, Sep. 4, 2nd Tues. in Oct. *o. s.* Belfast, 1st Wed. in each month, Aug. 12, Nov. 8. Broughshane, June 17. Sept. 1, Bushmills, March 28, June 28, August 24, Oct. 21, Dec. 12. Cairnlough, Feb. 10,

Mon., June 12, Aug. 10, Oct. 12, 2. Carnmoney, 1st Tues. May and . *s*, Carrickfergus, May 12, Nov. 1. n, May 5, July 5, Sep. 5, Nov. 22, before Christmas. Connor, Feb. 1, , Aug. 2. Craigbilly June 26, Aug. rumlin, 1st Mon. in month. Cush-, Feb. 14, March 17, May 14, June g. 14, Sep. 29, Nov. 14, Dec. 22. ndon, first Wednesday of Feb., June, Aug., Oct., and Dec. Der-Jan. 12, Feb. 23, May 16, June 22, 12, Oct. 27. Dimbar, May 21. ıdoon, June 9, Noy. 26. Dunlice, 2. Giant's Causeway, August 13. rm, Jan. 26, May 26, Aug. 30, Oct. lenavy, 3rd Mon. Feb. May, Aug., ov. Kells, Jan. 8, March 1, June p. 12. Larne, July 31, Dec. 1, n, July 21, Oct. 5. Loughgill, 19th ., June, Aug., and Nov. Mosside, 3, May 21, Nov. 21. Mounthill, , Oct. 1. Newtoncrumlim, Feb, 5, 1, Aug. 2, Nov. 5. Oldstone, June t. 22. Pargate, Feb. 7, May 7, d Monday in June, Aug. 7, Nov. 4. enone, 1st Tues. in each month, ıd Tues. in May, *o. s.* Randalstown, 16, Nov. 1. Rasharkan, Nov. 16. ıfort, 3rd Tues. in May and Nov. *o.s.* , Sep. 4. Oct. 30. Stranocum, Feb, ırch 10, April 20, June 16, July 14, 3, Sep. 28, Nov. 6, Dec, 29. Tallaght, , Nov. 9. Templepatrick, May 11, 0, last Tuesday in Oct. Troome, Monday, Dec. 4. Tullamore, 17.

Down

loyne, May 14, Nov. 8. Ardmillan, Jan., April, July, Oct. Balloo, first esday in Jan., Ap.. July, & October, ıahinch, 3rd Thurs, in each month. valter, June 22, Nov. 8. Banbridge, 2, 1st Monday in Feb. March, April. July, Sep., October, November, and June 9, Aug. 26. Bangor, Jan. 12, , Aug. 1, Nov. 22. Carrodore, 7th ., May, Aug., & Nov. Castlereagh, , Oct. 26, Nov. 20. Castlewellan, lon. in Jan., Mar., Ap., July, Aug., 1st Feb., May, June, Sep.; Nov. 13, uesday before Christmas. Clough, 37, July 5, Nov. 22, 3rd Friday in er, and Friday before Christmas. er, Jan. 5, April 5, June 28, Oct. 19. gar, Second Wed. in each month. ghadee, last Wednes. in May, *o. s.*, 16, Oct. 10, last Wednesday in Nov. Donaghmore, 22d of June and Oct. ıpatrick, 1st Satur. in each month. ara, 1st Friday in Feb., May, Aug., v., and 1st Friday after 15th March, Sep., & Nov. Dromore, 1st Sat. in h & Aug., May 12, Oct. 10, and Sat. ne before Christmas, Dundrum, 5, Thur. before Candlemas day, *o. s.*, 12, Thursday before Aug. 12, Oc. 10, 10. Gilford, 2nd Tues. each month, and 21st of June and Nov. Greencastle, 12th Jan. and Aug. Greyabby, March 28, June 22, Oct. 29, Dec. 4. Hillsborough, 3rd Wed. in each month. Hiltown, 2nd Tuesday in each month. Hollywood, 1st Monday in Feb., May, Aug., and Nov. Kikeel, 1st Wed. in each month. Killileagh, April 10, June 3 & 15, October 11, Dec. 11. Killinchy, 1st Wednes. in Feb., May, Aug., and Nov. Killough, Feb. 15, June 5, Aug. 15, Nov. 15. Kilmore, Feb. 4, March 14, May 1, June 3, Aug. 5, Sep. 29, Nov. 5, Dec. 16. Kircubbin, 1st Mon. in each month, and of 28th April, May, Aug., and Nov. Loughbrickland, Nov. 12, and 3rd Tues. of remaining months.

Dublin

Ballbriggin, 29th April, and September. Carrickmines, Dec. 6. April 14, June 24, Oct. 14. Donnybrook, Aug. 26. Fieldstown, Whit Monday. Garyistown, May 15, Aug. 15, Nov. 1. Kilsallaghan, Ascension day, Sep. 8. Lusk, Easter Monday, May 4, June 24, July 13, Nov. 25. Naul, March 16, April 26, May 21. Sep. 8, Oc. 2. Palmerstown, August 21. Rathfarnham, July 10. Rush, May 1, Sep 29. Saggard, June 15, Oct. 10, Nov. 8, Skerries, April 22, Aug. 10. St. Margarets, July 30, and 31. Swords, March 17, May 9.

Fish Table

The following Table shows the months in which the undermentioned Fish is IN or OUT of Season.

KINDS OF FISH.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
Brit	in	in	in	in	in	in	in	in	o	o	in	in
Bret	in	in	in	in	in	o	o	o	o	in	in	in
Cod	in	in	in	in	in	in	o	o	o	in	in	in
Cole Fish	in	in	in	in	in	in	o	o	o	in	in	in
Cockles	in	in	in	in	o	o	o	o	in	in	in	in
Crabs	in	in	in	in	in	in	in	o	o	in	in	in
Dabs	in	in	in	in	in	in	in	in	o	o	o	o
Flounders	o	in	in	in	in	in	in	in	in	o	o	o
Haddock	in	in	o	o	o	o	o	o	o	in	in	in
Herrings	o	o	o	in	in	in	in	in	in	o	o	o
Lobsters	in	in	in	in	in	in	o	o	in	in	in	in
Ling	in	in	in	in	in	in	in	o	o	o	in	in
Mackerel	o	o	o	o	in	in	in	in	o	o	o	o
Oysters	in	in	in	in	o	o	o	o	in	in	in	in
Plaice	in	in	in	in	in	in	in	in	in	o	o	in
Salmon	in	in	in	in	in	in	in	in	o	o	in	in
Soles	o	o	o	in	in	in	in	in	in	o	o	o
Shrimps	in	in	in	in	in	o	o	o	in	in	o	in
Sprats	in	in	o	o	o	o	o	o	o	o	o	in
Skate	in	in	in	in	in	in	in	o	o	o	in	in
Turbot	o	o	in	in	in	in	in	in	o	o	o	o
Whiting	in	in	in	o	o	o	o	o	o	in	in	in
Cong. Eel	o	o	in	in	in	in	in	in	in	in	o	o

MISCELLANEOUS INFORMATION.

Eclipses, 1863.

In this year there will be two Eclipses of the Sun, and two of the Moon. Greenwich time, as follows—

First. A Partial Eclipse of the Sun on the 17th May, beginning on the Earth generally at 2h. 48m., afternoon, and ending at 7h. 13m., in the evening. At the following places the appearance of the Eclipse will be as under—

	BEGINNING	MIDDLE	ENDING	MAGNITUDE
Greenwich....	5h 42m 24s after.	6h 28m 30s aft.	7h 12m 0s ..	·292
Cambridge....	5h 40m 12s ..	6h 27m 18s ..	7h 11m 42s ..	·305
Oxford.....	5h 41m 56s ..	6h 28m 14s .	7h 11m 50s ..	·289
Liverpool	5h 37m 32s ..	6h 25m 38s ..	7h 10m 56s ..	·307
Edinburgh....	5h 30m 26s ..	6h 21m 26s ..	7h 9m 32s ..	·349
Dublin.....	5h 38m 16s ..	6h 25m 52s ..	7h 10m 40s .	·286
Douglas	5h 35m 40s ..	6h 24m 0s ..	7h 10m 33s ..	·312
Whitehaven ..	5h 34m 29s ..	6h 23m 20s ..	7h 10m 22s ..	·321

Second. A Total Eclipse of the Moon on the 1st June, visible here; the first contact with the Earth's dark shadow will occur at 9h 46m in the evening; first total emersion 10h 53m; middle of the eclipse 11h 26m; end of total Phase 11h 59m; last contact with the shadow 1h 6m on the morning of the 2nd June

Third. An Annular Eclipse of the Sun on the 11th November, beginning on the Earth at 5h 50m, morning, and ending at 10h 27m, morning. Annular in the Southern Ocean, Partial at the Cape of Good Hope and South Australia, but invisible here

Fourth. A Partial Eclipse of the Moon on the 25th November, first contact with the dark shadow 7h 16m, morning; greatest Phase 8h 56m; last contact with shadow 10h 36m. The Moon will set at Douglas at 8h 3m, Greenwich time—being 53 minutes before the middle of the Eclipse.

Quarters of the Year.

Spring Quarter	Commences on the 21st March,	at 2h 33m, morning	—⊙ enters ♈
Summer Quarter	.. 21st June,	at 11h 3m, night	—⊙ enters ♋
Autumnal Quarter	.. 23rd September,	at 1h 16m, afternoon	—⊙ enters ♎
Winter Quarter	.. 22nd December,	at 7h 6m, morning	—⊙ enters ♑

Chronological Notes.

Lunar Cycle or Golden Number	2	Septuagesima Sunday	February 1
Epact.....	11	Lent begins	February 18
Solar Cycle	24	Easter Day	April 5
Dominical Letter	D	Ascension Day	May 14
Roman Indiction	6	Trinity Sunday..... ...	May 31
Julian Period.....	6576	Advent Sunday	November 29

The Revolutions, Distances, &c., of the Planets

Names.	Periodical Revolution.	Mean distance from Sun.	Diameter.	Time of Rotation upon their Axis.	Inclination of Axis to Ecliptic.	Hourly motion in their Orbits.
	Yrs d h m s	English miles.	Eng.miles	d h m s	° ′ ″	Miles.
Sun.....	.....	.....	887,076	25 7 48 0	.....	.....
Mercury..	0 87 23 15 44	36,890,000	2,950	1 0 5 28	.....	111,256
Venus ..	0 224 16 49 8	68,770,000	7,900	0 23 21 8	.....	81,398
Earth	1 0 5 48 48	95,298,260	7,912	0 23 56 4	23 28 0	75,222
Moon	0 27 7 43 5	95,268,260	2,160	27 7 43 5	1 43 0	2,335
Mars ♂....	1 321 22 18 27	145,205,000	4,500	1 0 37 20	28 42 0	56,121
Jupiter ..	11 315 14 39 2	495,917,000	88,780	0 9 55 21	3 22 0	30,358
Saturn ..	29 164 7 21 50	909,026,000	77,230	0 10 16 1	30 0 0	22,351
Uranus ..	83 294 8 39 0	1,828,071,000	35,000	.....	.....	15,846

Population of the United Kingdom according to the Census of 1861.

	Popula. Enumerated.		Increase, 1861.		Decrea. 1861.	
	1851.	1861.	Persons.	Rate per cent.	Persons.	Rate per cent.
England and Wales	17,927,609	20,061,725	2,134,116	12	—	—
Scotland	2,888,742	3,061,117	172,375	6	—	—
Ireland	6,552,385	5,764,543	—	—	787,842	12
Islands in the Brit. Seas	143,126	143,779	653	—	—	—
Total United Kingdom ..	27,511,862	29,031,164	2,307,144		787.842	

Net Increase 1,519,302, or 6 per cent.

Descriptive List of Principal Lights—South and East Coasts of Ireland

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather	Remarks.
FASTNET	Summit of Rock..	51 23	9 36	One	R	—18—	Attaining its greatest brilliancy every 2 min.
KINSALE	South Point of Old Head..	51 36	8 32	One	F	—21—	Red Light is shown in a line to the Horse Rock in Courtmacsherry Bay, Bright to Seaward.
CORK HARBOUR	Roche Point, E. side of entrance ..	51 48	8 15	One	F	— 4—	Red towards the sea to the Harbour Bright.
or Queenstown	East elbow of Spit Bank, in 9 feet..	51 51	8 16	One	F	— 8—	Red. From N.N.E.½E. to S.E. by E.½E. round by E.
BALLYCOTTIN ..	Outer Island, West side of Bay ..	51 49	7 59	One	Fl.	—18—	Every 10 secs. From E. ½ N. round S. to W. ½ N.
MINEHEAD	South side of Head	52 0	7 35	One	Int.	—21—	Bright 50 sec., obscured 10 sec. From E.N.E.½N.
HOOK TOWER	East side entrance Waterford.. ..	52 7	6 56	One	F	—16—	[to W. ¾ S.
SALTEE'S LIGHT VESSEL	Off Coningbeg Rock, the Southernmost of the Saltee Islands	52 2	6 40	Two	F	—10—	Carries a Ball. Moored in 32 fathoms. During foggy weather a Gong is sounded.
TUSKAR	Tuskar Rock	52 12	6 12	One	R	—15—	Every two minutes. Two sides Bright, one Red. During foggy weather a Bell is tolled every half-minute. Red light seen 10 miles. [weather.
ARKLOW LT.-VESSL.	S. end of Arklow Bank, in 22 fath.	52 42	6 0	One	R	—10—	Carries a Ball. A gong is sounded in foggy
WICKLOW	Wicklow Head	52 58	6 0	Two	F	21&16	The Lights bear from one another N. W. by W. ¾ W. and S.E. by E. ¾ E., 540 feet. When in one they lead between the India and Arklow Banks.
DUBLIN BAY. KISH LIGHT VESSEL . ..	Off N. Point of Kish Bank. Moored in 10 fathoms	53 19	5 56	Three	F	—10—	The Lights are triangular. Carries a Ball. A Gong is sounded during foggy weather.
DUBLIN BAY. Kingstown.. ..	Centre of East Pierhead of Kingston Harbour, ...	53 18	6 8	One	R	— 9—	Revolving every half-minute, shewing a Bright and Red Light alternately. During foggy weather
	West Pierhead			One	F	— 2—	A small Red Light. [A Bell is tolled.
DUBLIN BAY. POOLBEG.. .	End of S. Wall, at the entrance to the river Liffey..	53 20	6 9	Two	F	—12—	The Lower Light, which is much fainter than the Upper, is exhibited from half-flood to half-ebb. A Ball is hoisted, at the same period, during day-time.
	End of N. Wall, or N. Quay, Dublin	53 21	6 14	One	F	—10—	
DUBLIN BAY. BAILEY .. .	S.E. Point of Howth Peninsula ..	53 22	6 3	One	F	—15—	During foggy weather a Bell is tolled.
CARLINGFORD.. ..	Haulbowline Rock	54 1	6 5	Two	F	—15—	The Lower from half-flood to half-ebb. A Ball is hoisted during the same period by day; and in foggy weather a Bell is tolled every half-minute.
DUNDRUM BAY ..	St. John's Point..	54 13	5 40	One	Int.	—12—	Red Light. Every minnte, 45 secs. red, & 15 secs.
SOUTH ROCK	On the Rock	54 24	5 25	One	R	—12—	Every minute and a half. [obscured,
COPELAND.. .. .	Small Copeland Island	54 42	5 32	One	F	—16—	

Descriptive List of Lights—Isle of Man

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
POINT OF AYR	A quarter of a mile S.W. of the Point	54 25	4 22	One	R	—15—	Shewing alternately a Bright and Red Light every 2 min. Visible from S. by W. N. E'ly, to W. by N.
Peel Harbour	East side of entrance	54 13	4 42	One	F	— 8—	
CALF OF MAN	West side of Calf Island	54 3	4 50	Two	R	24&22	Revolving every 2 min. When in one they lead [on the Chicken Rocks.
Port St. Mary	Pier Head	54 4	4 44	One	F	— 9—	
Castletown Harbour	New Pier Head	54 5	4 39	Two	F	— 8—	To be kept on the port hand in entering
Derbyhaven	Entrance of the Harbour	54 5	4 36	One	F	— 2—	Also, a light on Fort Island during Herring Fishery
DOUGLAS	Douglas Head	54 9	4 28	One	F	—14—	Not visible from Langness Point, but with three miles offing it will be seen N. E. ¼ E.; and the Calf Light, at the same time, N.W. by W. ¼ W.
Douglas Harbour	North Pier-head	54 10	4 28	One	F	— 6—	
Ramsey Harbour	South side of entrance	54 20	4 23	One	F	—10—	Red Light.
Bahama Bank Light Vessel	A mile off the S.E.tail of the Shoal. Moored in 11 fathoms.	54 20	4 12	Two	F	—10—	A gong is sounded during foggy weather. "Bahama Bank" is painted on her sides. King William Bank Buoy, E. by N. ½ N. nine miles.

Principal Lights—West Coast of England

Lee Scar	On the Rocks	54 52	3 25	One	F	— 6—	On Piles. Base dries 6 feet at low water.
Solway Light Vessel	Robin Rigg Channel	54 48	3 32	One	F	— 6—	Red light. Moored in 4½ fms. A Black Ball by day; tolls a Bell in foggy weather.
ST. BEES	St. Bees Head	54 31	3 38	One	F	—25—	
WALNEY.	S. Point of Walney Island	54 3	3 11	Two	1 R 1 F	—13—	Every minute. The Fixed Light is Red, N.W. by W. ¾ W. and S.E. by E. ¾ E. 340 yards.
River Wyre	N.E. elbow of N.Wharf Bank	53 57	3 2	One	F	—10—	On Piles. A Bell is tolled in foggy weather,
Fleetwood	High Light in the Town, Low Light on Esplanade	53 56	3 1	Two	F	13 & 9	N. & S. 850 feet. Shown while 9 feet water in the Channel.
River Ribble	On Stanner Point, N. side of entrance	53 45	3 1	Two	F	12 & 9	The upper Light Bright: the lower Red. The Lighthouse stands about 70 feet high, and bears by compass S.E. by E. ½ E. from Buoy Nelson, 7 miles.
FORMBY	On the Point	53 32	3 4	One	F	—12—	The light from this tower has been discontinued.
Formby Light Vessel	In the New Channel	53 32	3 11	Two	F	— 8—	Yellow light. Painted Red; carries Red Ball. In 25 feet at low water. Crosby Lightship S. E. ¼ S., 2½ miles. N. W. Mark, E. by N. ¼ N., 3⅞ miles.
Crosby Light Vessel	N.E. elbow of great Burbo Bank	53 31	3 7	One	F	— 8—	Yellow Light. Painted Red; carries Red Ball. In 44 feet at low water.

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
Black Rock	Rock Point, West side of the entrance of the Mersey	53 27	3 3	One	R	—14—	Making a revolution every three minutes, showing two Bright Lights and one Red Light in due succession. A Bell is tolled during foggy weather.
Leasowe	On the shore, between the Mersey and the Dee Rivers	53 25	3 7	One	F	—15—	Bidston Light open E. of Leasowe, and afterward to the W., lead up the Horse Channel.
BIDSTON	Bidston Hill	53 24	3 4	One	F	—23—	Obscured when inward bound, bearing S.bW.½W.
Hoylake	Near Hoylake Church	53 24	3 11	Two	F	13&11	When in one, S. W. by S., you may haul up the Rock Channel.
Liverpool N.W. Light Ship	Off the Horse and Helbre Channels	53 27	3 17	Three	F	—10—	Moored in 7½ fathoms; exhibits a black Ball during the day.
AIR	Air Point, at low water mark	53 22	3 19	One	F	— 9—	On Piles. A Bell is sounded in foggy weather.
LYNUS	Point Lynus	53 25	4 17	One	Fl.	—16—	Flashing once every ten seconds.
SKERRIES	Highest Island	53 25	4 36	One	F	—16—	
STACK	South Stack Rock, off N.W. Point of Holyhead I...	53 18	4 42	One	R	—20—	Revolving every 2 min During foggy weather a smaller Bright Light is occasionally shown, 40 feet above the sea, and 30 yards N. of main Lighthouse.
BARDSEY	Bardsey Island	52 45	4 48	One	F	—17—	[sounded in foggy weather.
Cardigan Bay Li't-vessel	Cardigan Bay	52 22	4 54	One	R	— 9—	Red Light. Revolving every 30 sec. A Gong is
SOUTH BISHOP	South Bishop Rock	51 51	5 25	One	R	—18 –	Revolving every twenty seconds.
SMALLS	Smalls Rock	51 43	5 40	One	F	—15—	Erected upon pillars, 40 feet high.
ST. ANN'S	St. Ann's Point, Milford Haven	51 41	5 10	Two	F	20&18	High Light N. by W.¼W., 609 feet from Low Light. When in one they lead clear of the Crow and Toes Rocks.
CALDY	Caldy Island, Southern part	51 38	4 41	One	F	—20—	
MUMBLES	Mumbles Head	51 34	3 58	One	F	—15—	
NASH	Nash Point	51 24	3 33	Two	F	19&17	High Light, S.E. by E.¼E. and N.W. by W.¼W., 1000 feet from Low Light. The Lights in one lead a cable's length Southward of the Nash Sand.
USK	W. side of entrance of River	51 32	3 0	Two	F	—11—	Red. A Red Light is also shown up the river.
FLATHOLM	Flatholm Island, South point	51 23	3 7	One	F	—18—	
LUNDY	On the ridge of Lundy Island	51 10	4 40	Two	1 R 1 F	—31—	The Low Light (fixed) is only visible from the Westward, between N. N. W. and W. S. W. The Revolving Light flashes every two minutes. [one.
TREVOSE HEAD	On north-western part	50 33	5 1	Two	F	20&17	The lower Light is 50 feet in advance of the high

Descriptive List of Principal Lights—Scotch Coast

Name of Light.	Situation.	No. Light	Appearance.	distance vsible	Points of Compass within which visible.	North latitude	West longitu·
INCHKEITH	Summit of Island, Fifeshire..	One	Revolving once every minute ..	—21—	All round the Compass ..	56° 2′	3° 8′
ISLE OF MAY	Isle of May, in Fifeshire ..	Two	Fixed. Bear from each other N. N.E.¼E. & S.S.W.¼W., 250 yards	21&15	All round Compass. The low light only towards the Carr	56 11	2 33
BELL ROCK	A Sunk reef, 11¾ miles S. by E. ½E. off Arbroath, Forfarshire	One	Revolving, shewing alternately a bright & red light every 2 min.	—15—	All round the Compass ..	56 26	2 23
GIRDLENESS	Girdleness, Kincardineshire..	Two	Fixed Lights, one above the other	20&16	NNEtoWSW½W. by E'ward	57 8	2 3
BUCHANNESS	Buchanness, Aberdeenshire..	One	Flashing once every 5 seconds ..	—16—	N.bE.toS.W.bW.by E'ward	57 28	1 46
KINNAIRDHEAD	Kinnairdhead, Aberdeenshire.	One	Fixed	—15—	WNW.toSSE¾E.N'ly & E'ly	57 42	2 1
TARBETNESS	Tarbetness, Cromartyshire ..	One	Visible 2½ min., then eclipsed ½ a min. To W. of the Ness Fixed	—18—	All round the Compass ..	57 51	3 48
DUNNETHEAD	On the Head, Caithnesshire..	One	Fixed	—23—	From SE½EtoW. by N'ward	58 40	3 22
PENTLAND SKERRIES ..	On the Island	Two	Fixed. N.N.E. & S.S.W., 100 feet	18 &16	All round the Compass ..	58 41	2 55
START POINT	East point of Sanda Island ..	One	Fixed	—15—	All round the Compass ..	59 17	2 22
SUMBURGHHEAD	On S.W. Point of Shetlands..	One	Fixed	—21—	NE byE¼EtoNWbyN¼NbyS	59 51	1 16
NORTH RONALDSHAY ..	On North point..	One	Flashing once every 10 seconds	—18—	All round the Compass ..	59 23	2 24
CAPE WRATH	On the Cape, N.W. point of Scotland	One	Revolving, shewing alternately a bright & red light every 2 min.	—23—	From S. ½ E. to S. W b W. Northerly	58 37	5 0
ISLAND GLASS	N.E.point of Island, Harris Isle	One	Fixed	—17—	W. by S. to E. N. E.½E.by S.	57 52	6 33
BARRAHEAD	Highest point on Bernera Isle, Southern point of Hebredies	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—33—	From N. by E. to E. N. E. Westerly and Southerly.	56 48	7 38
ARDNAMURCHAN	Ardnamurchan Point, Argyle-shire	One	Fixed	—18—	From N. E. by E. ¾ E. to S. W. by S. N'ly and W'ly	56 44	6 13
LISMORE	Mousdale Island	One	Fixed, dark 2¾ point over land ..	—15—	From E. to N. E. by E. ..	56 27	5 36
CRINAN CANAL	East side	One	Fixed, red light	— 4—	All round the Compass ..	56 5	5 33
RHINS OF ISLAY	Oversay Island, off S.W. point of Islay, Argyleshire	One	Flashing once every 5 seconds; disappears ½ a mile off Cul point	—17—	From NNE. to SE. Westerly	55 41	6 29
MULL OF CANTYRE.. ..	South western headland of Cantyre	One	Fixed	—22—	From NNE.¼E. to S. by W. ¼ W. Westerly.. .. .	55 19	5 49
SANDA ISLAND	Ship Rock	One	Fixed, red light	—15—	NW½WtoSEbyE½EbySW'ly	54 16	5 35
DEVAR ISLAND	Eastern part	One	Revolves every ½ minute	—17—	N. ¼ W. to E. by S. by N..	55 26	5 32
PLADDA	Pladda Isle, off south east of Arran, county of Bute ..	Two	Fixed, vertical, 25 feet apart ..	14 &17	From N.W.byW. Southerly to N. E. by E.	55 26	5 7
CORSEWALL..	W. side of entrance to Loch Ryan, in Wigtonshire.. ..	One	Revolving, shewing alternately a bright and red light every 2 min.	—15—	From N.E. by E. Northerly to S.W.	55 0	5 9
MULL OF GALLOWAY ..	Southern extremity of mainland of Scotland, Wigtonsh.	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—23—	From N.E. to N.W. ¼ W. ..	54 38	4 51

MARINERS' GUIDE

TO THE

Principal Ports and Harbours

IN THE

BRISTOL AND ST. GEORGE'S CHANNELS,

THE IRISH SEA,

AND THE NORTH CHANNEL;

CONTAINING A SERIES OF CLEAR AND CONCISE

SAILING DIRECTIONS

FOR THE

WEST COASTS OF ENGLAND, WALES, AND SCOTLAND, THE ISLE OF MAN,

AND THE

EAST, SOUTH-EAST, NORTH-EAST, AND NORTH-WEST COASTS OF IRELAND;

WITH

Tables of the Magnetic Bearings and Distances

OF DIFFERENT

HEADLANDS, HARBOURS, AND LIGHTS

ON THOSE COASTS.

*** The Bearings and Courses in these Directions are those by compass, and the Distances are nautical miles, of 60 to a degree.

MARINERS' GUIDE.

ISLE OF MAN.

The **ISLE OF MAN** lies in a N.E. by E. and S. W. by W. direction, and is about 30 miles in length and 11 in breadth. The Northernmost Point of Ayre is in lat. 54 deg. 27 min. N., and long. 4 deg. 20 min. W. The

Calf Island,

At the S.W., is in lat. 54 deg. 3 min. N. and lon. 4 deg. 50 min. W. On this Island are TWO Lighthouses, 187 yards distant from each other, bearing N.E. ½ E. and S. W. ½ W. The *higher* Light bears from the dangerous sunken rocks called the *Chickens* N.E. ½ E., distant about a mile and a quarter: when the Lights are in one they lead on the Chickens. These Lights are DOUBLY revolving, without color, making their revolution in 2 minutes, and becoming gradually fainter during that time, until, at a distance, they appear totally obscured. At their brightest period they may be seen seven leagues off, resembling a planet. Between the Chickens and Calf is a passage about a mile broad, through which the tide sets from the W. round the Calf Point *very strong* outside of the EYE Rock, and also through the passage between the Island and S.W. Point of Man. There has been erected in the Sound of the Calf, on the "Thusla Rock," a Large Oblong Beacon. 2½ miles to the east is PORT ST. MARY, where there is good anchorage behind the Pier, which has been lately very much improved, but a dangerous rock called Carrick, lies about ¾ of a mile S.S.E.½E. from the Village. This harbour has about 9 or 10 feet water at neap tides, and 14, 15, 18, &c. at spring tides. In running for it, keep Scarlet Head to the S. of Castletown, a good sail's breadth open, to avoid the Carrick Rock. On entering, take the quay as close as circumstances will admit. A LIGHT is exhibited throughout the year, on the larboard hand on entering the harbour. Five miles E. from the Chickens and 2¼ from Port St. Mary, is Scarlet Head, the westernmost point of

Castletown Bay.

The bottom towards the entrance is generally rocky, and there are three shoals or rocks dry at low water, the largest of which, Lheeahrio, is a quarter of a mile long and 500 feet wide, and is marked on the east end by a large Black Buoy. A RED stationary light, to be kept on the larboard hand on entering, is erected on the new pierhead, which lies 80 yards outside the old pierhead, in a S.S.E. direction therefrom. The Buoy on Lheeahrio Rock is placed in five fathoms at low water, having Langness Point, by compass bearing S. ¾ E., and the lighthouse on the pierhead, N. ¾ E. On entering the Bay, be careful to leave the Buoy on the *larboard* hand, and in working into the Bay from the Westward, you must not bring the Buoy to the Southward of E.S.E.; nor open Spanish Head to the Northward of the Stack of Scarlet until Eastward of the Buoy, or until the lighthouse on the pierhead bears N. ½ E., then steer for the harbour. The anchorage is sheltered from N.W. round by N. to S.S.E., the marks for which are, Spanish Head just open to the Southward of the Stack of Scarlet; the Steeple of Castletown Chapel in line with the Eastern part of a Gap in the Mountain bearing N. by W., and King William's College N.E. by N., where there are 9 fathoms at low water, spring tides, and safe anchorage.

Langness Point,

An isthmus running out from the main land, 2 miles to the S.W., has a turret on the point to identify its situation. There are SUNKEN rocks all about it, and the tide sets like a race upon the Point from the Chickens, at the rate (spring tides) of 6 miles an hour, and runs E.N.E. from 2 to 5 or 6 miles from the land, diminishing in strength to Maughold Head. To avoid the inset between the Chickens and Langness Point, it is advisable for strangers on no account to come within 3 or 4 miles of the land. On the E. side is

Derbyhaven,

Affording anchorage for large merchant ships, and sheltered from all winds except E. to S.E. The best ANCHORAGE is on the N. side of St. Michael's Island, in 3 or 4 fathoms, the castle (or fort) on it bearing S.E. by S. Small vessels may run further up. There is a LIGHT at the entrance of the harbour, which is lighted only during the herring fishing season. The stream, or rather eddy, along the E. side of Langness runs 10 hours S., from 2 hours of flood to the last of ebb on the shore. About 3 miles to the E. of Derbyhaven is St. Ann's Head, from which to

Douglas Head,

E. is about 2 miles, upon which a LIGHTHOUSE has been erected, the light from which is STATIONARY, and appears like a star of the first magnitude at the distance

of 14 miles. The Bearings of the light are as follows:—From CLAY HEAD, W. by S. ¼ S., 4 miles; from LANGNESS POINT, E. by N., 7½ miles. The light will not be visible from Langness Point; but with an offing of 3 miles from that Point, the light will be seen bearing N.E. ¼ E., and the Calf Lights at the same time bearing N. W. by W. ¼ W. Vessels running for Douglas, between E. by N. ½ N. to W. by S. ½ S., will see the light at 5 miles' distance. Blowing fresh from the W. and bound for the bay, a vessel should keep pretty close to Douglas Head, or she will be thrown to leeward of St. Mary's Rock, by the strong and variable gusts off the high land to the S.W., where she will be exposed and in bad anchorage. On this rock a TOWER has been erected, the appearance of which in the night is like a square-rigged sloop under sail. Anchor in the bay between St. Mary's and the S. shore, 3 or 4 cables East of the pierhead, where there is a LIGHT exhibited throughout the year, to shew ships into the Harbour; to enter which keep close to the pierhead. Four miles E.N.E. from Douglas Head is

Clay Head,

Round which is Laxey Bay, where there is good anchorage in 6 fathoms depth. From Clay Head to Maughold Head the course is N.E. ½ E. 7 miles, and round the latter to

Ramsey,

N.W. N'ly. 2½ miles. To the E.S.E. of the town is Port Lewague. There is excellent anchorage and shelter from 1 to 1½ miles opposite the town, as the bottom is good stiff clay; but there is generally a heavy sea and hard riding in it with winds from S. to E.N.E., to all of which it is open. The harbour, which is a dry one, will admit vessels drawing 17 or 18 feet water at spring tides, and 11 or 12 feet at neap tides. There is a lighthouse on the quay, a stationary light, of a RED colour, is exhibited throughout the year. In the bay the stream runs nine hours N. and three hours S., beginning at 2 hours' flood. There are three banks off this bay that deserve notice. The BAHAMA BANK, or RIG, bears N.E. 2 leagues from Ramsey town, and is about 6 miles in length from S.S.E. to N.N.W., with only 6 feet depth of water at the S. end, differing in other parts from 9 to 12 feet, and is rather more than ¼ a mile broad. The BAHAMA FLOATING LIGHT, exhibiting two BRIGHT FIXED lights, is moored a mile off the S.E. tail of the shoal, in eleven fathoms, low water, spring tides, and with the following compass bearings:—King William's Bank Buoy, E. by N. ½ N. nine miles; Point of Ayre lighthouse, N. by W. ¾ W.; Maughold Head, W. by S.; Clay Head, S. W. by W. ¼ W. WHITESTONES BANK, so called from its composition, lies S.S.E. 1½ miles from the extreme Point of Ayre, with a good passage between them; it bears N.N.E. from Maughold Head, and is ½ a mile in length N. and S. and a ¼ in breadth E. and W., with 6 feet at low water spring tides. POINT OF AYRE BANK is a ridge extending ½ a mile from the Point to the distance of 1 mile E., and thence circularly to the S. and E., always with a considerable ripple, nearly in a line with the BAHAMA BANK. KING WILLIAM'S BANK is 8 miles in length from S.E. to N.W., and ½ a mile broad: the N. W. end is E. 6½ miles from the Point of Ayre, and N.E. 11 miles from Maughold Head, from which the S.E. end bears E. N.E. ½ E. 13½ miles, and from the Point of Ayre, E. S.E. 12 miles distant. The least depth of water on it is 18 feet. The

Point of Ayre Lighthouse

Bears N.N.E. ½ E. from Maughold Head, distant 8 miles, and the lantern is 106 feet above the sea. It is REVOLVING, showing alternately a BRIGHT and RED coloured light, becoming from a star-like appearance gradually stronger, until the attainment of the utmost brilliancy every TWO MINUTES. The light of the common colour is to be seen 4 or 5 leagues off; but the RED one is not distinct at so great a distance. Maughold Head prevents the light being seen by a navigator S. of it, as does Rue Point when he is W. of it. N. by W. ½ W. 1½ miles from the Point of Ayre is STRUNAKILI BANK, bearing from Jurby Point E. by N. 5 miles; it is 1½ miles long E.S.E. and W.N.W., and nearly ½ a mile broad. There are 3 fathoms on the shoalest end, but the sea breaks and the tide sets strong upon it; keeping WITHIN 1½ miles of the land will clear the whole.—From the Point of Ayre to Jurby is 7 miles to the W., and hence to the Peel Light, S.W. ½ W. 11 miles; 4 miles from Jurby W. ½ N. and about 3 miles from the land abreast, is a BLIND ROCK, and from

Peel Light,

N.E. by E., 9 miles. This light is stationary, is exhibited throughout the night, and is visible at a distance of eight miles in clear weather. The harbour at Peel is a dry one. Between Jurby and Peel, off Ballabui, lies a shoal 1½ miles from the land, and 3½ miles N.E. ½ E. from the light. A vessel may ride in the bay with the Castle bearing from S.S.W. to S.W. in 6 or 7 fathoms' depth of water. On entering the Harbour, keep the point of the Jetty close on board on the starboard hand and run in, keeping the light on the pierhead on the larboard hand. The Mull of Galloway light adds to the convenience of this Harbour, being visible from the Castle, and only distant N. by E. 26 miles. The Peel Light

is about 300 yards S.S.W. from the N.E. point of the Castle. The streams of flood that come to the E. from along the S. coast, and along the N. coast of Ireland, meet about a mile W. of Contrary Head, so called from this circumstance, and there divide into two branches, one of which runs N.E. to the Point of Ayre, and on to Maughold Head, the other S.W. to the Calf; one proceeding round the Calf at 6, the other round the Point of Ayre at 4 miles an hour, meeting off Maughold Head. From Contrary Head to abreast the Calf Lights the course is S.W. 10 miles; and 4½ miles from the W. end of that Isle is

Port Erin,

a sheltered little creek, surrounded by very high land, easy of access, and affording shelter against all E. winds. At the entrance, between the headlands, there is a depth of about 15 fathoms water; here the tide runs very strong at the rate of 6 miles an hour. In the Sound of the Calf the stream runs W. 2 hours before high water on the shore, and continues 6, i.e., two hours before it ebbs on shore. Keep the Calf Lights well open when passing Langness Point.

TIDES.—On the full and change days, it is high water on the shore at Peel at 10h. 48m.; in the Calf Sound, 10h. 57m.; at Douglas, 10h. 48m.; at Ramsey, 10h.; and at the Point of Ayre, 10h. In the Isle of Man, spring tides rise 18 or 20 feet perpendicular; neap tides 9 or 10.

Magnetic Bearings & Distances,

FROM THE HEADLANDS OR HARBOURS IN THIS ISLAND, TO OTHER HEADLANDS OR HARBOURS IN THE CHANNEL.

FROM DOUGLAS HEAD TO		MILES.
St. Bees Light	E. by N.	42
Ravenglass	E. by S.	40
Lancaster Channel	S.E. ¾ E.	54
Liverpool Floating Light,	S. by E. ½ E.	59
Chester Bar	S. by E.	60
Great Ormshead	S. ¼ W.	54
Skerries Light	S.W. by S.	46
Langness Point	S.W by W.	8
FROM THE POINT OF AYRE TO		
Maughold Head	S.S.W. ½ W.	8
St. Bees Light	E.S.E. ¼ E.	26
Whitehaven	E.S.E. ¾ E.	28
Maryport	E. ¼ N.	37
Ross Light, Kirkcudbright	N.E. ½ E.	24
Burrow Head	N.N.E.	16
Mull of Galloway	N.W. by N. ¾ N.	21
Copeland Light, Belfast	N.W. ½ N.	44
Liverpool Floating Light	S. ½ E.	70
FROM MAUGHOLD HEAD TO		
Skerries Light	S.W. ½ S.	56
Great Ormshead	S. by W.	60
Liverpool Floating Light	S. ¾ E.	63
Lancaster Channel	S.E. ½ S.	50
St Bees Head	E.	27
Ravanglass	E.S.E.	32
Whitehaven	E. ¼ N.	31
FROM THE CALF OF MAN TO		MILES.
Langness	E.S.E. ½ S.	7
Mull of Galloway	N.N.E.	38
Copeland Light	N. ¼ W.	48
South Rock Light	N. by W. ¾ W.	31
Strangford Lough	N.N.W. ½ W.	31
Carlingford Lough	W.N.W.	45
Drogheda	W. ¾ N.	55
Howth Head	W.S.W. ¾ W.	60
Kish L'ship, Dublin Bay	W.S.W. ¼ W.	60
Holyhead	S.S.W.	41
Great Ormshead	S. by E.	54
Liverpool Floating Light	S.S.E. ⅝ E.	65
Skerries Light	S. by W. ¼ W.	38
Point Lynas	S. ¼ E.	42
FROM PEEL TO		
Mull of Galloway Light	N. by E.	26
Copeland Light	N.N.W. ¼ N.	40
Strangford Lough	N.W. ½ W.	29
Maidens Light	N. by W. ¼ W.	57

Free Harbours

No tolls are exigible on vessels entering any of the Harbours in the Isle of Man.

Abstract of the Bye-Laws for regulating the Harbours.

1. Any vessel, through mismanagement, injuring the quays, &c., such injury to be repaired, under penalty of double the value of the damage.

2. No chain cables to be used for mooring vessels, under penalty of £2.

3. No ballast to be discharged without a port sail, under penalty of £2.

4. Vessels heaving ballast or stones into the harbours, penalty £2 per ton.

5. That no person heave stones, dung, &c., into the harbours, under the penalty of £2; and if not removed when ordered, a further penalty of £2.

6. Masters of vessels not obeying Harbour Masters in mooring vessels, penalty £2: all expenses incurred by the Harbour Master in mooring vessels to be paid by master or owners of said vessel. Any person obstructing Harbour Master in executing his duty, penalty £5.

7. No person to make a fire on the quays without permission, penalty £3.

8. No clog fenders to be used, under penalty of £1, unless hung lengthways.

9. Any person throwing off ends or cutting hawsers, besides paying the damage to the owners, to forfeit £5.

10. That all gunpowder be landed immediately after arrival, under penalty of £10 for every 24 hours it remains on board; and no fire or light to be kept on board while such gunpowder remains in the vessel, further penalty £20.

11. Any dock made for repairing vessels in harbour to be filled up in 24 hours after removal of the vessel, under penalty of £5 for every 24 hours it lies open.

12. No vessel to unload ballast at night under penalty of £10.

13. That no timber, iron, &c. (unless for repairing vessels) be left on the quays longer than two days, on penalty, for every day longer than the said two days, after notice given by the Pier Master, of £1.

14. That no vessel be allowed to take ballast from another, penalty £1, unless by leave of the Harbour Commissioners.

15. Ballast not to lie on the quay longer than 24 hours, under penalty of 5s. per day.

16. All vessels unloading merchandize to have preference of berth in turn.

17. Vessels taking in goods to have any unoccupied berth, but to give it up on the arrival of a loaded vessel.

18. & 19. One person at least to be on board every vessel when afloat, in harbour or bay, under penalty of £2.

20. & 21. No person to act as pilot without commission, under penalty of £10. No vessel compelled to take a pilot.

22. Proprietors of lime-kilns to screen their lights, if liable to be mistaken for harbour lights, under penalty of £5.

23. Persons firing on pier, &c., (except on days of public rejoicing,) penalty 10s.

24. Boats plying for passengers without licence, penalty £2; and owners to be accountable for breach of harbour laws by any of the crew.

25. No person to erect stalls on the quays to cure fish, or deface the quays, &c. under penalty of £2 for every offence.

26. No person to enforce higher rates for pilotage than as follows, which include attendance of boat and four men:

Vessels of 40 Tons	£0	5	0
Vessels above 40 and under 60	0	7	0
Vessels above 60 and under 100	0	13	0
Vessels 100 Tons and larger	1	0	0

27. Vessels must allow ropes or warps of other vessels to be made fast to them, under penalty of £2.

28. All vessels in harbour must keep in their jib and mizen booms, under penalty of £2.

29. No lumber to remain on the quays or steps, under penalty of £1.

30. No conveyance having wheels shod with iron, allowed on Douglas pier, under penalty of £2.

WEST COAST OF ENGLAND.

RIVER RIBBLE TO SOUTHERNESS LIGHT.

The River Ribble. — PORT OF PRESTON.—The entrance to the River Ribble and Port of Preston is indicated by a large buoy at sea called *Nelson*, which should be observed by vessels bound for the river. It is a large Black Buoy with a Cage-Ball at the top, stands 26 feet out of the water, and may be seen in clear weather 10 miles. *Nelson of Preston* is painted upon it. Having observed the Nelson Buoy, the entrance to the River may be made by the North Channel or the Gut. The entrance to the North Channel is northward, and to the Gut southward of Nelson Buoy. The North Channel is buoyed by 10 buoys, numbered 1 to 10, and marked with the letter N.; the Gut by 5 buoys with cages on the top. The buoys are placed in the deepest parts of the Channels. The Gut joins the North Channel at No. 8 buoy, nearly opposite Lytham Lighthouse. The outer buoys of both Channels are placed in 3 fathoms water, their bearings and distances are marked upon Nelson Buoy, and from them the other buoys can be seen, From No. 10 buoy to the commencement of the stone embankments, about three miles east of the town of Lytham, the Channel is marked by perches placed upon the north side, and from thence to Preston by perches placed on the stone embankments on both sides of the Channel. Between buoys 4 and 6 in the North Channel vessels drawing 14 feet of water may lie at anchor afloat at low water. Lytham Lighthouse stands on the shore, in latitude 53° 44′ 33″, and west longitude 3° 1′ 29″. It exhibits two fixed lights, the lower one being red, and bears E., 7 miles from Nelson Buoy. Both lights are visible all round from the Blackpool to the Southport shores. On the north shore of the Ribble, and 3 miles east of the lighthouse, is the town of Lytham, before which there is a small tide light. Here also is a dock, where vessels can lie in safety, and to which a branch of the Lancashire and Yorkshire Railway extends, connecting it with the main line. Vessels drawing 12 to 14 feet can go up to Preston Quays at spring tides. The quays are connected by a branch with the

Railways leading to Manchester, Bolton, Blackburn, Bury, Accrington, and the various other manufacturing towns of Lancashire and Yorkshire, and the Wigan and Burnley coal fields. Mr. W. Allsupp's two Steam Tug Boats ply upon the River for the purpose of towing vessels to and from Preston, and at present, when required, tows vessels at the following rates per reg. ton:—No. 1 buoy to Preston and back 1s. 4d.; No. 1 buoy to Preston, or Preston to No. 1 buoy, 1s.; No. 1 buoy to Lytham, or Lytham to No. 1 buoy, 6d.; Lytham to Preston and back, 8d.; Lytham to Preston, or Preston to Lytham, 6d. Masters of vessels requiring a pilot or tug-boat, and not meeting with one outside the channels, should signal in sight of the lighthouse. A pilot will also, if required, go to any port to conduct vessels into the river on a letter being addressed to Captain Ashburn, Harbour Master Lytham, Lancashire.—By applying to the Admiralty agent, J. D. Potter, 31, Poultry, London, a Chart of the Entrance to the Ribble, published in 1860, can be had for 1s. 6d.

Morecambe Bay.—In sailing towards this bay, which is about 8 leagues from Formby Point, keep full 4 miles from the shore, on account of the flat shoal water, known by the name of the Oyster Grounds; these begin nearly abreast of the "Red Banks," and extend to the S. side of Lund Deep. The western edge of these grounds is steep-to, and there are on some parts of the Oyster Grounds not more than 6 and 9 feet at low water. The entrance to Morecambe Bay is known by the name of Lune Channel, and is 2½ miles wide. On the southern side is the Point of Rossall, and on the northern side is the Island of Walney; on the former is a conspicuous beacon or landmark, and on the latter is a lighthouse, which bear from each other nearly north and south, distant 8 miles. The Point of Rossall is low land, and the beacon, when seen at the distance of about 5 miles, has the appearance of a vessel under sail. Morecambe Bay is encumbered with numerous large sandbanks, many of which dry at low water, and some at half-ebb. The general direction for the mariner, if bound to Lancaster, will be to attend particularly to his soundings, taking care to get into the deep water of the Lune Channel, and to remain there until he obtains a pilot. When in 24 and 25 fathoms, you will perceive the ends of the rock weeds floating, and the water of a darker blue than when you are over any of the banks.

The **River Wyre.**—The following are the directions for entering the Port of Fleetwood:—On coming from sea, keep the westernmost part of Walney Island to the eastward of Blackcombe until Rossall Landmark bears S.E.: here you are entering the deep water of Lune, where you will have 28 fathoms at low water. The shoals to be avoided on approaching Wyre are, Shell Wharf, North Wharf, and King's Scar Ridge. A large red buoy is laid down nearly on the point of the Ridge, to which a good berth should be given; it also marks the southern side of the Lune deep. A black perch is placed on North Wharf, about three-quarters of a mile S.E. by S. from the King's Scar Buoy. On the north side of Lune deep a black buoy, with globe on the top, and marked "Danger Patch," is placed a few fathoms westward of a shoal patch bearing that name. Between these buoys is the Lune deep or channel, the course up which is E. ½ N. Rossall Landmark is a large wooden structure (of a conical shape) built on the shore of Rossall point, and denotes the southern limit of Morecambe Bay. Walney Island, on which is a revolving light, is the northern limit. Shell Wharf extends to the westward of Rossall Landmark and North Wharf. If in hazy weather you fall in with low land, and not knowing whether it is Walney or Rossall land, your lead, which should never be neglected, will at once inform you; for 4 or 5 miles off Walney, you will have 8 or 10 fathoms, but at the same distance off Rossall only 4 or 5 fathoms. After passing the Danger Patch and King's Scar Buoys, you will observe the Fairway Buoy to Fleetwood channel. It is a vertically striped black and white buoy, and lies half-a-mile N.N.W. from the Screw Pile Lighthouse. Enter the channel between the Fairway Buoy and the lighthouse, leaving the lighthouse on the starboard hand, and running up for the No. 2 black buoy on the Little Ford, leaving that buoy on the port hand. You will now have come up with the red buoy on the Big Ford; leave that on the starboard hand; then leaving all the black buoys, which mark the eastern side of the channel, on the port hand, and the red buoys and perches (the latter having red globes on the top) on the starboard hand, round close-to the Steep Breast, on the edge of which stands the Lower Shore Lighthouse, and where the tides run very strong: you then enter the Harbour. There are large red buoys for mooring ships to. Sail between the buoys and the shore, letting go your anchor when you reach the upper part of the Canshe Hole; but be careful not to foul the moorings of the buoys, as they run in various directions across the harbour. Strangers visiting this port should always hoist signal for a pilot, several of whom are constantly on the look-out. There are two pilot cutters (numbered 1 and 3) with pilots for any of the ports in

the bay, and are generally cruising off the bay. The Screw Pile Light is a Fixed Bright Light, seen 8 or 10 miles in clear weather. There are also two Fixed Shore Lights, lighted from half-flood to half-ebb. By day, a black ball hoisted on a pole at the Screw Pile Light and Lower Shore Lighthouses, denotes the same interval of tide. A bell, tolling three strokes per minute in foggy weather, is sounded from the Screw Pile Lighthouse, and may be heard at the distance of two miles. There is good anchorage off North Wharf, anywhere between the King's Scar Buoy and the Lighthouse, in such water as the state of the tides and a vessel may require. A green buoy is placed near a wreck on the Bernard Sand, about half-a-mile N.E. of the Screw Pile Lighthouse; but your vessel should never be that far to the eastward, as the tides generally run across there, and will set you ashore.

The **River Lune.**—SUNDERLAND, GLASSON, and LANCASTER.—Sunderland harbour is at the mouth of the River Lune, and is dry. Large vessels may go in after half-flood, and lie on clean ground below the houses, and with neap tides, ships of 12 feet water may ride afloat in the pool, off the westernmost houses in the village. It is not safe riding in the pool with spring tides, because of the rapidity of the stream, which runs there about 4½ miles an hour when strongest. The channel leading into Sunderland is buoyed, and there is a Lighthouse on the south side, over against the point of Sunderland. Bernard's Wharf, the westernmost bank, begins to dry at half-ebb. At the easternmost buoy there is a patch of sand that dries with spring tides only. To come up with the outer or westernmost buoy of the channel of Lune River, take half-flood, and stand no nearer the North Wharf Bank than 8 fathoms water; or keep Lancaster Church Steeple a small sail's breadth open to the southward of the Bluff End of Highfield—a long hill under the same high land, which terminates in a remarkable Bluff Point, a little to the northward of the Church Steeple. This mark will bring you up to the Outermost Buoy, clear of North Wharf and Bernard's Wharf; or, when this mark cannot be seen, keep the westernmost part of Walney Island to the eastward of Blackcombe, until the Landmark bears about S.E. In this situation you are entering the deep water of the Lune, where you will have 28 fathoms at low water, and the Outermost Buoy bearing about east from you; and should you be forced in by strong gales, or night coming on with a flood-tide, that you cannot keep an offing, you may bring your vessel safely to an anchor to the southward of the buoy.—If in dark hazy weather you should fall in with low land, bearing E.N.E., &c., and not know whether it is Walney or Rossall land, your lead will at once inform you; for at the distance of 4 or 5 miles from Walney, in that direction you will have 8 or 10 fathoms water, but at that bearing and distance from Rossall, only 4 or 5 fathoms.—*To avoid the Shoals on the north side of the Bay:*—Near low water come no further in, with a vessel of considerable draft of water, than where Walney Lighthouse is open to the eastward of the highest part of Blackcombe, when the Landmark bears S.E., as you are here to the westward of the Stony Patches on the north side of the Lune, where you may safely stand off and on for a pilot.—*To avoid the Shoals on the south side of the Bay:*—Shell Wharf extends W. by N. to W. by S. from the Landmark, therefore you must take care about low water to keep the Landmark to the southward of E.S.E., and when you steer for the buoy at the proper time of the tide, and having fallen into the deep water of the Lune, you must allow for North Scar and North Wharf, a high bank, which runs out 2 miles northward of the Landmark, and covers about half-flood. About high water, you may venture in the day time to stand over any part of the bay from Pile of Foudry to the Outermost Buoy in the Lune; but in the night or thick weather, keep further out to the westward, taking care to keep the lead constantly going, and watch every opportunity to take the bearings of the marks before mentioned, until you obtain a pilot.—The *First*, or Outermost Buoy, lies in 6½ fathoms at low water, neap tides, with Pile Castle bearing N.N.W. ½ N.; Lighthouse on Walney, N.W. by N. ½ N.; North End of North Wharf, W. by S.; Landmark on Rossall Point, S.W.; Foot of Wyre Lighthouse, S.W. by W.; Lancaster Church Steeple, a little open with Highfield, E. by N.; Second Buoy, E.S.E. The First Buoy must be passed on the south side. If too early of the tide, or too late in the evening to proceed up the river, you have good anchorage one cable's length to the eastward of the Second Buoy, under Bernard's Wharf, where you will have 3 fathoms at low water, and little current; but you must not proceed up the river with a vessel of considerable water draft until after half-flood. The *Second* Buoy lies in 3 fathoms, with Outermost Buoy bearing W.N.W.; Third Buoy, S.E. by S. The *Third* Buoy lies in 5 feet, with Second Buoy bearing N.W. by N.; Fourth Buoy, S.E. by E. The *Fourth* Buoy lies in 5 feet, with Third Buoy bearing N.W. by S.W.; Fifth Buoy, E.byN.½N. The *Fifth*, or Innermost Buoy, lies in 5 feet, with Fourth Buoy bearing W.byS.½S.; Lighthouse

Abbey Scar, E. by S. Keep the Upper and Lower Lighthouses in a line, and guard against the flood-tide setting strong to the southward, up Cocker. Soon after you have passed the Lower Lighthouse, keep Basil Barn a little open to the southward of Overton Chapel, which will take you clear of Thornbush Fishery and Town's Skear, to Sunderland, where you may obtain a pilot. The deepest water is on the south side of all the Buoys, and the River Buoys are placed on the north side of the channel.—GLASSON is about 5 miles before you reach Lancaster. Upon the pier is a harbour light, shown at tide time. The tide flows at the dock gates the same time as at Liverpool; adding two inches to every foot of water at Liverpool, will give the height at Glasson. Every vessel going into the dock must clew up her sails, and (if the wind be any way to the northward) let go an anchor before coming into the Dock Gut, to prevent her anchor bills running through her bows and destroying the works. If the wind be from the westward, and a flowing tide, she may safely touch on the west side, and be veered alongside the pier-head, by a line from the westward; but on no pretence whatever is any vessel to attempt going in under ever so easy sail, as several serious losses have already been sustained thereby; and no steam-vessel is to use her paddle wheels either in going in or out of dock, but to let off steam before doing so. Masters of vessels offending in these particulars are liable to a penalty of £5, besides having to repair the damage.—From Glasson to LANCASTER the Channel is irregular, variable, and shallow; the shallowest part of it having no more than 7 feet water at high water with neap tides, and 12 or 14 at high water with spring tides. Pilots, legally appointed to conduct vessels to and from the quays at Lancaster, may be obtained at Snatchems, near Sunderland.

Morecambe Harbour.—This harbour is situate at the terminus of the North Western Railway, and is connected with the Midland, and Lancaster and Carlisle Railways. A new stone pier has recently been constructed, and superior accommodation provided for the transhipment of passengers and merchandise between the railway trains and steamboats. The dues levied on vessels in respect of lights and buoys are 2d. per ton on vessels from ports in the United Kingdom, and 3d. per ton on vessels from ports beyond, but when such dues have been paid three times in one year by any vessel, they are then reduced to 1d. per ton on the same vessel for the remainder of the year. There are no other dues or port charges on vessels.—The sailing directions for Fleetwood or Lancaster must be adhered to until the Screw Pile Light at the foot of Wyre bears south, then, if flood tide, haul up N.E. by N., and if ebb, N.E., which course leads to the New Screw Pile Light at the entrance of the Channel to Morecambe Harbour. This Lighthouse is upon the same plan, and is similar in appearance to the Foot of Wyre Lighthouse, but exhibits a *Red Light*, visible at a distance of 6 miles, and with the following compass bearings:—Walney Light, N.W. ¾ W., 6¼ miles; Wyre Light, S.W. ½ S., 4⅝ miles; Morecambe Harbour Pier Head Light, E. ½ N., 5½ miles. The Light is masked to the extent of one-fourth of the circle facing Heysham Lake and Lune Estuary. A Ball by day, and a small *Green Light* by night, on the west side of the house, indicate when not less than 8 feet water in the Channel up to the Harbour. A Bell is tolled during foggy weather or snow.—Seven Buoys define the Channel leading to Morecambe Harbour, namely:—No. 1 *Red* Buoy, on the Western Point of Clark's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W.; Morecambe Harbour Pier Head Light, N.E. ½ E.; Walney Light, N.W. ½ N.; No. 2 Red Buoy, E. ½ N.; No. 2 Black Buoy, E. by N. ¼ N. No. 1 *Black* Buoy, on the Western Point of Yeoman's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W. ½ S.; Morecambe Harbour Pier Head Light, E. ¼ S.; Walney Light, N.W. ¼ N.; No. 2 Red Buoy, E. by S. ¼ S.; No. 2 Black Buoy, E. ¼ S. These two buoys define the mouth of the channel; they are about a sea mile apart, and have a depth of about 9 feet between them at dead low water. No. 2 *Red* Buoy, on the north side of Clark's Wharf, the compass bearings being—No. 2 Black Buoy, N.E. ¼ N.: No. 3 Red Perch Buoy, E.N.E. No. 2 *Black* Buoy, on the south side of Yeoman's Wharf, the compass bearings being—No. 3 Red Perch Buoy, E. ½ N. No. 3 *Red* Perch Buoy is placed on the western point of Low Scare, and may be passed on either hand. It is larger than the others, and has a circular cage on the top; it rolls very heavily during the strong current of flood or ebb tide. Vessels approaching the Harbour at low water may anchor either above or below this buoy, where there is excellent holding ground in a depth of not less than 5 fathoms at dead low water, spring tides, and remain there until a Black Ball by day is exhibited at the end of the Pier, and at night until half-flood, when there will be a depth of 8 feet in a clear course between the No. 3 Black Buoy, and No. 4 Ked Buoy up to the harbour. The compass bearings from this buoy are—No. 4 Red and No. 4 Black Buoys, E. ¼ S. No. 4 *Red* Buoy is on the

end of the Old Scare, and No. 4 *Black* Buoy is on the end of Stone Scare. A Lighthouse is erected on the New Pier, which exhibits a *White Light* from sunset to sunrise; in the daytime a Black Ball is hoisted when there are 8 feet water between the No. 4 Red and No. 3 Black Buoys.—*Vessels running in at low water must keep the lighthouse on the port hand; the best water being near the No.* 1 *Red Buoy.*

Pile of Foudry.—Pile of Foudry is a harbour near the south end of Walney Island, where large merchant ships may ride in good shelter near the west or south-west side of Roe Island, in from 3 to 5 fathoms water. Small vessels commonly lie aground in the bight, on the east side of Pile of Foudry Island, about a cable's length from high water mark, when the house bears S. by W. In the anchorage near Roe Island the streams of flood meet; one from the north, the other from the south, and make it troublesome to keep the anchor clear. The stream here runs abont 3 miles an hour when strongest. On the south end of Walney Island is a stone lighthouse, exhibiting a revolving light 70 feet above high water, flashing every minute, visible in clear weather 3 or 4 leagues; there is also a small fixed light of a red colour. On the north side of this channel is Walney Island, which is low land, and on the south side are several sandbanks or stony ledges; the most dangerous of these is the Stony Patch, which lies to the westward of all the others, distant from the lighthouse on Haw's Point about four miles; to clear it to the westward, bring the Old Castle on Pile Island just open to the eastward of the lighthouse. The lead should be kept constantly going, and if coming from the southward, bring Blackcombe Hill on with the north end of Walney Island, and keep them so until Walney Lighthouse comes E.N.E., and the ruin upon Foula Island touches Haw's Point. The Helpsford Sand is on the S.E. side of Walney, within a mile of the shore, to clear which, you must bring the dwelling-house near the lighthouse a sail's breadth open of the southernmost sandhills, or the lighthouse just clear of the eastern chimney of the same house, bearing N.E. by E.; then, as you advance, bring the ruin of the house on Foula, before mentioned, on with Haw's Point, and these marks will lead you in. Upon the bar is 15 feet water at 2 hours' flood, and the rise of tide is sometimes 29½ feet. The strength of the flood tide is 2½ knots an hour, and the ebb nearly the same. In leading to the anchorage with a flood tide, and the wind scant, you may stand along the southern part of Walney about a mile from the shore, and have regular soundings. In dark weather, should you fall in with land bearing E.N.E., and uncertain whether it is Walney Island or the land adjacent to Rossall Point, then you must be guided by your lead, for at the distance of 5 miles from the former are 7 and 8 fathoms, but at the same distance from Rossall there are only 4 or 5 fathoms; allowance must be made for the rise and fall of the tides, making high water full and change at 11 o'clock. In running for the Pile of Foudry anchorage at half-flood, give Haw's Point a berth of half a cable's length, and keep off Pile Castle Point a similar distance, then, should your vessel draw 10 feet water, anchor in the bight below the house on Pile Island, or near to Roe Island, in 5 fathoms, with the lighthouse open to the starboard of Pile Castle. The breadth of the anchorage above Roe Island is nearly 2 cables. Here the ground holds well; as the tide ebbs you become quite landlocked and may shorten your cable, to enable you to swing clear of either side at low water in 3 fathoms.—Vessels bound from Pile to Barrow should leave Roe Island Pier Lighthouse on the starboard hand, when they will fall in with the Fairway Buoy for Barrow, painted black and white. Further on they will find *Six Red Buoys.* Nearly in a line by keeping them on the starboard hand will lead vessels up to Barrow Pier, where they will have 18 feet water spring tides, and 10 feet neaps. A strong flashing light from the Iron Works lately erected at Hindpool, 1½ miles north of Barrow, may be seen bearing from Walney Island Light N. ½ W.; Hilp's Ford N. N. E. ½ N.; Cockspeck Scar, E., and may be seen 15 miles seaward.

Ravenglass is a dry harbour, where three rivulets, the Esk, Mite, and Orte, unite about 12 miles to the southward of St. Bee's Head. There is a buoy placed a little within the mouth of the channel, in the middle, near the Fish Wear, which marks the entry. At this buoy, and in most parts of the channel, the depth is 3 fathoms at high water, with neap tides. The best part for vessels to lie aground on is, half a cable's length from the west end of the town of Ravenglass, on the south side of a perch which stands on the point of a sand there. At this anchorage, in the mouth of the river Esk, and also at the meeting of the other rivers, there are 3 fathoms at high water with spring tides, and 10 feet with neaps. To sail into Ravenglass Harbour, take 4 hours of flood, keep above a mile from the coast to avoid Selker and Drig Rocks (till Ravenglass town bears E.N.E.); steer in that course till you see the buoy bearing east, and then steer right for it, keeping within a ship's length of it on either hand; when you are just past the buoy, steer E.N.E., or keep Ravenglass a sail's breadth open to the north of your stern, till you are

about half a mile from the east end of the sandy hillocks; hook the small bay, which begins there; keep near a cable's length from the point at the end of the small bay, and anchor half a cable's length from the west end of the town, or off the perch, in the meeting of the three rivers. When the buoy in the entrance bears E., it is also in a line with the south shoulder of Newton Knot Hill, which is a small hill half a mile south of Ravenglass. The tide flows here, full and change, at 11 o'clock; and off the Bar runs as follows: the last half-flood and the first half-ebb set Northward, at the rate of 2 miles per hour, spring-tides; and the last half-ebb and first half-flood Southward at the same rate. There is a foot of water more on the Bar than shown by this Tide Table.

St. Bees Head.—To the Northward of Ravenglass Harbour, distant 13 miles, is St. Bees Head. On its summit is a LIGHT-HOUSE, the light from which is *stationary*, appearing like a bright star at the distance of 6 or 7 leagues in clear weather. From the entrance of Formby Channel to this Head, the course and distance are N. by E. 20 leagues. In sailing along from Walney Island to St. Bees Head, keep 2 or 3 miles from the shore, and you will clear every danger. Vessels in moderate weather, may stop a tide any where along the coast, for the stream seldom runs more than a mile an hour.

Whitehaven.—About 3 miles E.N.E. from St. Bees Head is the town of Whitehaven: the harbour is dry, and divided into basins by strong quays, which break off the sea. Within the second basin is the best place for vessels drawing above 10 feet water. Here you will find 18 to 22 feet water spring-tides, and 12 to 14 neap. The HARBOUR LIGHTS are upon the outer and inner Pierheads. The inner Light is *stationary*, of a RED colour, and is lighted while there are 9 ft. water between the Pierheads. The outer Light *revolves*, is lighted all night, and is seen at a distance of 3 or 4 leagues in clear weather. The light appears in its brightest state once every 2 min., and gradually becomes less luminous, till eclipsed. In the day a *Flag* is hoisted on a pole at the top of the old Lighthouse, while there are 9 feet water in the harbour, on entering which, keep both lights on the starboard hand.—A Blue Light is shown from a lighthouse on the end of the north pier, which has been extended 352 yards.

Harrington Harbour is 4 miles Northward of Whitehaven. A *Lantern* is hoisted upon a pole on the starboard side of the entrance, while there are 8 feet of water in the harbour, and in the day a Red Ball, at the inner end of the pier, during the same interval of tide.

Workington is 2 or 3 miles north-eastward of Port Harrington. A red ball is hoisted upon a pole on St. John's pier when there are 8 feet water in the harbour; and at night a light is exhibited on the pier-head, which answers a like purpose, and can be seen in clear weather at about 3 leagues from any point seaward. The channel into this port is along the south shore, its entrance bearing from St. John's pier nearly E. by S. by compass. It is formed by red buoys on the south side, and black buoys and perches on the north side, the deepest water being midway between. The outer perch has a cask upon it, painted black, which must be kept on the port side in entering. Steer in between the perches and red buoys, giving St. John's pier-head a berth of about 100 feet on the starboard side. After passing St. John's pier a perch with a white board upon it is the leading mark for the channel by day; and, by night, the southernmost of the blast furnaces on the north side kept right a-head, until an inner light which is on a wooden pier bears about S. E. ½ S.; then steer S.E. ½ E. for the entrance to the harbour, keeping the light upon the wooden pier on the starboard side, and passing a perch with a small black cask upon it by about 10 feet on the larboard side, when the harbour boat will be in attendance.

Maryport, situate about 5 miles N.E. of Workington, is easy of access, free from sand banks, and has a capacious dock, in which vessels are kept constantly afloat, as well as its original tidal harbour and basin. Depth of water in ordinary spring tides, 21 ft. 6 in., neap tides, 13 ft. 6 in.; or by adding 3 ft. to the water shewn in Holden's Liverpool, and the Manx tide tables, a near approximation for each tide will be obtained. A fixed bright light is exhibited on the outer pierhead all night, and another on the inner stone pier whilst there are 8 feet in the harbour; both lights are on the starboard side in entering, and are visible at sea from E.N.E. to W.S.W., the former at a distance of 15 miles, and the latter 10 miles. A Red Ball near the inner lighthouse denotes 8 feet in the day time. The jetty on the south side is distinguished by a Red light, and the north tongue by a Green one. Steam tugs are in readiness every tide, and when required by vessels at night, two lights must be shown one above the other; or by day a union jack at the main. There is good anchorage in stiff clay, about 1½ miles off shore, the outer lighthouse bearing S.E.

Solway Frith.—The entrance to Solway Frith may be considered to commence abreast of Workington, on the English, and at Abbey Head on the Scottish shore, the distance between which is 5 leagues. On the eastern side of the

Frith of Solway, about 10 miles north-eastward from Maryport, is

Port Silloth.—This place is daily increasing in importance, being connected by railway with Carlisle, Newcastle, and Edinburgh, the rails of which are laid on the quays. It contains a wet dock, with entrance gates 60 feet wide, and a jetty from the dock entrance 1000 feet outwards to low water mark. The dock is fitted up with Hydraulic Machinery, by which vessels are discharged and loaded with the greatest possible dispatch. The dock sill is 3 feet 6 inches above low water mark; and, by adding 5 feet to any tide in this tide table, the depth over the sill will be given for high water. A Yellow Light is shown in the Lighthouse at the outer end of the jetty from Sunset to Sunrise; except during the time the gates are open, when the Yellow Light is discontinued and a Green Light exhibited in its place. A Red Ball is hoisted on a Pole at the Lighthouse during the time gates are open by day. In Silloth Bay (between Lee Scar Light and the jetty) there is excellent anchorage in from 4 to 6 fathoms at low water, clay bottom. There is also good anchorage all the way from the fairway buoy to Siloth, with the Red Light a sail's breadth open north of Lee Scar. It is high water here, full and change, 11h. 35m.; spring tides rise 26 feet and neaps 20 feet. The fairway course, from about a mile off Workington to the Light Vessel at the entrance of the channel, is N.E.; and to avoid the tail of Robin Spit, care should be taken not to bring the vessel to the eastward of E.N.E, on which bearing the bright Light on Lee Scar will be in one with it. This Light Vessel is in the middle of the channel, in 3¾ fathoms at low water, and exhibits a fixed Red Light at 25 feet above the water, visible six miles. From it Maryport Outer Light bears S. by W.½W., 4¼ miles; Southerness Light, N. ¼ E., 5½ miles; and Lee Scar Light, E. N. E., 6 miles. It has a black ball at the mast-head during the day, and in fogs a bell is tolled. Having passed the Light Vessel, run up N. E. by N. ¼ N. 1¾ miles which will lead up mid-channel in 3½ to 4 fathoms at low water to the turn Buoys, black and red, where the Cott Red Light opens a ship's length north of Lee Scar, bright, bearing E. by N. ¼ N., alter your course to that direction, which will carry you up the fairway as far as Lee Scar in a depth of 2¼ to 5 fathoms. On passing Lee Scar Lighthouse keep a good cable's length to the northward of it. Silloth Harbour is about half a mile above Lee Scar. When following the preceding instructions, it is necessary to bear in mind that, as far as Silloth Bay, the black nun buoys should be kept on the port, and the red can buoys on the starboard hand. The black and white striped buoy marked F, in the fairway off Beckfoot, is passable on each side. The shoalest part of the channel, on which there are 2¼ fathoms at low water, is about half a mile below this latter buoy; thence to Silloth the depth is from 3 to 5 fathoms. The harbour expenses, including light charges, are—Coasting vessels 6d.; Foreign vessels 9d. per register ton. Branch Pilots for Silloth may be had (if required) off Maryport; charge, 1s. 9d. per foot.

Port Carlisle, a dry harbour, 10 or 11 miles up the Frith from Silloth Bay, is connected with Carlisle by railway, the rails of which run on the quays. It is high water here, full and change, at 12h. 10m.; springs rise 18 feet, and neaps 11 feet; the flood runs 3 hours. Vessels running up from sea and bound to Port Carlisle should alter course for the North Channel at the Fairway Buoy, off Beckfoot, and haul across N. E. by N. ¼ N., which course leads up past buoy No. 1 to buoy No. 2, thence N. N. E. leads over the bar to buoy No. 3, from which E.N.E, leads up to Perch Buoy in Powfoot Channel Vessels in the anchorage at Silloth bound up, after half-flood, may take the South Channel, after leaving the Bay N.E. ¾ N. will lead up past buoys Nos. 1 and 2, and up to to the White and Black Buoy, thence N.N.E. will lead over the bar to Perch Buoy in Powfoot Channel, afterwards follow the buoys up, which are all placed in the fairway. The harbour expenses, including light charges, are—coasting vessels, 4d., and foreign vessels, 9d. per register ton. Pilots may be had off Maryport; charge, 3s. 6d. per foot.—At Annan Foot there is a bright tide-light, and 2 perches on the western side of the entrance; the light is shown from half-flood to half-ebb. There is also a tide-light on the end of the jetty at Port Carlisle, 3 miles above Annan Foot, on the opposite or southern side of the channel; this light opens off Knockcross Point, on a S. E. by E. bearing. After passing Annan, soundings should be taken of the English side of the channel up to Port Carlisle.

Magnetic Bearings & Distances

FOR THE WEST COAST OF ENGLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

BUOY NELSON, OFF PRESTON (Lat. 53 43 N., Long. 3 11 14 W.)		MILES.
To Beaumaris entrance....	W. by S.	39
Dundalk Bar.....	N.W. by W.	112
Douglas Head Light	N.N.W. ¾ W.	50
Ross Light, Kirkcudbright....	N.	71
WYRE LIGHT, FLEETWOOD (Lat. 53 57 14 N., Long. 3 1 46 W.)		
To Great Orms Head..	S.W. by W. ¾ W.	45
Dundalk Bar....	N.W. by W. ¾ W.	112

WYRE LIGHT, FLEETWOOD — MILES.
To Wicklow Head Light .... W. ¼ S. 118
Calf of Man L'ts. N.W. by W. ½ W. 65
Walney Light .... N. by W. ½ W. 8
WALNEY LIGHT (Lat. 54 2 56 N., Long. 3 10 32.)
To Wyre Light ..... S. by E. ½ E. 8
N.W. L'tship, L'pool. . S.W. by S. 35
Kish Lightship ..... W. ¼ N. 104
Calf of Man .... N.W. by W. ¾ W. 57

ST. BEES' HEAD (Lat. 54 30 50 N., Long. 3 18 W.) — MILES.
To N.W. L'tship, L'pool S. by W. ½ W. 65
Tuskar Rock Light S.W. by W. ½ W 162
Douglas Head Light .. . W. by S. 42
WHITEHAVEN (Lat. 54 33 N., Long. 3 26 2 W.)
To Beaumaris entrance .. S.W. ¾ S. 76
Skerries Light .. . ... S.W. ¾ W. 65
Bahama Lightship ..... W. by S. 24½

WEST COAST OF SCOTLAND.

SOUTHERNESS LIGHT TO THE MULL OF CANTYRE.

Southerness Light, at the west side of Solway Frith, is chiefly useful as a direction to the harbour of Dumfries. It shows a fixed bright light, from N.E. seaward to W., which can be seen at the distance of 11 miles in clear weather.

Little Ross Island—A Lighthouse has been erected upon this Island, which lies off the entrance of Kirkcudbright bay and harbour. It bears a fixed and flashing light, producing 12 bright flashes in a minute, visible from N. by E. to N.W. by W. Southerly, at the distance of 6 leagues.

Kirkcudbright is formed by the Points Balmae and Torrs to the E., and the Island of Little Ross to the W. There are two Towers on Little Ross bearing S.W. from each other, which being kept in one lead over the Bar in the best water to the First Perch on the S E. shore; thence running N.E. about 300 yards, passing a Red Buoy on the point of the bank on the larboard hand; thence N.N.W. passing the Perch on the point of St. Mary's Isle on the starboard hand; thence direct to the lower Fish-house, where is a Pool a vessel can ride afloat at spring ebbs. Abreast and above the upper Fish-house there is excellent lying on soft mud, moored to rings on the rocks, and no stream of tide. On the bar of Kirkcudbright River there are about 7 feet water at half-flood. Vessels running for this place, and not having water over the Bar, will find good anchorage in the Ross Roads in from 2 to 3 fathoms at low water, in good clay ground. Should the wind be Southerly, blowing hard, a vessel should bring up on the W. side of the beach just as the sound begins to open, the closer to the beach the better, as it is very steep-to and quite out of the sea. At half-tide she can trip and run up the lake to the Lake or Fish-house, or waiting 4 hours' flood may run up for the Perch off St. Mary's, and proceed to Fish-house or the town. The coast from Kirkcudbright to Belcarey Bay and River Urr is a bold rocky shore, with neither beach nor harbour.

Belcarey Bay, about 8 miles to the E. of Abbey Head, is formed by the High Lands of Aairds to the W., and Heston Island to the E.; entrance ½ a mile wide. The Heston Island is also high, and highest in the middle: this is an excellent place and too little known. Vessels running for it should keep close past the Aairds, and keep close up till they come above the first salmon weir opposite the large house in the bight, when they may go as far in as water will admit, as it is all clean ground, and quite landlocked from all weathers. The tide sets strong E. and W. past all these places, till a vessel comes within the points mentioned.

Wigton Bay lies to the westward of Kirkcudbright Bay, and has a spacious entrance, with several places where vessels may stop in moderate weather, or when the wind blows off the shore. The river channel at the north-west or upper end of the bay, leading to the town of Wigton, is intricate, and only fit for small vessels who know the place. Vessels may stopwith good anchorage in 7 or 8 fathoms water, about a mile to the northward of Stein Head, and half a mile from the shore, where the bottom is clean sand.

Garlieston. — This is a safe and sheltered dry harbour in the north-west corner of Wigton Bay, with a convenient quay, against which small vessels lie on an even and soft bottom. The outer bay has shelter from W. winds, and good anchorage between Criggleton Point and Eagerness Point. There is a small ship yard, and a town with good supplies at Garlieston. When desired a light is shown from the pier-head, which has been recently extended 250 feet, and where are at springs, 18 to 20 feet, and 11 to 12, neaps. From the pier-head the Ross Light bears S.E. by E. In taking the harbour, keep the perch off the break-

water on the larboard hand. Port charges, 1d. per ton; harbour boat, 3s. to 6s.

Whitehorn.—To the southward of Stein Head and near Burrow Head is Whitehorn Island, between which and the coast is Whitehorn harbour, in which vessels drawing 12 feet water cannot be neaped above twice a year at the quay. It is well sheltered from all winds. The only danger is the Screen's Reef, a rocky ledge, marked by a perch, extending from the west point, upon which the tide sets very strong. Going into the harbour from the west, if Stein Head be kept open of Kairnharrah Hill it will clear the rocks on the west side.

Glenluce Bay.—To the westward of Burrow Head is the bay of Luce, within which and near to the Mull of Galloway lie the Scar Rocks, always above water. There are no shoals near them; but off the Little Scar are two or three rocks, which the sea sometimes washes over. In moderate weather, with W. and S.W. winds, vessels may stop anywhere on the west side of the bay of Luce.

Mull of Galloway.—On the Southern point of the Mull of Galloway, a Lighthouse has been erected, and bears, by compass, from the largest of the Scar Rocks, W. ½ N., 6 miles; from Burrow Head, W. by N. ¼ N., 18 miles. The light is intermittent, 2½ minutes bright, then eclipsed ½ a minute; is visible seaward 23 miles from N. E. to N. W. ¼ W.; but the high lands of Dramore shut the light from the view of the mariner in coasting along the Port Patrick shores. After rounding the Mull, which is a rocky shore, you will soon reach

Cromack Point, about 4 miles from which is

Port Nessic Harbour, fit only for small craft; but a vessel drawing not more than 6 or 7 feet, may find shelter from N. or N. W. winds, by running aground near the pier head. Seven and a half miles further is

Port Patrick, a small and dry harbour open to the westward. Small vessels must go in at high water, and run aground on the N. side of the creek, or within the pier, so as to be out of the reach of the sea, in case the wind should blow from the W. or South-westward.

Point Corsewall is about 14 miles to the northward of Port Patrick, and is the north-west point of entrance to Loch Ryan; between are some rocks, but they lie close in shore, and are mostly above water. On the rocks off Laggan Point called Ebbstone Rocks, which dry at low water, is a red beacon consisting of a pyramid of iron pillars, 40 feet high, with a cylindrical open cage on the top. From it Corsewall Lighthouse bears N.E. by E.; the highest point of Ailsa Craig, N.E. ¾ N.; and Laggan Point, S.S.E. ½ E. On Corsewall stands a Lighthouse, exhibiting a white and red light alternately; these lights revolve, and attain their greatest brilliancy every 2 minutes. They may be seen, like a star of the first magnitude, at the distance of 5 or 6 leagues, and are visible from N.E. by E. northerly, to S.W.

Loch Ryan is capacious, of easy access, well sheltered, with good holding ground, and depth sufficient for large vessels. The only danger to be avoided is the Scar, a tongue of sand on the western side of the Loch, and about 3 miles up the harbour, which extends 1½ miles south-eastward from Kirkholm Point. There is a large Red Nun Buoy on the S. end of the Scar, which distinctly shews its position. The best anchorage is about ½ a mile to the southward of Cairn Point, in 6 and 7 fathoms. On this point is a tower, exhibiting a fixed light of the natural appearance, serving to lead to the anchorage. Opposite the Lighthouse Tower is a small Red Buoy, to mark the eastern edge of the Scar. Fourteen miles N.N.E. from Loch Ryan is the

Craig of Ailsa, a rock 940 feet high, with deep water all round it, serving as a beacon to guide ships to the entrance of the Clyde.

The **Frith of Clyde** makes a fine open entry to several rivers, having no danger more than a quarter of a mile from the shore, excepting the Brist Rock, which lies three-quarters of a mile W. ½ S. from Turnberry Point; it dries at half-ebb, and is about half-a-mile from shore.

Ayr.—Ten miles from Turnberry Point is the Town of Ayr, with a lofty Spire seen from a considerable distance. Here is a commodious harbour, fit for vessels drawing 12 to 14 feet water. The bar, at low water, has from 4 to 6 feet water over it, and with spring-tides at high water there are from 13 to 15 feet, and with neap from 11 to 12 feet over it; with fresh southerly winds there will be a foot more; for S. and S.W. winds raise the tides in all the rivers of the Frith of Clyde, and N. and N. E. winds have a contrary effect. On the north side of the harbour is a light-house exhibiting two lights; the upper bright, having a star-like appearance, and the lower red. There is also a tide-light (red) shown when 8 feet water are on the bar. The distance between the lights is 850 feet; and they bear from one

another S.E. by E. ¼ E., and N.W. by W. ¼ W., and are leading lights for entering the harbour, and when kept in one lead over the bar in the deepest water. The upper or bright light may be seen 12 miles off; the red 9 miles; and the tide light 4 miles off. Vessels drawing 7 feet water may make directly for the bar so soon as the tide-lamp is lighted. A flag is hoisted in day-time at half-flood, and continues to be so until half-ebb. About a cable's length S.W. of the south pier lies St. Nicholas Rock, which dries with spring tides only; you will avoid it by keeping the two red buoys on the starboard hand coming into the harbour, the breakwater being on the larboard hand. There is an iron steam tug for towing vessels in and out; and the bar and harbour are being further deepened by means of a powerful dredging machine.

Troon Harbour has an extensive pier and breakwater, with 4000 feet of quayage room, and an average depth of 12 feet at low water; at the outer pier the rise and fall of the tide is from 8 to 11 feet. About 1 mile S.S.W. of Troon Pier is the Lady Isle, a large patch of rock with a large and small Beacon on it. These Beacons are not leading marks, and there is plenty of water inside the Isle. At the distance of half-a-mile N.E. from the pier, is a half-tide shoal, on which is a red buoy. Here are exhibited two Lights; one, on the inner end of the Pier, intermittent, 40 seconds bright and 20 obscured; the other on the Pier-head, red. They bear from each other N.E. ½ N. and S.W. ½ S. 350 yards; and are visible, respectively, 9 and 6 miles. This harbour is perfectly safe, and may be run for in any weather by vessels of moderate draught of water, as there are no dangers but what are to be seen, and pilots are always in attendance. An extensive open wet dock or basin, 400 feet long by 300 wide, with 20 feet at low water tides, and capable of admitting the largest ships or steamboats, adds to the importance of this port. A branch of the Glasgow and Ayr Rail way comes down to the harbour, as does also the Railway of the Duke of Portland from Kilmarnock. There is also an extensive ship-yard, with one of the finest graving docks in the west of Scotland, capable of receiving ships of the largest size. The magnetic bearings and nautic distances are as follows:—From Troon pier head to Ayr Harbour, S. by W., 5 miles; Dunure Point, S.W., 9 miles; Beacon on Lady Isle, W. by S., 2½ miles.

Irvine.—Four miles and a half from Troon are the town and harbour of Irvine; and nearly midway, is Lappock Rock, upon which was erected, in 1843, a beacon about 40 feet above the level of the sea, bearing S.W. Southerly, distant about 2 miles from Irvine bar. There are now from 12 to 13½ feet water on the bar at high water spring tides; ordinary tides, 12 feet; and at low water 4 feet. There is a red warping buoy placed in the *fairway* of the river, about two cables' length from the bar perch, which perch must be kept on the starboard hand on going in. There are also pawls all the way up the river on both sides. Vessels running in should keep the middle of the river, and run right up till they come to the end of the stone quay, where they can either beach or anchor. There is a steam tug for vessels frequenting this harbour.

Ardrossan.—At about a mile to the N.N.W. of Saltcoats are the spacious wet dock and harbour of Ardrossan, in which 100 sail of coasters can lie with ease. The pier and breakwater completely shelter the harbour from southerly and westerly winds; and Horse Isle, with the other rocks, protect it from the N.W. The greatest depth at low water in the Inner Tidal Harbour is 10 feet, and in the Outer Harbour 18 feet. The entrance loch to the wet dock is 160 feet long and 40 feet wide; and at average tides there is a depth of 18 feet over the sill of the lock. The railway trains come alongside all the berths in the wet dock and harbour. There are a graving dock and patent slip attached to the wet dock.—In place of the two previously existing harbour lights, a new lighthouse, exhibiting a red light, has been erected at the extremity of the Breakwater. This light illuminates an arc of from 15° to 20° in the direction of the open channel leading into the harbour, and bears from the middle of this channel E. and by N., on which bearing it is brightest. A vessel running for the harbour should steer the usual course from Pladda towards Cumbray Light, and when about 14 miles past the former, and 7 miles from the latter light, the Ardrossan Light will be seen, in favourable states of the weather, on the starboard, at the distance of about 5 miles, and bearing E. by N. In running into the harbour the light should never be closed; but the vessel must be kept within the illuminated space in which there is nowhere less than 22 feet at low water. A black buoy marks the north side of the channel by day, which is on the west Grinan Rock, and there is a perch on the Grinan Rock, both to be kept on the starboard hand in entering.

THE **River Clyde** is remarkable for the ease and safety with which it may be navigated. It is provided with numerous well sheltered harbours, and spacious arms of the sea, of easy access, and capable of containing the largest fleets. In ap-

proaching it, there are neither rocks, nor shoals, nor rapid tides to be feared. Ailsa is a high mountainous rock in the mouth of it, conspicuous at more than 10 leagues' distance, and serves as a remarkable beacon to direct ships to it; there are 4 Light Houses to direct mariners farther up, and to good shelter in the night; and there is hardly one opening to be seen but what a stranger, without chart or pilot, might venture safely to run for in the day time, and find good anchorage within it On coming up the S. or St. George's Channel, and passing Ailsa Rock at 2 miles' distance, the course by compass for Cumbray Head is N.N.E. ½ E. nearly, and will carry you clear of Holy Island, which forms the harbour of Lamlash. If at night, the LIGHTS will be seen on Pladda, a small low Island off the S.E. of Arran Isle. The distance between Ailsa Rock and Pladda Lights is about 11 miles, and from Pladda Lights to the Light on Cumbray Island 18½. There are very large Furnaces of Iron Works between Troon and Ardrossan, which shew for a long distance at night, and might mislead a stranger, unless aware of what they are. It would, however, be advisable for strangers to keep between the Rock Ailsa and the Island of Arran, till daylight. When coming in the NORTH Channel, particularly during the winter months, with a N.W. gale, ships should never run to leeward of Arran during the night, but as soon as they pass the Island of Sanda, inside the Mull of Cantyre, they should haul by the wind, on the larboard tack, with the ship under easy sail, standing 2 hours each way. By this you keep in smooth water, and when daylight comes, can act according to circumstances. Should you run to the leeward of Arran, the wind, which was N.W. will be found at N.W. by N. and sometimes N.N.W. blowing heavy, with very heavy gusts, Keeping to windward, should the gale increase or continue long, you have Loch Ryan under your command; its entrance about 17 miles S.½W. from Ailsa; but once getting to leeward you can never regain your ground. On approaching the Cumbray Islands, 3 entrances appear before you: the middle one is the main ship channel. In clear weather you cannot mistake the Cumbray Island, being distinguished by an old Light Tower on its highest part, a little to the southward of the present Light-house, which is low down on the hill side. There is a good ship channel to the eastward of the Cumbray Island, but strangers never should attempt it without a pilot. The part of the Island of Cumbray on which the Light stands, is bold and steep close to. Opposite to it lies the Island of Bute, the nearest point of which is Garroch Head, distant about 3 miles. Entering between these 2 head-lands, with the Cumbray Light on your starboard hand, when in mid-channel your course to the Light on the Point of Clough is N.E. ½ E., 12 or 13 miles. In proceeding on this course, a little more than half distance, you will see a REVOLVING LIGHT on your larboard hand, situated on the Point of Toward, which forms the starboard side of the entrance of Rothsay Bay. The Clough light stands on a bold shore. On the opposite side is the town of Dunoon, off which lies a ledge of half-tide rocks, called Gantocks. The position of these rocks is marked by a large stone obelisk, which can be seen from a considerable distance. The river afterwards inclines a little to the eastward, until you get opposite to Gourock, in a small bay on your starboard side. Opposite the middle of this bay is good anchorage; and here it is advisable to anchor till a pilot comes on board. The mark, the centre of the bay with the Clough Light on with Kempuck.

Greenock, which is the chief port for large vessels in the Clyde, has three fine basins adjacent to each other. They are known as the west, the east, and the Victoria harbours. Between the pier-heads, at the entrance of the west harbour, there are about 20 feet at high water, spring tides, and from 10 to 12 feet at low water; alongside the quays is a depth of from 17 to 19 feet. The east harbour contains about the same depth of water, but is more spacious; on the quay is a crane capable of raising 50 tons. The custom-house stands between these two basins. On the eastern side of the east basin is the Victoria harbour, opened in 1851. It has an area of 6 acres, is 563 feet long, and 458 feet wide, with a uniform depth of 26 feet at high water, and 14 feet at low water, spring tides. On the quay is a large crane of 70 tons lift; there is also 2 steam cranes of 15 tons lift, for loading coals. Connected with the east and west harbours are graving docks, the widths of their respective entrances being 34 and 38 feet. There are two lines of Rails all round the Victoria and East Harbours, in connection with the Caledonian Railway. A large Coal Shoot has been erected at the East Harbour, from which a great quantity of Coals are shipped daily. A small light is placed on the quay, in front of the custom-house, as a guide to the shipping, and lights of a red colour are exhibited at the several entrances of the port. In the roadstead are warping buoys; but in order to avoid the shoal off the custom-house, care must be taken to anchor as close as possible *outside* the line of buoys. The best anchorage for small vessels is off Albert Quay, in 4 fathoms water. About a mile N. N. W. of the

custom-house are two fixed red lights, visible at the distance of two leagues: when in one, bearing W.S.W. ¾ W., they lead to the anchorage below the "Tail of the Bank."—COCKLE BANK reaches from the east end of the town of Greenock to the *Old Castle of Newark* at Port Glasgow. A new harbour is now building to the N.W. of Mr. Scott's Building Yard, for the discharge of timber laden vessels, the depth of water at spring tides to be 27 feet, with a large space for storing deals.

Port Glasgow.—The channel from Greenock to Port Glasgow is narrow and intricate as far as *Garville Point*, and should not be attempted without a pilot; about a ¼ of a mile N. from Garville Point is a buoy on the south edge of the *Cockle Bank*. Keep that buoy on the larboard hand, and run about a cable's length from it. Near the E. side of Garville Point is a beacon, which pass on the starboard hand, keeping not less than 2 ships' length from it, nor more than half a cable, to avoid the Cockle Bank. Between this last-mentioned beacon and *Inch Green* is first a buoy and then a beacon; keep both on the starboard side, sailing at the distances before directed. There is also a beacon near the quay of Port Glasgow, which you must pass at 2 ships' length on the starboard side, and enter the harbour about high water. At the quay there is water for small craft only. At low water it is dry, and with spring tides is capable of containing vessels that draw 10 and 11 feet water; the ground is soft and easy to lie on, and a good place for graving ships' bottoms is made here. A light is exhibited on the pier to direct the steamers; and at the entrance of the harbour is a light of a red colour on the west quay. About four miles from Port Glasgow is

Dumbarton, a creek in the mouth of the river Leven. Vessels drawing not more than 8 or 9 feet may go in at high water. If pilots cannot be had, the following directions may be useful. Weigh anchor and sail from Port Glasgow at half flood; keep a cable's length from shore at the Old Castle of Newark; from thence steer eastward between Audoch and Dumbarton Castle, about 2 miles, until you come abreast of Finlayston; then steer south-eastward for the western buoy off Dumbarton Castle; there anchor until it is high-water. Leave that buoy to the larboard, and the other on the starboard, and stand in for the entry, keeping that side close until you have passed the Castle.

Between Port Glasgow and Bowling Bay are three Lights: at Auchenleck, the Garmoyle Floating Light, and the third about a mile above Dumbarton: all to be left on the starboard hand in going up the river.

Glasgow.—On the lower or western extremity of Broomielaw Quay, and larboard hand going up the river, a light, of star-like appearance, is placed for the direction of shipping.

Isle of Bute.—To the westward of the Isles of Cumbray is the Isle of Bute, on the eastern side of which, directly opposite Great Cumbray, is Killichattan Bay, where vessels may anchor in from 11 to 16 fathoms. To the northward is the Bay of Rothsay, the ground good and clean, and well sheltered: you may anchor in any part on the E. side of the Bay: but the most convenient place is 2 cables' length N. of the pier-head, in order to be clear of the tract of the numerous steamers plying from the pierhead to all parts of the Clyde.

Kyles of Bute.—The channels between Bute and the Main are termed the Kyles of Bute: their access is easy, and well sheltered, the bottom is extraordinarily good, and the depth sufficient for the largest ships. They are distinguished by the names of the East and West Kyles.

Island of Arran lies to the southward: at its S. E. extremity lies the ISLAND OF PLADDA, upon which a LIGHT HOUSE is erected, 3 miles north-easterly of which is the ISLAND OF LAMLASH. This island lies right in the front of the bay and forms a good and well-sheltered anchorage: the N. side of it is shallow about 2 cables' length from the shore, but the best parts to ride in are off the houses in Holy Island, in 9 or 10 fathoms, or about 2 cables' length E. by N. or E.N.E. from the pier at the town of Lamlash. A red buoy (called Fergusson's) is placed on a rock, with 14 fathoms water in the south entrance to Lamlash. You can go either side; but the Island side is best. At the north entrance on the mainland side is Hamilton's Rock, for which, in thick weather, a good look out should be kept, though it is scarce a ¼ of a mile from the shore and never quite covers. The lighthouse on Pladda exhibits two bright fixed lights, and may be seen from N.W. by W. southerly, to N.E. by E.; the upper at 17 and lower at 14 miles' distance. At the northern extremity of Arran Island is

Loch Ranza, the ground in which is very good, and water sufficient for large ships, but the place being narrow renders it fit for small vessels only. On the east side of the entrance there is a rocky ledge, dry at low water, which extends near one-third over to the opposite side; to avoid this ledge, keep in the middle of the channel. Anchor abreast of the houses of Ballino, in 5 or 6 fathoms water, nearest the E. side of the Bay.

about a cable's length north of the Old Castle, which stands quite at the bottom of the Bay.

Loch Fyne.—After passing Ardlamont Point the entrance to Loch Fyne is open, and is about 7 miles wide from Skipness Point to the north end of Arran, with an arm of the sea running in of upwards of 40 miles, is an extensive and good place for shipping, but is too deep in the middle for anchorage. Between Ardrishaigh and Ilan Yone there are from 2 to 3 fathoms, and from thence to Inverary the coast is very irregular and soundings very variable, from 30 to 70 fathoms; near either side, therefore, about a cables' length or two from the shore, is the best anchorage for large ships, and the north side is reckoned better than the south. In sailing up Loch Fyne the south shore, from Otter Ferry to Inverary, is the cleanest and boldest, and is the tract used by all large vessels. Opposite Minard Castle about 10 miles below Inverary is a shoal extending across the middle of the Lough, it is marked by beacons, and you can go either side, but the west is the safest: all the middle part dries at low water. There is also two Islands, small but high; and Paddy's Rock lies off Castlelachlan: keep the south shore as directed.—On the west side of Loch Fyne, and about 8 miles below Skipness Point, is the little harbour of EAST TARBIT, much frequented by steamers and sailing vessels. INVERMIEL BAY, is also used as an anchorage by large vessels in 10 fathoms water.—At Ardrishaig Point is the Crinan Canal, where there is a Pier, and good anchorage for vessels bound north or to Loch Gilp Head. The best place is on the north side of Ilan Yone, in 3 fathoms, to enter which sail up to Ardrishaig Pier or Lighthouse, and then cross to Ilan Yone.

Campbeltown Harbour lies about 11 miles south-westward of Point Carradle; it is large, well sheltered, the ground good, and there is very little to be feared in sailing into it. On coming from the S. or S.E., you will first see the Island of Devar and the *blind* sound to the southwest of it, through which is a view of the town. On Otter Buoy, the north-east point of Devar Island, is a lighthouse, from which is exhibited a bright light every half minute; it is visible from N. ¼ W. to E. by S. by the N., and may be seen in clear weather about 15 miles. This light is a good guide for clearing Paterson's Rock; if kept in sight, it will lead about 3 miles to the eastward of it. In standing in for Campbeltown at night, be careful to keep to the eastward until the light upon Devar Island is fairly open; then stand for it, keeping it on the port hand, and steering about one or two cables' length from the point of the Island, until you open the harbour; then haul up W. ½ N., or W. by N., still keeping about the same distance from the shore. When abreast of the western end of Devar, a black buoy will be observed on Mullbeg Bank, about 60 fathoms from the Island; this must be passed on the port hand. Steering half a point more northerly, you will next pass, on your starboard hand, a red buoy, placed nearly opposite a sandbank, which is always dry, except with spring tides. On this bank is a beacon, painted black. There is also another beacon, painted red, on Trench Flat. Hence the red light on the north pier will be seen, and soon after, on passing Trench Point, the green light shown from Dolintober Quay. Now steer W.N.W., or N.W. by W., and you may come to an anchor in any part of the loch—observing, however, to give the west shore a berth of two cables' length. In the lock, inside the beacons, the deepest water is on the north side; a stranger should, however, keep the lead going if working in, and put about the first shoal cast, as the bank is steep on both sides. The harbour has a depth of water of from 5 to 10 fathoms.—Masters of vessels turning in with a west wind at night, must be careful not to shut the light on the Island when standing south, but tack as soon as it becomes obscured by the high land of the Island, for in that case they are close to the South Bank, and the water shoalens at once; but by keeping the light E. by S. they will go clear. At night, however, it will be better to anchor at Black Rock, on the north side, about a quarter of a mile E.N.E. from the red buoy, or when Devar Light bears about S.E., in 4 or 5 fathoms water. good holding ground, and well sheltered, being within Macrinian's Point, which forms the north entrance to the harbour.

Sanda Island—About 9 miles south of the Island Davar is the Island of Sanda, a dangerous Island, being surrounded by ledges of rocks. There are several ledges of rocks about the east and west ends extending about a cable's length from shore; and near Gluinmore, which is always above water, there are several rocks that dry at low water, also off the east end around Island Ilanagurach. In the sound, between Ilanagurach and Sanda, is the anchorage, a kind of harbour fit only for small vessels in summer time, or in moderate weather. It is protected by the reefs in the sound—the reef to the west, on which there is a beacon, pointing out the anchorage. Anchor when Fair Head is shut on the end of Sanda in about 10 feet water, close to the houses, off an old quay. No vessel should attempt to pass between Sanda and Island

Ilanagurach, the tide being strong and running very irregular. Round Gluinmore and Island Ilanagurach are reefs and sunken rocks with deep water. On the ship rock of Sanda, in lat. 54° 16′ 30″ N., and lon. 5° 34′ 55″ W., a lighthouse, exhibiting a fixed red light, has been erected. It is visible from N.W. ½ W. to S.E. by E. ½ E. by south-westerly, and may be seen at the distance of 5 leagues. It bears by compass from Pladda Light, W. by S. ¾ W., 18 miles; from Ailsa Craig, N.W.byW. ⅛ W. 16 miles; from Corsewall Light, N. by W. ¼ W. 22 miles; from the Maiden's Rocks Lights, N.E. ¼ N., 21½ miles; from N'most Point of Rathlin Island, S.E.byE. ⅛ E., 21 miles; and from S'most Point of the Mull of the Cantyre, S.E. ¾ E., 6 miles. From Sanda Light, E. by S., distant 21½ miles, is the Paterson's Rock Buoy, pointing out a dangerous rock, uncovered at low water. When the Mull Head of Cantyre is seen to the southward of Sanda, you are to the southward of this rock; when the Mull Head is to the northward of Sanda, you are to the northward of it. When Gluinmore Rock appears to the west end of Ilanagurach you are to the eastward; and when Gluinmore Rock appears to the east end of Ilanagurach, you will be to the westward of Paterson's Rock. In sailing east along the south end of Sanda keep the light in sight and you will pass south of the rock: the light is shut when you are in a line with the rock, and when the light is seen over the hill on east end you are within the rock.—Tides.—High water inshore 9, mid-channel 10 30, a.m.

Tides—The stream of flood within a mile of the Mull Head runs southward, and turns sooner than at a greater distance from the land, so that a vessel keeping near the west coast of Cantyre, will have the benefit of the stream 2 hours before one above a mile from the land.

Magnetic Bearings & Distances

FOR THE WEST COAST OF SCOTLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

ROSS, OFF KIRKCUDBRIGHT (Lat. 45 46 N., Long. 4 5 1 W.)

		MILES.
To Maryport	SE by E	20
St. Bees' Head Light	S by E ½ E	21½
Rossall Landmark	S ¾ E	61½
Buoy Nelson, off Preston	S	71
NW Lightship, Liverpool	S ¾ W	83
Beaumaris entrance	SSW	85
Bahama Lightship, I. M.	SWbyS	26

MULL OF GALLOWAY (Lat. 54 38 9 N., Long. 4 51 20 W,)

To Beggar Scar Rock	E ¾ S	6
St. Bees' Head Light	SE½E	43
Point of Ayre, I. M.	SEbyS¾S	21
Bardsey Island Light	SSW¼W	113
Smalls Light	SW¾S	180
Tuskar Rock Light	SW	153

POINT OF CORSEWALL (Lat. 55 0 29 N., Long. 5 9 28 W.)

To Larne Lock Light	W¼N	24
Fair Head	NW½N	37
Mull of Cantyre	NNW	30
Sanda Light	NbyW½W	26
Pladda Light	NEbyN¼N	25
Ailsa Rock	NEbyN	14½
Cumbray Light	NE¾N	43
Ardrossan Harbour	NE	40

TROON (Lat. 55 33 N., Long. 4 41 W.)

To Heads of Ayr	SW½S	8
Corsewall Light	SW¾W	36
Copeland Light	SWbyW	58
Ailsa Rock	SW¾W	22½
Larne Loch Light	WSW	56
Maidens Lights	WbyS¾S	55
Pladda Light	W	16

ARDROSSAN (Lat. 55 38 37 N., Long. 4 49 28 W.)

To Troon	SbyE	7½
Ayr Harbour	S	11½
Heads of Ayr	SbyW½W	13
Loch Ryan	SW½S	39
Corsewall Light	SW	40
Ailsa Rock	SW½W	26
Copeland Light	SW½W	61
Pladda Light	SWbyW¾W	17

CUMBRAY LIGHT (Lat. 55 43 16 N., Long 4 58 W.)

To Ardrossan	S½E	6
Ayr Harbour	S½E	12
Heads of Ayr	SbyW	18½
Turnbury Point	SSW	23
Loch Ryan entrance	SWbyW	42
Corsewall Light	SW¾S	43
Ailsa Rock	SW½S	29½
Copeland Light	SW	64

PLADDA ISLAND LIGHT (Lat. 55 26 N., 5 7 6 W.)

To Cumbray Light, from 1 mile North of Pladda Light	NE	19
Irvine Harbour	EbyN	18
Troon do	E	16
Ayr do	EbyS½S	16
Turnbury Point	SEbyS	11
Loch Ryan Entrance	SSW	24½
Ailsa Rock	SWbyS½S	11
Corsewall Light	SWbyS¾S	25
Copeland Light	SW	45
Belfast Loch entrance	SW¾W	43
Larne Loch Light	SWbyW½W	42
Maidens Lights	SWbyW¾W	36

MULL OF CANTYRE (Lat. 55 19 N., Long 4 49 W.)

To Sanda Light	SEbyE½E	5
Ailsa Rock	SE½E	24
Corsewall Light	SSE	30
Calf of Man	S½W	84
Maidens Lights	SSW	24
Fair Head	W½S	13
Inisterhul Light	NWbyW	49
Lock Ryan entrance	SEbyS½S	31
Larne Loch do	SWbyS½S	28
Rathlin Island, N. end	WbyN½N	13
Sound of Islay, E. end	NbyE½E	28

MULL OF CANTYRE TO THE NORTH END OF SCOTLAND.

The **Mull of Cantyre** is a high rocky promontory, running to the southward, and approaching within 11 miles of the coast of Ireland. On its south-western extremity is a lighthouse, which exhibits a fixed bright light, visible 22 miles in clear weather, from N. N. E. ½ E. to S. by W. ¼ W. by W. Off Dunimore Head, which is about 5 miles to the northward of the lighthouse, is a rock, lying about a cable's length from the shore, which dries at half-ebb. A rocky shoal, with 3 or 4 feet on it at low water, lies further north, about a quarter of a mile off Usid Point, at the Saltpans: on this shoal the sea always swells, and breaks in the calmest weather.

West Loch Tarbit, on the main of Cantyre; the bay of which is well sheltered, and the depth of water for a mile up sufficient for the largest ships; but the ground, being of soft mud, does not hold well with hard gales, except there is a full cable out. The common places of anchorage are, for large ships, off Ardfarik, in the mouth of the loch; and for small vessels, on the east side of Ilanagalligan. On the S. side of Ilan Trayn are several rocks above ½ a cable's length from the island, or ⅓ from it, and ⅔ from the starboard side of the entry. There is also a sand bank extending from the E. Point of Corran, nearly ⅓ over to the N. side of the loch; to avoid which, keep nearest to the N. side, or keep the easternmost extremity of Ilan Trayn in a line with the W. end of the highest hill in Gia Island. About 3 miles up the loch, off Duneturik, nearest to the N. shore, is a small blind rock, having 5 feet water over it. Keep the middle of the loch, and you will avoid it.

Loch Achastil is a fine harbour, and fit for ships of any size; the ground good, and only one rock, about midway, within it, covered only with spring-tides. Ships may anchor in any part of this loch above Castle Swein. The danger to be avoided in sailing toward Achastil is a small rock on the N. side of the two Mackcarmack Islands, which dries with spring-tides only

Jura Island.—To the westward is the Island of Jura; on the S.E. side of which is Loch Daguall, with good anchorage, well sheltered, and water enough for a merchant ship. This anchorage is very convenient for vessels bound to the southward. You will anchor near the middle of the bay, when Gia Island is just shut in by the N. point of the entry, and the northernmost Pap of Jura bears N.W. ½ W. In running either in or out, stand not too near the sides, for on the N.N.E. and N.W. sides of the bay it shoals nearly 2 cables' length from shore.

Sound of Islay is the common track for shipping to and from the N. A Lighthouse has been erected on Rudha Mhail Point showing a Fixed Light, visible 15 miles. It shows RED from about NNE ½ E.W'ly. to about N¼W; MASKED W'ly. from about N¼W to about NbyW¾W, and from about NbyW¾W round S'ly and E'ly to about NNE¼E it will show WHITE, excepting where intercepted by the land. When proceeding into, or through, Islay Sound, this light kept in view clears the Black Rock and other shoals at the south entrance. A lighthouse is also erected on MacArthur's Head, on East side of Islay, and South entrance to the Sound, showing a Fixed Light, visible 17 miles. It shows WHITE up the Sound till it bears S¼W; RED towards Jura from S½W till it bears about W; and WHITE from about W. round by the S., or until obscured by the south side of Islay. A tide or a night is the longest any vessel should stop here except in Macdougal's Bay, where one cable may be made fast to a ring or rock on the shore. In entering Islay Sound from the southward, you are to bring Glashilan Island to bear N., or keep within a cable's length or two from the Islay shore, and you will clear the Skerchray Rock, which lies on the starboard side, W. of the small Island of Frochilan.

Loch Tarbet is filled with small rocks, especially on its southern side, it is therefore hazardous to enter. The anchorage is ¼ of a mile above Guinmore, but the best and safest place is near the mouth of the Loch in Glenaberig Bay. This is easy of access, and has 3 and 4 fathoms water. Keep a cable's length from the point in passing, and anchor the same distance eastward of it. About a mile eastward of this anchorage is a cluster of small rocks above water; on the E. side of these a ship may ride safe in 5 fathoms water, keeping ½ a cable's length from them in going up.

Loch Indaal.—Having rounded the Mull of Kinho, which is the south-western part of Islay, you will open Loch Indaal. This may be said to be the only place in Islay where vessels in winter time can ride in safety. Here small vessels drawing 9 and 10 feet water may ride, and be well sheltered; larger ships, drawing 15 feet, must ride with the mouth of the loch open, and will therefore not be so safe when the wind blows from the W. or S.W. But the best anchorage is at the further end of the loch called Kilirn Bay, when Bomore House bears S.S.E., lying somewhat nearer to the S. than to the N. side of the harbour, in 3 fathoms, sandy ground. Larger ships anchor more to the westward bringing Bomore House S.E. by E. in 4 fathoms. At the entrance to this harbour are 2 spits of sand; one on the S. side, which never dries, extending from

Atturach Point northwards; the other running from the opposite side southward, which dries gradually. These two spits of sand almost enclose the harbour. In the channel between their two points are 2 and 2½ fathoms, low water, spring-tides.

Rhins of Islay Light, on the northern side of the entrance to Loch Indaal, upon the small island of Oversa, bearing by compass from the Mull of Kinho, N. by W. ¾ W., distant 10 miles; and from the STATIONARY LIGHT of the Mull of Cantyre, N. by W. ¾ W., 33 miles. From the north eastern extremity of the Island of Rachlin, N¼E., distant 25 miles. From the REVOLVING Light of Innistrahul, E. distant 28 miles. From the Revolving Light, producing a bright Flash once in every minute, on the Rock of Skerryvore, distant from Hynish Point, in Tyree, W.S.W. ½ W., 10⅓ miles, it bears S. ¼ W., distant 44 miles. From the Rocks of Dunheertach, lying 11 miles S. W. from Icolmkill, it bears S. S. W., distant 28 miles; and from Tanvore Head S.W. by S., distant 6¼ miles. It will be known to Mariners as a STATIONARY and a FLASHING LIGHT. To a distant observer it appears like a star of the first magnitude, producing a bright flash of light every 5 seconds, without those intervals of total darkness which characterise other Revolving Lights upon the coast In clear weather it will be visible at the distance of 6 leagues, and is open from N.N.E. to S.E. (westerly); half-a-mile off Cull Point it disappears.

Oronsa and Colinsa Islands— Oronsa is much the smaller Island, and is nearly 4 miles to the northward of Ruinanishag Point, in Islay. Off its southern sides are several rocks, one of which extends W.S.W. from Gudimel, a small island on the S.E. part of Oronsa. This rock dries at half- ebb. There is a shoal also about ¼ of a mile to the southward of the middle of the rock, on which are 6 feet at low water. At the S.W. point of Oronsa is Ilana Roan; one mile S.W. of which are 2 or 3 rocks, which dry with spring tides only, and some shoals, on which the sea always breaks. A leading mark to go to the southward of these dangers is Ruvaal Point in Isla, on with the S. end of Beninore Hill in Jura. Sail not nearer to Colinsa than till Ruvaal Point bears on the middle of the hill. To the W. of Colinsa are several rocks and shoals, lying a mile out from Ardskinish Point, some are above, some below, and others dry only at low water; you will avoid the whole of them by keeping about 2 miles from the shore, or one mile from those rocks you see above water. There is no anchorage on the W. side of Colinsa, and but indifferent on the E. side.

The **Gulf of Coryvreckan,** which is formed by the N. end of Jura, and the Island Scarba, is distinguished by a violent breaking sea with whirlpools, partly occasioned by an excessively rapid stream running over a steep rock, at the N. side of the Sound, near the W point of Scarba. On the Jura side of the Gulf the sea rages and forms whirlpools, both with ebb and flood; but the waves do not rise so high as on the Scarba side of the Gulf.

The Sound of Mull Lighthouse is situated on a small rock called Runa Gall, on the south shore of the Sound of Mull, Argyleshire, about one mile northwards from Tobermory. The tower is about fifty yards within the high water mark of spring tides, and is connected with the shore by a bridge of two spans. The Light is an azimuthal condensing Light, and shows a FIXED RED LIGHT northwards out to sea; a FIXED GREEN LIGHT towards the New Rocks, the Red Rocks, and the Stirks Rocks, in the Sound of Mull; a FIXED WHITE LIGHT southwards into the Sound of Mull. The Light is exhibited from a tower of masonary about 55 feet above high water of spring tides, and may be seen in clear weather at the distance of about twelve nautic miles.

Ardnamurchan Point.—A Lighthouse, exhibiting a Fixed Light of the natural appearence, has been erected on this point; and bears by compass from Caillach Head, N.E.¾E., distant 7 miles; from the Cairns of Coll, S.S.E., 8 miles; from Kana Head, S. ¼ E.. 30 miles; from Scour of Eigg, S.W. by S. ¾ W., 11 miles; from Bo Askadil Rock. W. S. W., 7 miles. It is visible 18 miles in clear weather.

Usnehish Lighthouse is situated on the most easterly headland on the eastern side of the Island of South Uist, one of the Hebrides, in the county of Inverness. The Light is a dioptric first-class FIXED RED LIGHT, and is exhibited from a tower of masonry erected on the headland. The Light is about 176 feet above high water of spring tides, and may be seen in clear weather at the distance of about eighteen nautic miles.

Island Glass Light, situate on the eastern side of Glass, and on the western side of the channel between Skye and the Long Island. The light is STATIONARY, appearing like a star of the first magnitude, at the distance of 5 or 6 leagues, from W. by S. to E.N.E. ¼ E. by the S.

Skergriatick Rock—A Beacon, painted Black has been erected on this rock, situated on the Minsh, It consists of a Frame-work of iron, surmounted by a cylindric cage, and rising to about 30 feet above high water spring tides. There are steps leading from the rock to the

cage, in which shipwrecked mariners may find a temporary shelter. This beacon bears by compass from Skernamule beacon N.N.W., distant 3 miles; from Dunvegan Head, in Skye, N.E.¾E., 18 miles; from Island Glass Lighthouse, S.E. by S. ⅜ S., 7½ miles; from the Greater Galtimore (one of the Shiant Islands), S.W. ¼ S., 8 miles. There is foul ground nearly all the way from Skergriatick Rock to Fladdahuan Island, from which the beacon lies 2½ miles to the N. by E.

Loch Terriden.—In entering Loch Terriden avoid Runawhagh Point, its southern entrance, a little way off which point is a rock under water, which dries at spring tides. Excepting this rock, there is no danger in sailing into or up this Loch; for Skerintram Rock, which lies on the north side, is always above water, with deep water all round. Here therefore the access is easy, the ground good, and so well sheltered, that several hundreds of the largest ships may ride with safety in all weathers. Its entry is 2½ miles wide, the Loch running in S. by E. ½ E. to abreast of Loch Shieldag, then S.E. by E. to the furthest end. The best place for anchorage is in Loch Shieldag, between the two narrows, on the S. side of the basin, or any where above the second Narrow, which is what may properly be called Loch Terriden.

Loch Gerloch.—About 4 miles further N. is Loch Gerloch, a large and well sheltered harbour, the ground in all parts clean, holding well, and capable of containing a fleet of the largest ships; its entrance is between Coupachar Point and Longa Island; distant from each other nearly two miles. There are no dangers either in or near it; and when it does not blow hard from the W. or S.W. ships may ride in any part, particularly on the E. side of Island Longa. In winter the best anchorages are between Flowerdale and the Island of Horisdale, in from 9 to 20 fathoms water. Small vessels may ride on the W. side of this Island, S. E. of a rock above water.

Loch Yew.—From Longa Island to Ru Rhea the bearing and distance are N. E. ¼ N., 3½ leagues. Five miles to the eastward is Loch Yew, a place large and well sheltered, forming a bay of easy access, a moderate depth of water, and having good holding anchorage, where whole fleets may ride in the greatest safety at all times. The entrance to Loch Yew is a mile wide, and nearly off its western point lies the small Island of Fura, with 2 or 3 islets to the eastward of it; there is also a little rock off the northern point of Fura; keep therefore at a distance in passing it, and the channel in is free from danger. In the middle of the bay is Yew Island, at the northern point of which are some rocks above water. The best places to ride, are on the E. side of the Island Yew, or on the E. side of the bay off Tunag, and off Inveraspadale at the opposite side of the Loch.

Loch More or Great Loch Brim.—To the northward of Loch Beg, are several islands, lying before Loch More, or Great Loch Brim. Loch More is a great and safe branch of the sea, capable of accommodating the largest fleets, and having no rocks or dangers within it, except a small ledge on the E. side of Ullapool extending above a cable's length from that shore, which is avoided by keeping ⅛ from the Ullapool side. You may anchor in this bay in 14 and 15 fathoms water, above a cable's length from the shore, or any where above Logie Point, in from 13 to 24 fathoms Should you, in entering or sailing from this Loch, go between the larboard point, or Ru Handerrick, and the Carniskere Islands, remember to give the former a berth on account of a rock called Nuela, which lies nearly a cable's length from the shore, and dries about half ebb.

Loch Kylescough. Is nearly 7 miles E.S.E. ¼ E. from Ru Stoir, and 3½ miles in the same direction from Ouldenay Island. This is a large and well sheltered branch of the sea, the approach to which is safe, and the anchorage good; but for some miles within the Loch the water is too deep for ordinary vessels, being from 30 to 50 fathoms, unless you carry an anchor on shore. Above the Island Ranich, where the contracted channel commences again to widen, ships may anchor any where, the stream in the narrowest part running not more than 1 mile an hour.—The only rock necessary to notice, lies near the Island Calaway, off the larboard side of entrance; it bears W.S.W. from it and dries at low water; keep Runachusan Point in Ouldenay Island on with the extremity of Ru Stoir, and you will clear this rock to the southward. At the N. side of the entrance to Loch Kylescough is Loch Shark, and N.E. of Shark lies Loch Calaway.

Loch Inshard.—One league to the eastward of Lusford is Loch Inshard, the last bay before you round Cape Wrath. In sailing in great caution must be observed, as there is a rock lying right at the entrance, which appears at spring ebbs only. Within the Loch you will be well sheltered, your depth moderate, and your ground good. Sail up until you are landlocked, and anchor near the north or east side. To the north west of Loch Ardicar are some Islands, close to the main, called Ilanarone; and nearly N.N. E. of these, 4 miles, is Balag Island, having a small rock above water, at both the N.

and S. extremities. This Island lies about a mile from Ru Wochel. Near the latter is a rock above water, close to the land. From hence to Cape Wrath the coast is high and rocky. Off Cape Wrath are said to lie several rocks under water, called the Stags. Vessels in sailing round this headland should always give it a good berth, of 1½ or two miles, and steering E'ward, they will reach the Pentland Frith

Isle Oronsay Lighthouse is situated on a low point at the south-east end of the Island of Oronsay, Inverness-shire, in the Sound of Skye, also called Sound of Sleat. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT, from a tower of masonry about 58 feet above high water of spring tides. The Light may be seen in clear weather about twelve nautic miles.

Kyleakin Lighthouse is situated on a point of rock which covers at high water spring tides, and projects from the west end of Eilan Dool, or Gillean Island, in Ross-shire, at the western entrance of "The Narrows," leading to Loch Alsh. The tower is about fifty-three yards within the high water mark of spring tides, and is connected with the Island by a bridge of five spans. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT in the fairway of the Sound of Loch Alsh, and a FIXED WHITE LIGHT in the fairway leading to the Sound of Applecross, and which White Light extends southwards to Pabba Island. From thence it shows a FIXED RED LIGHT, extending eastwards along the shore of Skye to the south of the fairway of Loch Alsh. It also shows a FIXED RED LIGHT to the north-eastwards of the fairway to the Sound of Applecross. To the north of the fairway of Loch Alsh the Light is not shown. It is exhibited from a tower of masonry about 53 feet above high water of spring tides, and may be seen in clear weather at the distance of about eleven nautic miles.

Rona Lighthouse is situated on the northern end of the Island of Rona, in Inverness-shire, between the west coast of Ross-shire and the Island of Skye. The Light is a catadioptric second-class holophotal FLASHING WHITE LIGHT, showing a flash EVERY TWELVE SECONDS. It is exhibited from a tower of masonry erected on a peak at the north-east point of the Island. It is elevated about 222 feet above high water of spring tides, and may be seen in clear weather at the distance of about twenty nautic miles.

Cape Wrath Lighthouse, erected on the Cape, forming the north-western extremity of the main land of Scotland, in lat. 58 deg. 37 min. N., and in lon. 5 deg. W., bears from Hoy Head in Orkney, W. ¾ N., distant 50 miles; from the Butt of the Lewis, E. by S. ½ S., 41 miles; from the rocks called the Stags off the Cape, S. W. by W. ¼ W., about 1 mile; from the sunken Rock called the Nun, S.S.W. ¾ W., distant 15 miles; and from the Islands of Stack and Skerry, W.S.W., the former 35¼ and the latter 38 miles distant. It is known to mariners as a REVOLVING LIGHT, of the natural appearance, changing with one tinged red, which attain their most luminous effect every two minutes, and become, to a distant observer, totally eclipsed for a short time. The light is visible from S. ½ E. to S. W. by W. by the N., at the distance of 23 miles.

Dunnethead Light, on the Northern extremity of the mainland of Scotland, in lat. 58 deg. 40 min. N., bears by compass from the N. end of the Island of Stroma, in Pentland Frith, W.N.W., distant 7½ miles; from Hoy Head, leading to Hoy Sound, S.S.W., distant 13 miles; from the Stack and Skerry, S. by E. ¾ E. distant thirty-three miles; and from Cape Wrath, in Sutherlandshire, S.E. by E. ¾ E., distant 54 miles. In reference to these bearings, the light will be visible to the mariner in a northerly direction from S.E. ½ E. to W. by northward. The Light is STATIONARY, and being elevated 346 feet above the medium level of the sea, will be seen like a star of the first magnitude, at the distance of from 7 to 8 leagues, and at lesser distances according to the weather.

Magnetic Bearings & Distances

FOR THE NORTH AND EAST COASTS OF SCOTLAND.

		MILES.
CAPE WRATH (Lat. 58 37 30 N., Long. 5 W.)		
To Ru Store	SW by W	26½
Loch Maddy entrance	W by S	92
Glass Island Light	W by S ¼ S	70
Chicken Head	W ⅜ S	47
Tolsta Head	W ¼ N	39
To Nun Rock	NNE ⅜ E	15
Hoy Mouth, Stromness	E ¾ S	61
Holburn Head	SE by E ⅛ E	51
DUNNET HEAD (Lat. 58 40 16 N., Long. 3 22 20 W.)		
To Thurso Bar	SW by W ½ W	5
Holburn Head	W by S	5
Hoy Head	NNE	13
Swona, South end of	E by S	10
Pentland Skerries	ESE	14
SULE SKERRIE (Lat. 59 3 N., Long. 4 13 W.)		
To Dunnet Head	SSE	33
Strathy Head	S by W	28
Sumburgh Head, Shetland	E	100
Westra Frith	E by S	40
HOY MOUTH, STROMNESS (Lat. 59 3 N., Long. 3 23 W.)		
To Scrabster Roads	SW ½ S	17
Strathy Head	W by S ½ S	23
Lock Erobol	W	45
Cape Wrath	W ¾ N	39

DENNESNESS LIGHT, NORTH RONALDSHA (Lat. 59 23 N., Long. 2 23 W.)

		MILES
To Foul Island	NE	45
Pappa Island, Shetland	NE ½ E	60
Sumburgh Light, Shetland	E ¾ N	46
Fair Island	E by S	28

START POINT IN SANDA ISLAND (Lat. 59 16 39 N., Long. 2 22 25 W.)

To Foul Island	NE ¼ N	50
Fair Isle	E	30
Noss Head	SW ½ W	50
Copinsha Island	SW ½ W	22

SUMBURGH HEAD, SHETLAND (Lat. 59 51 N., Long. 1 16 W.)

To Noss Island	NE by E	20
Bucanness Light	SW by S	140
Fair Isle	SW by W	21
Start Point, Sanda I.	W by S ¼ S	48
Foul Island	NW by N ½ N	28

NOSS HEAD (Lat. 58 28 38 N., Long. 3 3 5 W.)

To Duncansby	NE by N	10
Pentland Skerries Lights	NE	12½
Fair Isle	ENE	78
Sumburgh Head	NE by E ½ E	96

TARBETNESS LIGHT (Lat 57 51 N., Long. 3 48 W.)

To Troup Head	SE ¼ E	48
Cowsey Point	SE by S ¼ S	18
Burgh Head	S ¾ W	13
Mairn	SW ¼ S	16

KINARD'S HEAD (Lat. 57 42 N., Long. 2 1 W.)

To Rattry Brigs	SE by S ⅜ S	8
Helmsdale	NW by N	60
Noss Head	N by W	61
Duncansby Head	N ½ W	67
Copinsha Island	N by E	77

BUCANNESS LIGHT (Lat. 57 28 15 N., Long. 1 46 11 W.)

To Peterhead, S.H.	NNE	2½
Rattry Brigs	NNE	9
Sumburgh Head	NE by N	140
Bell Rock	SW	66
St. Abb's Head	SW ⅜ S	95
Girdleness Light	SW ½ W	25

THE GIRDLENESS (Lat. 57 8 15 N., Long. 2 3 2 W.)

		MILES.
To Bucanness	NE ½ E	25
St. Abb's Head	SSW	72
Bell Rock	SW ¼ S	42
Flambrough Head	S ½ W	193

MONTROSE (Lat. 56 42 N., Long. 2 27 W.)

To St. Abb's Head	S by W ½ W	48
Bell Rock	SSW	11
May Island	SW by S	30
Flambrough Head	S	174
Longstone Light, Ferns	S ½ W	70

BELL ROCK (Lat. 56 26 3 N., Long. 2 23 6 W.)

To Montrose entrance	NNE	11
Girdleness Lights	NE ¼ N	42
Bucanness Light	NE	66
Flamborough Head	S ¼ E	158
Buttonness	NW ½ W	13
Arbroath	N by W ½ W	6
Dumbar Harbour	SW ½ S	27
St. Abb's Head	S. by W. ½ W	32
Fifeness	SW by W ⅜ W	11½

MAY ISLAND (Lat. 56 11 8 N., Long. 2 33 20 W.)

To Fifeness	N ¾ E	5
Arbroath	NE by N ¾ N	21
Bell Rock	NE ¾ E	16
St. Abb's Head	S ¾ E	21
Inchkeith	W ½ N	22

INCHKEITH (Lat. 56 2 N., Long. 3 8 W.)

To Kirkaldy	N by E ⅓ E	6
Elieness	E by N ⅓ N	14
Fidra Island	E by S ¼ S	12½
Fisherow	S ¼ E	6
Colm Island	NNW	7
Garvy Island	W by N ¾ N	9
May Island	E ½ S	22

ST. ABB'S HEAD (Lat. 55 55 N., Long. 2 9 W.)

To Buttonness	N	37
Bell Rock Light	N by E ½ E	32
Aberdeen, Girdleness	NNE	72
Bucanness Light	NE ⅜ N	95
Bass Rock	NW by N	11
Elieness	NW by N ¾ N	25½
May Island	N by W	20

EAST COAST OF IRELAND.

POINT CARNSORE TO LOCH CARLINGFORD.

Point Carnsore is the S.E. point or extremity of Ireland, and lies about 42 leagues from Cape Cornwall, bearing N. by E. ½ E.; from the Small's Light N. by W. ½ W., distant 37 miles. Nearly E. by S. from Carnsore Point, distant 6 miles, lies the TUSKAR, a very remarkable rock 20 feet above the level of the sea at high water, upon which stands a lighthouse similar to that on the Eddystone, elevated 81 feet from its base. The light revolves every two minutes, showing two faces bright, and one red. The red light is visible 10 miles, and the bright 15 miles. During foggy weather a bell is tolled every half minute. This rock bears from the Smalls Lighthouse N. ½ W., distant 33 miles. Ships coming from the westward and bound for St. George's Channel, should endeavour to see this rock before they shape their course to the northward.

Blackwater Bank, in front of Wexford Bay, is a narrow sandbank running nearly in the direction of the coast, at the distance of from 4 to 5 miles. A buoy is placed at each extremity of this bank. Moored off the north end, in 20 fathoms,

at low water, spring tides, is a Light Vessel, which exhibits a Fixed Light. The Light is shown from the mainmast, and in clear weather can be seen at a distance of 10 miles. The vessel has three masts, and carries a Ball at the main-mast-head; is painted Black, with a White Band, having the word "*Black-water,*" in white letters, on her sides; and lies about 1½ miles E. ¾ S. of the black buoy on the north end of the Black-water Bank, with the following marks and compass bearings:—Arklow Light Vessel, N.E., 13 miles; Cahore Point, N. by W., 5 miles; Tuskar Lighthouse, S.W. ¾ S., 18 miles. A gong is sounded in foggy weather

Wexford Harbour is capacious and sufficiently sheltered, but is obstructed by a bar extending across it, over which there are at times but 7 feet water. Buoys are laid in the deepest water across the bar; but to enter this harbour a pilot is necessary.

Arklow Bank is a narrow sand-bank off Arklow Bay, about two leagues from the land, and nearly 10 miles long from N.E. by N. to S.W. by S., and from ½ to ¾ of a mile broad; the shallowest part is near the N. end, where the least water is 1 foot; the S. end has from 8 feet to 3 fathoms on it, and except at slack water, you will perceive its ripple; near to its East side are from 13 to 20 fathoms: approach it no nearer than 30 fms. The marks for its southern end are Arklow Rock N.W. ½ N. distant 7 miles, and in one with the northern declivity of the Copper Ore mountains; and the Great Sugar Loaf open to the eastward of the Ballynacarrig Hills, and also of Mizen Head, bearing about N. ½ E. There is also a buoy placed to mark the south end, striped black and white vertically, with the words "*Arklow Bank South No 4*" on it. The marks for its northern end are the top of Carrig Mc Rely just open to the N'ward of Maughry Point, bearing N.W.¾N., and the Great Sugar Loaf open to the eastward of Wicklow Head, N.¼W. Wicklow Head bearing N.N.W. clears it. There is also a buoy placed to mark the north end, striped black and white horizontally, surmounted by a staff and globe, with the words "*Arklow Bank North, No.* 1" on it. Two Can Buoys have been placed to mark the eastern edge, the northenmost of which is chequered red and white, with the words "*Arklow Bank No.* 2" on it. It is placed in 12 fathoms, with the following marks and compass bearings—Arklow Bank North Buoy, E. N.E. ½ E.; highest part of Bray Head just open of the highest part of Wicklow Head, N.byE.; Mizen Tower on with the peak of a small hill, N.W. by W. The southernmost is striped black and white horizontally, with the words "*Arklow Bank, No.* 3" on it. It is moored in 12 fathoms, low water, with the following marks and compass bearings—Arklow Bank No. 2 Buoy, N.E. by N.; Arklow Bank South Buoy, S.W. ½ S.; Arklow Bank Light Vessel, S. W ½ W. A Light Vessel is moored, in 22 fathoms, on the south end of the bank. The vessel has three masts, showing a Revolving Light from main-mast, which attains its greatest brilliancy once every minute, visible 10 miles. Carries a ball at main-mast-head, and has the words "*Arklow Bank*" painted on her sides. During foggy weather a gong is sounded.

On **Wicklow Head** are two light-houses, each showing a bright fixed light. The upper may be seen at 21, and the lower 16 miles off. The lights bear from each other N.W. by W. ¾ W., and S.E. by E. ¾ E., 180 yards, and, when in one, lead between the India and Arklow Banks.

Wicklow Harbour, fit for small craft only, there being only 9 feet in the entrance at high water, spring tides, and 6 at neap tides. To make its entrance better, a new channel has been opened; this is formed by 2 Piers about half a furlong to the westward of the Old Bar, and there the depth is 12 and 14 feet.

The **Wicklow Banks** are 2 narrow patches of sand, lying about 5 miles E. from Wicklow Head. The southern Patch, called the India Bank, is about one mile long, N.N.E. ½ E., and S.S.W. ½ W, and ⅓ of a mile broad. On its middle are 2 fathoms, on its N.E. part 3½ fathoms, and on its S.W. end 3¼ fathoms; at its S. W. extremity is a black buoy, from which Wicklow Head Lights bear W. ¾ S., 5 miles. The lights in one, bearing N.W. by W. ½ W., lead 2¾ miles to the southward of this buoy, in from 12 to 30 fathoms; and the buoy is a guide to pass between Wicklow Head and the Banks. To sail between this Bank and Wicklow Head, bring Wicklow Head lights in one; keep them so until the Sugar Loaf Hill bears N. ¾ W.; then steer by this course, and you go clear, and to the southward and westward, of the India Banks.

The **South Ridge** lies at the N. end of the India bank, separated by a narrow channel of 5 fms., about a cable's length in width: it is 1½ miles long, and ⅓ of a mile broad, with 3¼ to 5 fms. water on it. Its direction is N.N.E. ½ E., and S.S.W. ½ W., and its N.W. end is nearly 5½ miles S.E. by E. from Six Mile Point.

The **Codling Bank.**—The south end of this bank lies N.E. by E., 3 miles from the South Ridge; it then runs N. by E.,

3 miles, and turns suddenly to W. by N. for 2 miles, then curving round to the S.E. till it joins the south point. In the middle of the bank, which is 2 miles broad, are from 3¼ to 5 fathoms. The Great Sugar Loaf open north of the Gap N.W. ¾ N., leads between the Codling and the South Ridge. A Black Buoy is placed on each extremity of the Codling, and lying off the south-eastern end, in 8 fathoms, low water, spring tides, is a Black Spiral Buoy, surmounted by a Staff and Globe, and marked "*Codling Bank*," with the following marks and compass bearings:—Carrickgollogan Hill, in one with Bray Point, N.W. ¾ N.; Great Sugar Loaf, N.W. ¼ W.; Wicklow Head, W. by S. ¾ S.

The **Bray Bank** lies N.E. by E. and S.W. by W.; is 2 miles long and ½ a mile broad, with twelve feet on it. In the Channel, between the Codling and the Bray, which is nearly half a mile wide, there are 8 to 10 fathoms. Carrickgollogan Hill 2 degrees open north of Bray Head, N.W. ¼ N., clears the Codling to the northward. This mark will lead across the bay, in 3 fathoms at low water. The south hummock of the Little Sugar Loaf in one with Windgate Hill, W.N.W. ½ W., leads between the Bray and the Kish Banks in 3¼ fathoms. There is a white buoy at the N. end of the Bray Bank.

The **Kish** is a long, narrow sand, stretching N. by E. ½ E., and S. by W. ½ W., about 6½ miles, and is from ½ to ¾ of a mile broad; on its southern extremity is a black buoy. From it Dublin Lighthouse bears N. by W. ½ W., 12½ miles; Howth Head Light N. 11½ miles; and Bray Head W.N.W. ½ W., 6 miles. On the Kish are from 9 feet to 3 fathoms, the latter depth being near its northern end; here a white buoy is placed, which lies from Howth Head Lighthouse S. S. E., distant 6 miles, and from Dalkey Island E. ¾ S. about the same distance. Three-quarters of a mile from the northern extremity of the Kish, a Floating Light Vessel is moored, with the following mark and bearing:—Ireland's Eye a little open of Howth Head, and Dublin Lighthouse, N.W. ½ N., distant 7½ miles. This vessel bears 3 lights or lanterns, on three separate masts equidistant from each other, the centre lantern being the highest. Three miles to the southward of the white buoy is a beacon buoy, lying in 1½ fathom water, and points out the middle and most dangerous part of the Kish; at this spot the Great Sugar Loaf Hill appears on the saddle of Bray Head, bearing W. ½ S., and Ireland's Eye just open, and shut with the Head of Howth, N. ¼ W.

Bennett's Bank.—The S.E. end of this bank lies about 2 miles N. E. ½ N. from the North Buoy of the Kish, and 5 miles S. E. from Howth Head Lighthouse; it is about 1¾ miles in length, and has 5 to 5½ fathoms on it; at ½ mile southward are 8 or 9 fathoms.

The **Burford Bank,** at the entrance to Dublin Bay, is narrow, and runs in a N.N.E. ¼ E. and S.S.W. ¼ W. direction, being about 1½ mile long, and one-third of a mile broad. Nelson's Pillar kept open to the southward of the Pigeon-house on Dublin Quay, will lead clear of its southern extremity in 4½ and 5 fathoms water; and the same pillar, or Shallows Bath Light, open to the northward of Poolbeg Lighthouse, will clear its northern end, in 5½ and 6 fathoms water. The mark to go clear to the eastward of it, is Ireland's Eye open to the Nose of Howth. Upon each end of this bank is a buoy; that on the southern end is vertically striped red and white, and that on the northern chequered black and white.

Sailing for Dublin Bay from the Southward. — From the Tuskar to Wicklow Head the bearing and distance are N.E. ¾ N. nearly 46½ miles, but to pass to the eastward of the Arklow Bank the course is N.E., observing to make due allowance thereon for the set of the tide, whether flood or ebb. When Wicklow Head Lights bear N. by W. you will be clear of the Arklow Bank; then to sail within the Wicklow or India Banks, bring the Great Sugar Loaf Hill well open of Wicklow Head, bearing N. by W., or Wicklow Lights in one; either of these will lead between the Arklow and India Banks; and when within 2 and 2½ miles of the shore, a N. by E. ½ E. course will carry you past Moulditch Bank and Dalkey Island. If with a westerly or S.W. wind, you may haul close round the Mugglins, and proceed along shore, avoiding the Bullock Rock, which lies about a mile from Dalkey. In working up between the banks and the shore with a flood tide and northerly wind, do not stand further from the land than four miles: for at about that distance the stream turns off to N.E. by E., and with little wind may drift you upon the banks; while near the shore the stream commonly makes to the southward 1½ hours before high water.

Stopping Places. — In moderate weather vessels may stop almost any where within the banks between Wicklow and Dublin, except off the Giant's Bed, where lies the Moulditch Bank; the best part, with westerly winds, is between Bray Bank and the main, from ½ to 2 miles from the shore. Here is very little stream of tide, and the violence of the

sea is considerably broken by the banks.

In **Killynee Bay** vessels may anchor in 5 or 6 fathoms, sheltered from W.N.W. to N.N.E. winds, and also in 7 fathoms off Wicklow Church, sheltered from S.W. and westerly winds.

Dublin Bay.—There is good anchorage in the mouth of Dublin Bay when the wind does not blow hard from the E. and S.E.; with these winds a great sea sets in when it blows hard, so that vessels are obliged to run for some place of safety; with north-easterly winds, vessels run for Kingstown harbour, which lies on the S. side of Dublin Bay, and is enclosed by two large piers; on the head or the eastern of which is a lighthouse shewing a revolving light, presenting white and red faces alternately, and attaining their greatest brilliancy at intervals of thirty seconds. During foggy weather a bell is tolled. There is also a fixed red light on the west pier-head. The entrance to this harbour faces the N.E., and has 4 fathoms water; within, from 4 to 2½ fathoms at low water. When going in, leave the revolving light on the larboard hand, and round it close to. BAILEY LIGHT, exhibited from the S. E. point of Howth Peninsula, is stationary, and is visible at a distance of fifteen miles. About a mile to W.S.W. of the lighthouse lies the Rosebeg Bank, which is easily distinguished in blowing weather by the sea breaking over it: and on which are from 2½ to 3 fathoms water. The Revenue Barrack on with the Poolbeg Lighthouse, bearing N.W. by W. ¾ W., leads clear to the southward of it.

Dublin Harbour lies between two banks, the North and South Bull, and is protected by two walls built on piles, the southern one of which is carried 2¾ miles into the bay, and has a lighthouse on its extremity, called the Poolbeg, exhibiting a fixed light all night, and a lower light, much fainter than the upper, from half-flood to half-ebb: in the day a ball is hoisted during the same period. At the extremity of the North Bull Wall there is a beacon, also a black buoy A fixed light is now exhibited on a beacon on the North Bank, 1 mile west of the Pigeon House Basin, open to the channel, but shut to the north of it. There is a fixed light on the point of the north wall opposite King's End, called the North Wall Light. A bar lies across the entrance, on which are 12 feet at low water. Between the bar and lighthouse are 14 to 27 feet. A red buoy is moored on the bar, in 12 feet at low water: it lies a mile E. ¾ S., per compass, from Poolbeg light. Pass about a cable's length to the southward of this buoy, observing the before-mentioned mark, and you will carry 12 feet over the bar at low water. On the north side of the channel, and bearing E., 3-10th's of a mile from the lighthouse, is a white buoy, moored in 12 feet at low water, between which and the lighthouse are from 14 to 27 feet. The south bar buoy (black) lies S. ¼ W. 2-5th's of a mile from the lighthouse, on the southern extremity of the south bar patches, which commence about ½ of a mile S.E. from the lighthouse, extending in that direction nearly ½ a mile; then turning to the westward about the same distance, when they terminate where the black buoy is placed. On these patches are only from 8 to 10 feet. The channel is regularly buoyed on the north side with black buoys, and on the south with red buoys. The red buoys are conical shaped 5 feet above the water, and are numbered in black figures. No. 10 is the most eastern, and is placed in 7 feet low water on the edge of White Bank, west of Half Moon Battery; and No. 1 about 600 feet below King's End, in 6 feet low water. Between Poolbeg and the Pigeon House there are several places where vessels may anchor, in from 16 to 20 feet at low water, the channel having been greatly improved by means of powerful steam dredges. Ships in general, with suitable draughts of water sail over the bar to the south of the east buoy. This is called the East Channel, and the mark for it is the Church of Irishtown just open to the northward of the lighthouse. This mark will lead you about a cable's length to the southward of the east buoy in no less depth than 16 feet at half-flood. So soon as you are over the bar, the depth will increase to 18 and 20 feet. Keep about mid-channel between the Spit Buoy and the lighthouse, and when about ½ a mile within the latter you may anchor in 15 or 16 feet at low water. This is called Poolbeg, and although a tolerably good place in summer, it is not so good in winter time; it is then best to go a mile further up, so as to take the ground about half-ebb, or to lie along the wall or along the quay above King's End. To sail in through the West Channel, you must pass to the southward of the South Buoy; when the lighthouse bears N.E. ¼ N., and on with Baldoyle Chapel, or the ruins of Kilbarrack Church, steer for it in that direction, giving it a berth on your larboard hand, as you haul round to the westward. When coming from the southward, keep Sandy Cove Tower on with the eastern extreme of the pier at Kingston, S. ¼ E., until you bring the lighthouse on the above bearing: this will lead you in the best water, and well to the westward of the south bar buoy. In the channel are only 8 feet at low water, spring tides. The tide flows at the lighthouse, on full and change days, 10 hours 47 minutes, and rises 13

feet on springs. Vessels coming from the northward, bound for Dublin, must give the Hill of Howth a berth, to avoid the bank called Rosebeg. To avoid it on the east side, bring the eastern extreme of Howth open of the Bailey, or the Bailey Light N.E. ¼ N.; and on the south side, Poolbeg Lighthouse, N.W. by W.¾ W.

Ireland's Eye is a small island 1½ miles to the north of Howth Head; on its eastern side is anchorage in 6 fathoms; on its north in 7; but the best is on the west side in about 4 fathoms, with the Stack open to the southward of the height, and from whence it is easy to run for the pier of Howth in case of necessity.

Howth Pier Harbour, to the S. of Ireland's Eye, is capable of receiving vessels of 11 or 12 feet draught. There are two piers, on the easternmost of which stands a lighthouse exhibiting a fixed light of a red colour, of essential use to to clear the dangers off Ireland's Eye. There are also two small lights upon the west pier, which are intended to lead vessels going in from the northward, or from between Ireland's Eye and Lambay Island.

Harbour of the Skerries—This Harbour may be easily known by Rockabill and St. Patrick's Islands; the former is a remarkable rock, always above water, and steep-to all round, having from 9 to 18 fathoms close to it, and on the summit of which a Lighthouse is erected exhiting a FLASHING light every 12 seconds, and can be seen 18 miles. The flash is white between N. ½ W. and S.W. by S.; red between the same bearings round westward or towards the land. It lies 4 miles E. by S. of the Skerries, and about 2½ miles from St. Patrick's Island. To sail in, after you have rounded St. Patrick's Island, steer N.W. by W. until all the town of Skerries appears open of the pier-head; you will then be clear of the Cross, and may round into the road, where you will have 4 or 5 fms. of water. Here the riding is safe, unless it come to blow hard from the E. or N.E.; but if you intend going up to the pier, stop about a cable's length from the pier-head, in 3 fathoms, until the tide serves.

Balbriggan Harbour is sheltered from the east by a Pier, on the S. side of the Bay, which runs northward. Within the Pier Head, at high spring-tides, are 12 feet water, and with neap-tides, 9 or 10. On the pier, S. side of entrance, is a white lighthouse, exhibiting a fixed light, visible at the distance of 10 miles, between W. S. W. and S.S.E. ½ E.

Drogheda Bar lies 27½ miles N. of Dublin, about 10 miles N. of Skerries, and 7 miles from Balbriggan, the river running due E. and W. Formerly the river from the Maiden Tower to the bar had a tendency to run N.E., but an annual outlay of nearly £6000 a-year in its improvements has contributed to give the entrance to the river an E. and W. direction, thereby enabling vessels to take the bar with much more safety than heretofore. The parallel walls at the mouth of the river having been extended within the last few years 1800 lineal yards seaward, and now nearly reaching the bar, has caused the water in the river adjacent to the bar to be comparatively smooth in the severest weather. These walls have also had the effect of deepening the channel, and directing its course in a more southerly direction, thereby making the bar much easier of access in bad weather. The continual dredging of the river has removed the banks and shoals which previously existed, leaving the navigable channel of a uniform depth, not less than from 18 ft. 6 in. to 19 ft. at high water of ordinary spring tides. The water on the bar at spring tides is 22 ft., with 17 ft. 6 in. at neaps, 4 ft. 6 in. at low water of spring tides, and 6 ft. 6 in. at neaps. There is an excellent tug-boat in attendance on vessels requiring her assistance, with a number of experienced licensed pilots always looking out for vessels bound for this port. There are fifty sailing vessels, with five first-class paddle-steamers, having in the whole a registered tonnage of 7327 tons trading to this port, exclusive of other vessels which frequent this place with occasional cargoes. Four lighthouses are placed at the entrance of the river, and a number of stone towers built on the N. side, with wooden perches for landmarks on the S. side; the centre between them denoting the channel. The relative bearings of the E. and W. Lights will be occasionally changed, as the sandbanks alter their places. The present entrance of the river, keeping these two lights in one, is W. by N., until you come abreast of the large Stone Pillar on the north side, then steer N.W. ½ W. for the North Red Light. There has lately been placed at the East end of the North Wall a large Wooden Perch, with Cage and Barrel placed on the top of it, and must be kept about 100 feet on the starboard side in coming in. Ships drawing 10½ feet should have at least 4 hours' flood tide in bad weather before taking the bar.

Dundalk.—Sailing N. you will pass Clogher Head and reach Dunany Point, off which, about a mile E. of high water mark, lies a small rock, drying with low water spring tides. The first buoy is in 6 fathoms at low water, about 4 miles from Dunany, bearing from it N. by E.,

keeping Clogher Head well open, and bearing from Cooley Point W. by N., distant about 4 miles. The second and third buoys bear N.N.W. ¾ N. from the first buoy. The second buoy is in 3½ fathoms at low water; and the third is on the bar, on which there are, at low water springs, 3, and at low water neaps, 6 feet. The depth on the bar at high water springs, varies from 24 to 18 feet; and neaps, from 16 to 13 feet. These depths continue up to Soldier's Point, whence, to the quays, the depth is at high water springs, 19 feet, and neaps 13 feet. From the bar to Soldier's Point, the W. side of the channel is marked by three hexagonal beacons constructed of timber piles, each having a ball on the top, and painted black; and on the E. side near to Soldier's Point, at a place called *The Rock*, there is a large hexagonal beacon constructed of timber piles and painted red; this beacon has a lantern on the top shewing a Red Light when Lighted at night. Between the Rock Beacon and Soldier's Point on the N. side of the Channel, there are two beacons painted red. Between Soldier's Point and the Quays there is also on the N. side of the Channel, at the entrance to the Ballymascanlon River, a similar beacon to the last, painted red: from thence to the Quays the N. side of the Channel is marked by perches. All the beacons are furnished with lanterns, which are lighted at night, and, with the exception of that on the Rock, shew Bright Lights. A Lighthouse, on screw piles, has been erected at the entrance of the Harbour Channel. The Light is a Fixed Light, varied by Flashes, giving a flash once in every 15 seconds; its focal point 33 feet over the level of the sea, at high water; and in clear weather it is visible at the distance of about 9 miles. To seaward the Light appears of the natural colour, Bright, between the bearings of W. by N. and N. ½ W.; it is masked in the direction of the Dunany Reefs, between the bearings of N.½W. and N. by E.½E.; it is coloured Red towards the west side of Dundalk Bay; and shows Bright towards the Harbour Channel, northerly. The Lighthouse is borne on screw piles of red colour, braced into an open framing below the dwelling, which is of octagonal form, and coloured white: over this the Lighthouse has a dome-formed top. It stands within the entrance of the Channel in lat. 53° 58′ 40″ N., and lon. 6° 18′ W.; and bears from Castle Rocks, off Cooley Point, N.W. ¾ W., distant 5⅛ nautic miles; from Dundalk Patch (rocky shoal), N. by W. ¾ W., distant 6¼ nautic miles; from Dunany Reefs, eastward of Dunany Point, N. ¾ W., distant 6½ nautic miles. A large bell has been placed on the roof of the lighthouse, which strikes six times per minute in foggy weather. All vessels entering the Port to keep the Lighthouse on the Starboard hand. Masters of vessels are cautioned to give the beacons and perches a sufficient berth. When vessels bound to Dundalk come between Cooley Point and Clogher Head, they are required to hoist a signal for a pilot. Vessels wanting the use of a Steam Tug are requested to hoist by day an Ensign to the Fore-top-gallant-mast-head; by night, Two Lights, one above the other. Masters of vessels necessitated to enter the Harbour, without being able to obtain a pilot, should observe, that after passing the Lighthouse, they are to keep the black beacons on the Port hand, and the red Beacons on the Starboard hand.—The Dundalk Harbour Commissioners have had built, at a cost of £3,000, a new and powerful Iron Steam Tug-boat for the accommodation of vessels trading to this port.

DUNANY AND IMOGENE ROCKS, DUNDALK BAY.—A *black conical buoy*, surmounted by a staff and ball, has been placed in 3¼ fathoms, at low water, spring tides, to mark the position of the Imogene Rocks, which lie about a mile and three quarters S.S.E. off Cooley Point, north side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Dundalk High Chimney, open of Rathcor Point, N.W. ½ W.; Cooley Point, N.N.W. ½ W.; Carlingford Lighthouse, N. E. ½ N.—A *red conical buoy*, surmounted by a staff and ball, has been placed in 4 fathoms, low water, spring tides, on the outside of the Dunany Reefs, which lie off Dunany Point, south side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Clogher Head, S. W. ¾ S.; Dunany Church, W. ½ S.; Dundalk High Chimney, N. by W. ½ W.; Tipping Mountain on with a saddle in the distance, N. ¼ W.

Loch Carlingford lies two leagues to the eastward of Dundalk Harbour entrance, and forms a large well-sheltered bay, the ground good, and water sufficient for the largest ships; but there are several rocks and dangers which must be attended to. Its entrance is between Ballaggan and Cranfield Points, which bear from each other nearly E. by N. and W. by S., distant 1½ miles. The following Iron Nun Buoys have been laid down at low water, spring tides:—*Black* Buoy on the Shoal N.E. of the lighthouse, in 7 feet water at low water, lighthouse S.W., distant about 40 fathoms; Blockhouse W.N.W. *Red* Buoy off the tail of the Scar, Cranfield Bay, in 8 feet water, lighthouse S.W.; Greencastle N. *Red* Buoy on the south end of the Earls Rock and Shoal, in 8 feet water, Greenore Point W. by S.; Greencastle E.; distant from Greenore Point ¾ mile. *Red* Buoy on the S.W. end of Ballyedmond Bank, in 9 feet water, Monument N.; Old Castle, Carlingford, W. S. W. *Black* Buoy on the

eastern edge of Carlingford Bank, in 8 feet water, Greenore, S.S.E.; Old Castle of Carlingford, S. W. by S. When inward bound, masters of vessels will keep the red buoys on the starboard hand and black on the port. The Helly Hunter, upon which a large Red Buoy has been placed, is a rocky shoal lying to the eastward of the entrance of the Loch, and stretching about 1 mile S.W. and N.E.; its western end dries with extraordinary low tides only, and on the other parts the least water is 6 feet. To avoid the Helly Hunter, as you sail to Carlingford from the E. or S., do not bring Mount Culy to the westward of W. ½ N., until the Blockhouse comes on with the top of Foy Mountain, bearing N.W. ½ N. Then steer for the N. end of Blockhouse or Haulbowline Island, giving the Point of Cranfield and the Island a berth of a cable's length each from the high-water mark. Between the W. side of Blockhouse Island and Ballaggan Point are several rocks and shoals, and consequently this passage must not be attempted.

Carlingford Loch Light, situate on Greenore Point, on the larboard side in going up Carlingford Loch, revolves, is of the natural appearance, attains its greatest magnitude every 45 secs., and is visible at a distance of 9 miles.

To Sail into Loch Carlingford, take flood-tide, and with the Blockhouse bearing from N. by W. ½ W. to N.W. ½ N., sail in for the E. side of the Island, giving it a berth of a cable's length or two on the larboard. Steer thence for Greenore Point, keeping between ½ a cable and 2 cables' length from it; then run N. by W. up the middle of the channel; and abreast of Killean Point, or above it, nearest the E. side, drop your anchor, in from 2 to 6 fathoms water. Small vessels may lie on the W. side, easy and safe, about 2 cables' length eastward of Carlingford Castle, on soft mud.

Carlingford Lights are shown from a tower erected on Haulbowline Rock, which lies upon the bar ½ a mile W. by N. from Cranfield Point, on the larboard side of the entrance to the Loch. The upper is a fixed light, and the lower revolving. The higher light is shown throughout the night, and may be seen like a star of the first magnitude, at the distance of fifteen miles. The lower light, having also a starlike appearance, is exhibited from half-flood to half-ebb. In the day, during the same period, a ball is hoisted; and in foggy weather, a bell is tolled every half minute.

NORTH-EAST AND NORTH-WEST COASTS OF IRELAND.

LOCH CARLINGFORD TO SLIGO BAY.

Annalong.—A small dry harbour, with excellent shelter for coasters after passing a narrow but easy entrance.

Newcastle.—A dry harbour, surrounded by a quay and sea-wall, affording good shelter for coasters, with an even bottom, and very easy access between the two pierheads.

Dundrum Harbour. — The entrance to Dundrum Harbour (a dry one) lies 2½ miles eastward of Newcastle, at the mountain foot. In the middle of the entrance channel a black buoy is laid down in 14 feet, low water, spring tides. It may be picked up by keeping the old castle that stands above the town a sail's breadth in on the west point that forms the entrance. Steering north from this, you will arrive at a smaller buoy lying in the middle of the river; then by steering N.W. by W. you will come up with the first perch on the banks to the west, having on it a small barrel—give this a berth of half a cable's length on your larboard hand; after which, by changing your course N. by E., you reach the second perch, having a triangle on it: allow this the same berth as the first. The third perch has a round black top. From the second perch, from which you have the town and pier open, steer N.N.W. up the river until abreast of a red-topped perch, to which give a berth of half a cable's length on your starboard hand, and then keep for the pier-end.

St. John's Point. — On this Point in lat. 54° 13′ 10″ N., and lon. 5° 39′ 50″ W., is erected a tower, shewing an intermitting light, *Red* appearing of its full brightness during 45 secs., and ob. 15 secs

The light bears from Newcastle pier, (Dundrum bay) E. by S. ½ S., 7½ miles, and from the Calf of Man revolving lights N.W. ½ W., 33 miles, and can be seen seaward from W. by N. ½ N. to E. ½ N. The light kept open will lead clear of Gun's Island and of the St. Patrick's rock, off the entrance of Strangford Lough.

Killough, half a league East of St. John's Point, has a good roadstead in off-shore winds, and, within, offers to coasters a safe dry harbour, with a muddy bottom. Killough Pier is built from the West side, and, between it and a smaller Pier on the East side, called Coney Island, lies the entrance to the port. Outside the entrance of the bay an Iron Perch marks the Water Rock, which is covered only at high water: to avoid it, bring a remarkable two-storied house, with white front and roof, (called Cotter's House, and situated inside the harbour,) one-third inboard from the West Pier-head, until you have passed the Perch; then keep more to the Eastward till you bring the House over to the extreme end of the Pier. Two cables N.N.E. ½ E. from the Perch is the Little Plate Rock, and half a cable N. from this is the Big Plate, both covered except at spring ebbs; and, consequently, when there is water to enter the harbour, there is also water over these rocks. The Garter, on which is an Iron Perch, is a ledge of foul ground which runs off from the Western side of the bay, under the Old Mill Stump. There is also a spit of rough stones, called Crane's Point, extending S. W., a short distance from Coney Island; but by keeping Cotter's House midway between the two Pier-ends, when you come within two cables' length of them, you avoid this spit. The best anchorage in the Bay is within the Water and Plate Rocks, in from about five to seven fathom, with shelter from all but southerly winds.

Ardglass Harbour, 2½ miles E. of St. John's Point, is easily known by several old Castles and a rising town on the W. side of the bay. You can anchor at the mouth of the bay, between Ringfad and Fennick Points, in from 6 to 10 fathoms water; but if the wind blows on shore, a small vessel may shelter inside the pier under the middle castle in from 1½ to 2½ fathoms water, with a warp to the quay, or run aground on the beach. A temporary red light is shown from the inner shore of harbour, 2 cables' length from entrance N. by W.

Loch Strangford lies N.E. at the distance of 60 miles from the Hill of Howth, and nearly E.N.E. ½ E. 28 miles from Loch Carlingford. The stream at the entrance is very rapid, and when the tide is ebbing and wind strong at S., S.E., or E., the sea is short and broken, which gives the bar across the river the appearance of a ridge of sunken rocks; but there are not less than four fathoms at low water on any part of the bar, and it is quite free from rocks. Few places afford such safety to wind-bound vessels as this Loch, ships having at all times of tide abundance of water, not only on the bar, but also in the two principal roadsteads, *Ballyhenry* on the east, after passing Portaferry, and *Audley's Road* on the west side of the river, after passing Strangford. An Iron Perch with a square head has been erected on Rock Patrick, which is covered at half-flood, and is about three quarters of a mile off Killard Point. Vessels from the southward can pass close to this Perch, on either hand, in making for the North Bar, the only safe entrance for strangers; and as there has been erected a round Tower of masonry on Rock Angus, and there are Perches on the Garter on the port hand, and Pladdy Lug rocks on the starboard hand, which lie near its mouth, no danger need be apprehended in daylight; but a good offing should be kept from the E. shore to avoid Pladdy Lug; and on the other hand do not stand too far towards the Garter, as the flood has somewhat of a westerly direction towards it. Having passed the Tower on Rock Angus a mile and a half, come to anchor, if you are late for the tide, opposite a White Beacon on the south shore, called Cross Roads, where you can stop a tide until you can get to Ballyhenry or Audley's Road, 2 miles further, and just beyond Strangford and Portaferry towns. A short half a mile above Cross Roads the mid-channel is marked by a tall red and white Pillar on the W. side, and a short white Beacon on the E. side of the Lough. The "Hole" of Strangford is a perfectly sheltered anchorage between the town and Swan Island, and there are 2 Quays opposite the Customhouse, with berths alongside them, and a little Bay with an even beach and smooth water for vessels desirous of taking the ground. There is also at PORTAFERRY (opposite) a good Quay, with berths and a smooth beach along the shore, under the town. A Horse Ferry plies between the two towns. There is a Red Pillar Beacon on the outer end of Swan Island, which marks the entrance into the "Hole" of Strangford. On hoisting a signal, experienced pilots can be had.

South Rock Light is erected on the South Rock, about 2 leagues northward from the entrance to Loch Strangford. The light revolves, attaining its greatest lustre every 1½ minutes, and is visible at a distance of 12 miles. A reef of rocks called the Ridge, extends 1½ miles to the E. of the lighthouse, on the extremity of which is a red buoy, which bears about S. by E. from the North Rock Beacon. The North Rock, about a mile N. by W.

of the lighthouse, is marked by a solid Beacon, like a small church spire, erected in 1856. The Butter Pladdy, about 1½ miles S.W. of the lighthouse, is marked by a blackbuoy, to be left on their outer hand by vessels taking the "Sound of the Light"—a channel much frequented by coasters and now well marked, between the lighthouse and the North Rock Beacon. Sailing along the Downshire shore from the Copeland to the North and South Rock, the South Light should be kept outside of Burr Isle, or the Blackhead of the Gabbans, in Isle Magee, a sail's breadth outside of Donaghadee shore, or the Copeland Light North, to clear Sculmartin Rock that lies N. ½ E. 3½ miles from Burr Isle, and S.E. 1 mile from the town of Ballywater. To the northward of Sculmartin, on which is an Iron Perch, lie Ballawater Rocks, which stretch out about ½ a mile, commencing at Ballyferris Point, and run S. 2 miles. The S. end is seldom covered, the middle is covered at half-tide, the N. end seldom bare. Vessels of 60 and 70 tons frequently go in to discharge; and there is good shelter from all but N. E. winds, though the space is small, because after building the Quay, the Board of Works never cleared away the loose stones inside it. Six and a half miles N. of Ballywater is

Donaghadee.—The improvement of the harbour being in progress, vessels should enter with great caution, so as not to foul the Dredger or other boats, &c., employed in the works, or their moorings. There is now a depth of 10 feet water at low water, spring tides, in the improved portion of the harbour, which extends along the S. Pier, from 100 feet west of the western crane to the black buoy, and thence to the N. Pier head. From the S.E. pier head a Light is shown, red to seaward from N.by E.½E.toS.½E., and bright towards the harbour and the entrance of Belfast Bay. Sailing in from the S'ward keep above half a cable's length from the shore until the harbour is open, then run in and let go your anchor inside the pier head. No buoys are allowed to anchors on account of the steampackets. Mariners must be on their guard not to lose sight of the red Part of the light in salling N. or S. of Donaghadee. About a mile north of Donaghadee is Foreland Point, from whence extends a ledge of rocks to the E., with an Iron Perch on it, and outside of that again is a large black buoy, which should not be rounded too close, particularly at low water. Deputy Rock, on which is a red buoy, lies half way between Donaghadee and Copeland, and has about 8 ft. at low water. The proper course through the sound is between the Foreland and Deputy buoys: but there is a channel on the E. side of the latter, keeping ½ from the Capeland, as a shelf of foul ground runs out after passing the Deputy. Cairn Point, at N.W. end of Copeland, must have a good berth on the starboard hand, to avoid a rock called Gordon's Bush, that lies a cable's length S. of it, and is seldom bare at low water. These are all to be feared in the Sound of Donaghadee.

Copeland Island lies 2½ miles N.E. ½N. from Donaghadee, and 1 mile to the E'ward of Nout Head. E.N.E. 1 mile from Copeland, are the Cross and Mew Islands, between which is a narrow channel not navigable. On the cross Island is the Copeland Light. Between these small islands and the Copeland is the outer sound. On the E. side of the Copeland, near the S. point, is a ledge of rocks extending above two cables' length to the E'ward: there is also a ledge extending from the Mew Island to the W'ward, between these is the channel. Half way between the sound of Copeland and Cross Island, is a small rock called the Pladdins, over which are, with common spring tides 3 or 4 feet water; it bears S. ¼ W. off the light. To avoid this rock on the east side, bring the lighthouse N.by W.; on the south side, bring the S.W. house in Donaghadee in sight with the S. end of Copeland Island: in this sound the currents are strong, and, as there are no buoys, is to be avoided by strangers.

Belfast. — The entrance to Belfast Lough is immediately to the N. of Copeland Light, and lies between Said Light and Black Head; the latter bearing from the former N. N. W., distant about eight miles. At the larboard side of the entrance, about a mile to the W. of Orloch Point, is a rocky ledge called the Briggs, stretching out ¾ of a mile, and upon which is a red buoy. About 6 miles to the W. of the Briggs is Grey Point, and, in a sort of bight between them, is the town and harbour of Bangor, which has about the same depth of water at the quay as is to be found at Carrickfergus, and, as an addition, a wooden wharf for the accommodation of steamers has been attached to the back of the stone pier, at which 7 feet will be found at ordinary low water. 2 miles further W. from Grey Point, a small ridge of rocks runs out from the shore rather more than a ¼ of a mile, on which is a buoy to be kept on the porthand. On the opposite side of the Lough, and bearing WbyN¾N from Orloch Point, distant 9 miles, is the town of Carrickfergus, where there is a pier, having, with spring tides, 10 feet water, and with neaps 7 feet. As a guide to the entrance of this harbour at night, a red light is shown 2 hours before and 2 hours after high water.

this light to be brought immediately over a street lamp in Governor's-place—the red light showing about 2 feet *above* the white light, and from a vessel coming in due north. Off this town, to the S. and W., is a bank running out 1½ miles from the shore, and extending N. 1¼ miles; the least water over it is 7 feet. Extending a mile from the shore on the S. side of the Lough, and opposite the village of Hollywood, is Hollywood bank, on which is a lighthouse built on screw piles, which shows a pale red light, visible 8 miles in clear weather. Between the Hollywood and middle bank is the commencement of the pool of Garmoyle, which extends from abreast the large red buoy on the starboard hand, having from 3 to 4 fathoms at low water. From Garmoyle, the channel up to Belfast is now nearly straight, having above 10 feet at low water, spring tides; it is well buoyed—red on the larboard and black on the starboard hand going up to the quays. There is also a green light on Hollywood Bank, with three more of the same colour towards Belfast, all of which are to be left on the port side when going up. There is also a red light S.W. of the stone Beacon, to be left on the starboard side. Large ships usually anchor off the town of Carrickfergus, near the middle of the Lough. Many vessels frequent this anchorage, which is marked on all the Admiralty Charts of the Lough, and Masters of ships pronouuce it excellent. Vessels drawing not more than 16 feet water may anchor higher up in the Folly Roads—between the Carrick bank and abreast of White Abbey; smaller vessels in Whitehouse Roads. Large vessels drawing 18 feet water, intending to reach the quays, may anchor in Garmoyle. A large pilot cutter is constantly under way during the daytime, at night also (weather permitting), and generally boards vessels bound to Belfast abreast of Grey Point. The Briggs of Kilroot, now a perch on them, lie on the N. side of the Lough, and stretch almost from Kilroot Point to White Head, and about a quarter of a mile from the shore, to avoid which keep Black Head open with the White Head, and a vessel will be clear of all danger.—The Admiralty Chart of 1856, as surveyed and reported on by R. Hoskyn, Master R.N., states:—Belfast Lough is an admirable refuge harbour. Above Grey Point ships may ride securely against all winds.

Loch Larn.—A lighthouse is erected on Farres Point, on the larboard hand going into this spacious Loch, opposite which are the Maiden or Hulin Rocks. Sailing into Larn from the S.E., pass Muck Island, Brown's Point and Bay; give Barr's Point a berth near half a mile, as a ridge of rocks runs off above a quarter of a mile; give Farres Point on which is the Lighthouse, a berth of half a cable's length; run for Corran Point on Larn side, on which stand the ruins of an old castle, giving Isle Magee side a large berth, as a long shoal runs out from it very near half way across to the steam-packets' wooden wharf opposite the salt pans, and continue to near the Point of Racknow, round which is Yellow Stone Roads, sheltered from all sea, and little tide. There is a long flat runs out from the N. W. side of the entrance which when covered, is so deceitful to strangers, that they should open the mouth of the Loch well: keep no more than two cables' length from the lighthouse, run up past the wooden wharf, giving it a berth on the starboard hand. Anchor ⅔ of a cable's length from Isle Magee shore. Small vessels from above the wharf should run up abreast of Corran Point in two fathoms, keeping one-third from Corran shore, and two-thirds from the Island. Large vessels should come to further out, about one-third from Corran side. There are no rocks in Larn Loch and should a vessel run too far, she will only go on soft sand or mud. A stranger going in, in the night, should take his soundings from Isle Magee shore; but going to the Yellow Stone Roads should take a pilot. Vessels may run in without anchors or cables—there are no rocks nor shoals to interrupt them, coming from the southward, except Barr's Point, before mentioned, and Hunter's Rock. Four miles of the mouth of Larn Loch, and 4 miles N. ½ W. from Knee or Muck Island, the Sound of Muck appears open, and Corran Castle on with Larn Lighthouse.

Maiden, or Hulin Rocks Light. Two lighthouses, marked with broad red and white belts, are erected on the Maiden or Hulin Rocks. These Rocks bear by compass from the Mull of Cantyre Light, S.S.W., distant 24 miles; from Sanda Island, S.S.W. ½ W., 18¾ miles; from Ailsa, W.S.W., 23 miles; from Copeland Island Light, N. ½ E., 16½ miles, and from the eastern extremity of Rachlin Island, S. by E., distant 20 and a half miles. The lights are distant from each other 320 fathoms, and bear N.W. by W. and S.E. by E. The mariner in passing should give them a wide berth, there being a number of sunken rocks extending upwards of 3 miles N. and 1½ miles S. of them.

Ballicastle Harbour.—Opposite Church Bay, on the Irish Coast, is Ballicastle Harbour, formed at the mouth of a small rivulet near the town, affording shelter for small vessels drawing 7 feet water, for at high water there are 9 or 10 feet between the pier heads, with spring-tides, and 8 feet with neap. In summer

ships may ride near the W. side of the bay in 9 or 10 fathoms water, the glass-house bearing S.S.W., Sheep Island being shut in with Kinbane Head, and Clare House bearing on the top of the cliff near it; but it will not be prudent to lie long here. Should the wind blow from the N. or N.W., and a swell begin to set in, weigh anchor, and rounding Tor Point, make for Cushinden, Cushindaal, or Larn.

The **Skerries** lie W. by N. 5 miles from Bengore head, and about a mile from the shore: on the south side of the largest of these islands, where it appears lowest, a vessel may anchor in 6 or 7 fathoms water, a little more than a cable's length from shore. In sailing into this anchorage be careful of the Stirks on the east side, and of the Kers on the west side: they lie a little to the southward of a cluster of rocks about half a mile westward of the Skerries, and dry at four hours' ebb.

Port Rush is much improved by a pier and quay; there are from 8 to 24 feet within the harbour, while off the mouth of the port a vessel may anchor in 6 to 8 fathoms, on a bottom of sand. On entering the harbour you must give the North Pier a berth of at least fifteen yards, to clear the stones which have been placed to break off the swell, and which are covered at ¾ flood.

Loch Foyle is a capacious harbour, where the largest ships may ride in safety in all weathers; but the best place for large ships is on the N. side, 3 or 4 miles within the entrance, in from 5 to 8 fathoms water: but vessels of 11 or 12 feet draught will ride easiest between Quigley's Point and Ture, in from 2½ to 3 fathoms. The danger to be avoided is the Tuns Bank, which lies on the S. side of the entrance, having a channel between it and the land, on the N. side, ⅔ of a mile wide. To sail into Loch Foyle, wait for flood tide, or a brisk leading wind to stem the ebb, which runs at the rate of 3½ knots in the entrance: keep Glenegad Head 2 or 3 ships' length open off Inishoan Head, until the mouth of Derry River at Kilmore Point is a little open of Magilligan's Point; then steer for the entrance, keeping ⅓ of a mile from the N. shore, and you will pass between it and the Tuns Bank: when you are within Magilligan's Point, you may keep at a greater distance from shore, and run up to the anchorage. On Donagree Point, a little to the S. of Inishoan Head, are two lighthouses, bearing from each other E. and W., distant 153 yards. The lights are fixed, visible 13 miles, and when in one lead clear of the Tuns Bank.

Inistrahul Island, on the N.E. part of which a lighthouse stands, is 6 miles N. ½ E. from Glenegad Head, and 4 miles from the nearest shore. The light makes a revolution every two minutes.

Loch Swilly.—The entrance of this Loch lies 7 miles W. by S. from Malin Head, and is about 3½ miles wide, from shore to shore. Fannet Point is a low point at the W. side of the entrance; it is distinguished by a lighthouse which displays a steady light, which, when seen from sea, appears of a deep red colour, but from within the Loch, bright. This is a safe harbour for vessels of any size; but the best anchorages are off Burncranah House, 2 or 3 cables' length from shore, in from 4 to 8 fathoms, or between the Island Inch and Rathmullin, rather nearer to the latter, in from 5 to 8 fathoms.

Mulroy Harbour is known at a distance by Tory Island, Horn Head, and Rosgull Hill; it has water sufficient for the largest ships; but a part of the channel is narrow and difficult. Strangers should always take a pilot.

Sheephaven & Downing Bays.—Few vessels like to run for Sheephaven as many get on shore, yet some are compelled, not being aware of the excellent anchorage in Downing Bay, which lies on the E. side, at the bottom of Sheephaven. The bay is formed by points called Downing and Morlach. Close under Morlach Point is the anchorage, in from 4 to 6 fathoms. In running for it from Hornhead, the course will be S.E. by S., distant six miles, care being taken to give a berth to two half-tide rocks about a cable's length N.N.W. from Downing; when the sea breaks on them, which it generally does, they may be approached as most convenient: there are no other dangers.

Tory Island, the east end of which lies 7¼ miles N. W. from Horn Head, has no good anchorage on its S. side; but in the summer season, with S. winds, a vessel may stop on the north side in 18 or 20 fathoms, within half a mile of the shore. On its N.W. end is a lighthouse, exhibiting a steady bright light, visible from seaward 16 miles all round; but when passing to the S.E. of the island, is shut in behind the heights between N.W. by N. and N.W. ½ W.

Rathlin-O-Birne.—This island lies 2 miles S.W. ¾ W. from Malin More Head, and is about ½ a mile long and ⅓ of a mile wide. A lighthouse has been erected upon it, in N. lat. 54° 40′ and W. long, 8° 50′ exhibiting a flashing light, at an interval of 20 seconds, visible at a distance of 16 miles, but red towards the mainland and sound, eastward of that island.

Donegal Harbour is on the E. side of the peninsula, called the Hassens, or Green Islands, 2 miles below the Town of Donegal, where small vessels may ride in 2 or 3 fathoms water at about a cable's length from shore. To sail in, take half-flood, and keep about ½ a mile from the shore on the larboard or N. side, until you are near the Black Rock; then steer E. ½ N. until you are a cable's length past it; you may then steer directly for the Green Islands, giving the north shore a berth of about two cables' length.

Sligo Bay is to the southward of the point of Raugly, and at the N.E. side of the bay is the entrance to Sligo Harbour: S. by E. ½ E. from Raugly point is Black Rock, covered at high water, on which is a fixed bright light, shewing from S.W. seaward to S. E. by S. and seen at a distance of 13 miles. To sail in keep about 2 cables' length to the northward of the lighthouse, in order to avoid the shoal water on the N. side of the rock. The only place where a vessel will lie afloat at all times of the tide, is Oyster Island Harbour, but the bottom is rocky, and does not hold well. On this Island are two fixed lights, bearing N.N.W. ¾ W. and S.S.E. ¾ E., 165 yards from each other. After passing the bar, the lights in one clear the Bun Gar Bank, and lead to the entrance of the harbour, or up to the Metal Man Beacon.

SOUTH-EAST COAST OF IRELAND.

WATERFORD TO BALTIMORE.

Waterford Harbour.—From Great Saltee Island to Hook Point, on which Waterford Lighthouse is erected, the bearing and distance are, W.N.W. 13 miles; and from the Longship Lighthouse off the Land's end, N. ½ E. 43 leagues. When coming from the S. or the E. for Waterford, bring Sleanaman Mount a remarkable mountain inland, to bear N. E. until you see Hook Lighthouse on the E. side of the entrance of Waterford Harbour, from which a bright and steady light is exhibited. Go not nearer Hook Point than about 2 cables' length, to avoid falling into irregular streams of tide that run near it. Having passed the Hook, and intending to proceed for the anchorage at Passage, take a flood tide or a leading wind, and steer for Credan Head, giving it a berth of at least ½ a cable's length. From Credan Head steer N. E. by N. for Duncannon Fort, carefully avoiding the sand banks which extend from both shores. That on the starboard side begins at Bluff Head, extends more than half a mile from the shore, and terminates at Duncannon Fort. Between Bluff Head and Duncannon Fort is Ballistraw Bay. The sand on the other side, called Drumroe Bank, extends more than a mile from shore, and narrows the passage abreast Duncannon fort to about a quarter of a mile. Two lights in Duncannon Fort, one above the other, are exhibited to direct vessels to that point. On the flat, or what is known as "the bar," 14 feet of water can be had on the lowest spring tides. This shallow lies nearly midway between Credan Head and Duncannon, extends for about a mile in length, and is composed of hard sand: the course by compass over it is from N. N. E. ½ E. to N.N.E. ¼ E. Another lighthouse, having a fixed bright light, is erected N.N.E. ¼ E. from Duncannon Fort lighthouse, distant half a mile. These two lights kept in a line, will lead in the best channel across the bar between the eastern and middle buoys. When above the lights keep near the eastern side, steering about N. ¼ W. for the church of Ballihak, until the perch, which is fixed in the upper end of Drumroe Bank, comes on with the town of Passage; you may then steer upward N. W. by N. in mid-channel. Abreast of this perch are 10 or 11 fathoms. The usual anchorage is about a mile above Passage Town, in 5 or 6 fathoms. Two or three miles above Passage is very good anchorage, and there the stream is much weaker than at Passage. In proceeding for this place, avoid a spit of sand called the Seedes Bank, which stretches off about W. S. W. from Buttermilk Castle, extending about half-way over to the opposite side; the least water on it is 9 feet. Avoid also a small rock of 9 feet at low water, and 14 feet at half-tide, which lies about 2 cables' length from shore, on the S. side of Cheek Point. In proceeding about low water, keep in the middle between the two points, or rather nearest to Buttermilk Point; if the flood-tide be running, keep in the rough part of the stream, and you will clear the shoal. Vessels drawing 20 or 22 feet water may go up to Waterford, where there are 2 fathoms at low water, a ship's length from the quay. The safest channel to Waterford is on the north side of little Island: the channel on the other side is deeper, but it is narrower, and subject to eddy-tides, which make it dangerous. Pilots may always be had at the entrance of the harbour.

Dungarvan Bay.—A lighthouse has been erected on Ballinacourty Point, on the northern side of Dungarvan Bay, with the following marks and compass bearings:—Helvick Head, S. ½ W., 1½ miles; Carrickapane Rock, S. S. E., 9 cables' length; and Whitehouse Spit, W. by N., 3½ cables' length. It shows a fixed bright light, visible between the bearings of W. and S.E. ¾ S.; green, bearing from W. to N. W. by W.; and red in the direction of Carrickapane Rock. Its white appearance can be seen at the distance of about 10 miles in clear weather.—The intermittent light on Mine Head, S. W. by W., 4 miles from Helvick Head, markes the approach from the westward to Dungarvan Bay, and can be seen further eastward than the range of Dungarvan light. A vessel in the entrance of Dungarvan Bay must keep clear of the red colour of the light to avoid Carrickapane Rock; and on the northern side of the bay keep to the southward of the green light to avoid Carricknagaddy, and the rocks which extend half a mile eastward of Ballinacourty Point.

Youghall Harbour lies about 13 miles W.S.W. from the entrance to Dungarvon. During high water, spring tides, ships drawing fully 17 feet may go in, and ride off the middle of the town. Across the mouth of the harbour is a bar, which extends above a mile south from the entrance, and has 6 to 9 feet on it at low water. Except when the wind blows from the south, south-east or south-west, there is always smooth water on this bar; 14 to 15 feet water are on it at high water, neap tides. When Cable Island bears W.S.W. you are on the outer edge of the bar. When sailing for Youghall Bay from the southward, keep Knockmeldown Mountain N. by E. To anchor when waiting to go over the bar, the best places are on the S. side of the bar, the harbour mouth bearing N.N.E., in 3 or 4 fathoms; or on the north side of Cable Island, in 3 to 6 fathoms, about 2 cables' length from the shore. From a tower on the west side and within the entrance, is shown a fixed bright light, open to the harbour, and seaward to S. W. by S., and may be seen at a distance of 6 miles.

Cork Harbour.—From a tower on Roche Point, at the east side of the entrance, is shown a fixed light, red towards the sea, to the harbour bright, and visible at the distance of 14 miles. From it Cork Head bears S. W. by W. about 4 miles. From the Longship Lighthouse off the Land's End to the entrance of Cork Harbour is 46 leagues N. by W. ½ W. Coming from the southward, and bound to this harbour, keep Knockmeldown Hill about N.E. by E. until you see the Old Head of Kinsale, a bluff point of land with a lighthouse on it. From this Head the entrance of Cork Harbour lies E. ¾ N, distant about 5 leagues. When off the harbour, Roche Tower with its lightnouse is remarkable. A little without the point, on E. side of entrance, lie the Stag Rocks. There is clean ground in a moderate depth without the harbour's mouth, where ships may, with a northerly wind, wait the flood or dayli ht. A white buoy is placed on the edge of the bank off Fort Camden; another white buoy about a mile further in, to the northward of the entrance to Cross Haven; a third, of the same colour, off the east side of Spike Island; and a white buoy on the eastern extremity of East Haulbowline Bank. Each of these buoys is numbered. There are also several black buoys on the side opposite, on the edge of the mud flat: they lie in 4 fathoms, and are likewise numbered. Having passed the narrows, which is about 450 fathoms over, the channel continues that width on a N. by E. and N.E. direction, between the white buoys on W., and black buoys on E. side, to the anchorage off Spike Island, on sandy ground: thence it leads upwards, narrowing round the beacons on the northern side of the Spit extending E.S.E from Haulbowline Island, close in to Queenstown on the north shore. At the entrance of the passage to Queenstown is a white buoy; and at about 160 fms. to the S.W. of this, in 2½ fathoms, is the Lower Spit Buoy, quartered black and white on the top, with alternate black and white rings on the side. The Upper Spit Buoy, white, lies in 9 feet, N.W. by W. ½ a mile from the Lower Spit Buoy. Here the tide runs 2 or 3 knots; it is high water on the full and change at half-past 4, and the tide rises from 9 to 13 feet. Large ships going in at or near low water, must be careful to avoid the Harbour Rock, which lies a little within the Stag Rocks, on the east side. On it are two buoys, about 1½ cables' length apart: one on the eastern, white with red rim; the other on the western edge, red with black rim. It has 15 feet on it at low water spring tides. About half a mile N. by E. ½ E. from the Harbour Rock lies the S. end of the Turbot Bank, extending thence N.W., and which has on its shoalest part, the north end, 18 feet low water average springs The middle of this bank lies with a remarkable dark stone building, on the precipitous part of Kenly Cove, bearing W.S.W., and touching the projecting part of the land south-eastward of Temple Breedy Church. It has on it two buoys, about a cable's length apart: one on the east, white with a black rim; the other on the west side, red with a white rim. In order to avoid the shoals on the east side, keep

within two cables' length of the eastern shore; or bring the lower part of the white wall, which stands to the S'ward of the fort upon Dog's Nose, on, or under the west bastion of that fort. To go to the westward of the Harbour Rock and Turbot Bank, keep the fort on Dog's Nose open to the westward of the lower part of the white wall above-mentioned: or when without the harbour, bring and keep a village, which appears upon a hill upon Great Island, over some pine trees, touching the point of Dog's Nose, bearing N. 21 degrees E. which will lead clear of all dangers on that side. To go between the shoals, keep the flag-staff in the fort of Dog's Nose, on, or over the lower part of the white wall. To avoid the Harbour Rock on the S. side, keep the Crow Rock on with Poor Head. The Turbot Bank may be avoided by keeping nearer to the E. than to the W. side of the entrance. Between the Harbour Rock and the east point are 5 to 6 fathoms; between the Harbour Rock and Turbot Bank are 6 and 7 fathoms; and between the bank and the western shore are 5 and 6 fathoms at low water. About a mile E. by N. from Haulbowline Island, extends the Spike Sand, which begins to dry on the north side at half ebb, and shelters the anchorage at Queenstown. On the east elbow of this bank a lighthouse has been erected on screw piles, in 9 feet; it exhibits a fixed red light, visible from N.N.E. ½ E. to S.E. by E. ¼ E,, round by eastward, and at a distance of 8 miles. Masters of vessels are cautioned not to cross the bank between the lighthouse and Haulbowline Island, and to give the lighthouse and detached beacon-pillar sufficient berth in passing. In going from Dog's Nose for the anchorage off Queenstown, keep Dog's Nose Point S. by W. ¾ W.; or steer for the eastmost part of the fort on the N shore, between the black and white buoys to avoid a flat which extends in some parts a mile from the E. shore, and also a rock that lies to the westward of Cork Beg, which appears at half-ebb, with a beacon on it. The best place for large ships to anchor is off the garrison, in from 8 to 5 fathoms. Merchant ships may ride off the town of Queenstown in smoother water and less tide, they may go also further up the harbour of Passage, and ride any where between the first houses and Ronan's Point. In proceeding from Queenstown to Passage, do not approach nearer than half a cable's length to the south side of Black Point; and give the W. side of it a berth of about a cable's length, to avoid a sand which extends from that shore, and dries at low water. You may go westward from Haulbowline Island, until you see Ronan's Point in the channel of Passage; then steer N'ward along the W, side of the channel, for the anchorage. Vessels drawing 16 feet may, with spring tides go up to Black Rock or to the town of Cork, and lie at the quays with 9 feet at low water, average tides. Between Passage and Horse Head is a spit of sand, of 6 feet water, extending above a cable's length eastward from the Clay Cliff: you will avoid the extremity of this spit by keeping Dunkettle House on with a grove of trees which stand on the top of a hill above the House. The point of this spit lies with Belveley Castle and Ronan's Point in one; and vessels which anchor near it, should have the castle fairly without Ronan's Point, or wholly shut in with it. In a small creek called Cross Haven, within the entrance of Cork Harbour, and on the west side, opposite Dog's Nose, vessels may ride in 10 or 12 feet.

Kinsale Harbour.—A new lighthouse has been erected on the Rocky Point at the S. end of the Old Head, distant half a mile S.S.W. ¼ W. from the old lighthouse, bearing from Bulman's Rock S.W. ¼ W. 4¼ miles. This light is a fixed bright light, similar to that heretofore shown from the old lighthouse, and is visible from N.E. ½ N. seaward to W. by N., and at the distance of 21 miles. In sailing towards the harbour from the southward, keep Knockmeldown Hill N. E. by E. until you see the Old Head of Kinsale: after making that, which is about 3½ miles S.W. by S. from the entrance of the harbour, run in until the old lighthouse on it bears W.N.W. about 3 miles; then run in N.W. by W. until the old lighthouse bears S.W. by S.; and then steer N.E. by N. until you are abreast of the lower cove, where you may anchor in 6 fathoms. The only danger near Kinsale Harbour is Bulman Rock, which lies about a cable's length S.S.W. ½ W. from Hangman's Point on the E. side of the entrance, and has 4 feet on it at low water. This rock is buoyed, and may be passed on either side, but the channel on its W. side is the safest for ships coming in or going out.

Baltimore Harbour lies about 5½ miles to the north eastward of Cape Clear, and is very convenient for ships bound either eastward or westward. Small vessels may ride 2 or 3 cable-lengths N.N.W. of Baltimore Town, in 10 or 11 feet at low water, sheltered from all winds.

BRISTOL CHANNEL.

LIGHT VESSELS AND BUOYS.

Light Vessels are moored, and Buoys laid in this Channel as follows:—

Light Vessels.

A LIGHT VESSEL, exhibiting a bright light, which revolves every minute, and is visible 10 miles, lies near the English and Welsh Grounds, on the south side of the Bristol Channel, and in lat. 51 deg. 26 min. N., and long. 2 deg. 58 min. W. This vessel is painted red, carries a ball during the day, has the words *English and Welsh Grounds* upon her sides, and is moored in 5½ fathoms low water, spring tides, with the high land at Minehead on with Flatholm Light Tower, W. by S.; the Usk Light Tower, N. by E. ½ E.; a remarkable Peak on the distant Land (See-mee or See-me-not), on with St. Thomas' Head, S. ½ W. A gong is sounded in foggy weather.

A LIGHT VESSEL, bearing a bright light, which revolves every minute, and is visible 10 miles, lies off the western end of the Helwick Shoals, and in lat. 51 deg. 31 min. N., and long. 4 deg. 24 min. W. This vessel is painted red, shows a ball in the daytime, has the word *Helwicks* upon her sides, and is moored in 17 fathoms, low water, with Oxwich Point, E. by S.; Worm's Head, N. E. by E. ½ E.; Caldy Lighthouse, N.W. by N. N'ly.; Lundy Island, S.W. ½ W., 23 miles. During foggy weather a gong is sounded.

CARDIGAN BAY LIGHT VESSEL, lies in 20 fathoms, low water, spring tides, 1 Red revolving light, shewing a flash every 30 seconds, 25 feet above the level of the sea, South Bishop Lighthouse, S. W. by W., 36½ miles; Strumble Head, S.W. ¼ S., 21½ miles; Kenmaes Head, S. ¼ W., 16½ miles; Causeway Buoy, E. by N. ¾ N., 25 miles; Bardsey, Lighthouse, N.E. by N. 23 miles.

Buoys.

MORTE STONE, Black, Staff and Globe, lies in 9 fathoms low water, spring tides, 1¼ cable's length to the N.W. of the Ledge; Bull Point, E. ¼ S., 1½ miles; Morte Point, S.E. ¼ S., ½ mile; Baggy Point S.W.by S., 2 7-10 miles, Hartland Point, W. by S. ¾ S., 14 4-10 miles; Lundy Lighthouse, W. by N. ¾ N. 16 miles.

SAND RIDGE, White, lies in 4 fathoms low water spring tides, with the Valley of Rocks Hotel, midway between Linton church and a conspicuous house on a hill westward, bearing S.W.; Hurtstone, apparently a cable's length outside the Foreland, E. S. E.; Rillage bearing W. by N. ¼ N., 9¾ miles.

GORE, Black, lies in 18 feet, Burnham High Light its length open nortward of Low Light, bearing E. by S. ¾ S.; Flatholms Island, its apparent length open west ofSteepholms; the Lighthouse, N. E. by N., 9 miles; Sand Point appearing open of Brean Down Point, N. E. by E. ½ E.

WEST CULVER, Red and White striped, with Beacon, lies in 4 fathoms, with Swallow Cliff, a little open of the South of Steepholme Island, E. ¼ N.; Willet's Tower, well open to the Westward of West Quantocks Wood, S.S.W. ¼ W. Westerly; East Culver Buoy, E. ½ S., 5 miles.

EAST CULVER, Red, lies in 6½ fathoms, with Penarth Head, on with Lavernock Point, N.N.E. ¼ E.; Black Nose Point, just open Southward of Steepholm Island, E. by N. ¼ N.; Flatholm Lighthouse, N. E. ¼ E.; Burnham Church Tower, S.E. by S.

ONE FATHOM, Black, lies in 4½ fathoms, with Barry Church (with Belfry) twice its apparent breadth on the West end of Barry Island, N. by W.; Lavernock Point, N.E. ½ E. N'ly.; Flatholm Lighthouse, E. ¾ N., 4½ miles; Steepholm Flagstaff, E. by S. ¾ S., 4½ miles; Brean Down, S.E. by E. ½ E.

HONEYCOMB, Black, lies in 5 fathoms, about 35 fathoms N.W. of the Rock, with Weston-super-mare Church on with W. end of Piggot's Summer House, S.E. ¾ E.; Kewstock Church about a ship's length open N. of Breanbeck Island, E.by S.¼S.; Brean Down Point, S. W.; Swallow Cliff Point, N.E. by E.½ E.; Flatholm Lighthouse, N.W.¼W., 4 miles

NEW PATCH, White, lies in 9 feet, with the high land of Minehead just open Southward of the South end of Flatholm Island, W. ¾ S.; Flatholm Light, W. ¼ S. S'ly., ½ mile; Grounds Light E. by N N'ly. 6 5-10 miles; Cardiff Church Tower, and the two Glass House Chimnies at Cardiff, apparently at equal distances, the Church Tower being the Eastern object, N. ¼ E.; Hayes' Windmill over the East end of Sully Island, N.W. ¼ W.; Penarth Church, N. ¾ W.

WOLVES, Red and White chequered, lies in 5 fathoms, half a cable's length westward of the rocks, with Hayes' Wind-

mill on with the West end of Sully Island, N.W.; Breaksea Buoy bears W. N.W.W'ly., 10 miles; Penarth Head, N. by E. ½ E.; Flatholm Lighthouse, S.E. ¼ S.

SOUTH WEST PATCH, Red, with Beacon, lies in 4 fathoms, with Worle Mill in a line with the western side of Middlehope Beach, S. ¼ E.; Monkstone Beacon W. ¼ S., 4 miles; Flatholm Lighthouse, W. by S. ¾ S., Usk Lighthouse, N.N.E. ½ E.N'ly.; Grounds Light Vessel, S.E. by E. ¾ E.

WELSH HOOK, Black, lies in 5 fathoms, low water spring tides, with Aust Head a ship's length open southward of Denny Island, E. by N. ½ N.; Usk Lighthouse, N.N.W., 6 miles; See-me and See-me-not on with Clevedon Old Church, S.S W. ¼ W.; Grounds Light-Vessel, W.S'ly., 3¾ miles.

RANNEY FLOATING BEACON, placed on the S.S.W. part of Ranie Spit, lies in 3½ fathoms low water spring tides. Sailors' Home at Cardiff, just open off Penarth Head, N. by E. ½ E.; the Western part of Brean Down on with Flatholms Island at low water; the Lighthouse, S. by E.; Ball Point, W. ¼ N.; the highest part of Sully Island, W. ¼ S.

WEST CARDIFF, Black, with Beacon, lies in 4¼ fathoms, with the Monkstone Beacon in line with Clevedon New Church, E.byS.¼S.; Grounds Light, E.¾ S., 6¾ miles; Crrdiff Hook Buoy, N.E. ¼ E., 2 7-10 miles; Usk Lighthonse, N.E by E. ¼ E.E'ly., 9¾ miles, the Eastern side of Steepholm, just open West of Flatholm, at high water, the Lighthouse S.E'ly.; Sully Island open a ship's length Southward of Ball Point, W. ¼ S.; Penarth Church, N.

EAST CARDIFF, Red, lies in 6 fathoms, lowwater, spring tides; Hook Buoy, S. W. by W. ½ W., 1 mile; Monkstone Beacon on with S.E. end of Steepholm, S.S.W. ½ W.; Penarth Church, W. ¼ S.; Usk Lighthouse, E.N.E.

CARDIFF HOOK, Black and White chequered, lies in 2 fathoms, with Cardiff Church Tower its apparent length open Eastward of a conspicuous Clump of Trees, N. N. W. ¼ W.; Grounds Light, S. E. by E. ½ E., 5½ miles; Peterstone Church Tower apparently midway between the Spire of Newport New Church and the Tower of the Old Church, N.E. ¾ E.; the Usk Light Tower, N. E. by E. ¾ E.

NORTH WEST SPIT, Black and White, Vertical Stripes, lies in 2 fathoms low water spring tides; Cardiff Hook, N.E. ¾ E., 2½ miles; West Cardiff Buoy 2 cables distant, S. S. E. Easterly; the eastern part of Steepholms on with the western high water mark of Flatholms, S. ¼ E.; Penarth Church, N. ¼ E.

BREAKSEA, Black and White striped horizontally, with Beacon, lies in 5 fathoms, about one cable's length from low water mark, and ½ a cable's length without the Rocks, with the Nash Low Light Tower apparently midway between the High Light Tower and the White Beacon upon St. Donant's Cliff, N.W. ½ W.; One Fathom Bank Buoy, S.E. 7½ miles; Evans' Farm House, apparently midway between a large Yellow Dwelling House and Limpert House, the latter being the Eastern object, N. N. E. ½ E.; Brereton Windmill, N. N. W. ½ W.

COCKBURN SHOAL, Black, lies in 4 fathoms, about 20 fathoms S.E. from the shoal, with the Avon Lighthouse one-third between Penpole House and Miles' House, S. E.; High water mark of Black Nose Point on with Portishead Point, W. ½ S.

WEST USK, Black, dries at low water; a farm house at St. Brides in line with a bluff tree on the western land, N.W. by W. ½ W.; Usk Lighthouse, N. by W. ½ W.; Windbound Point, N. by E. ¼ E.

EAST USK, White, dries at low water; a clump of tiles on Stone Hill just open westward of Windbound Point, N.N.W. ½ W.; West Usk Buoy in line with Peterstone Church W. ½ N.

EAST NASH, Black and White chequered, lies in 4½ fathoms, with Groes' House, (yellow) twice its apparent width open Westward of the Tower upon Dunraven Promontory, N.; the North side of the Nash High Light Tower on with the South side of the Low Light Tower, S. E. by E. ¼ E.; Nash Swatchway Buoy, N.W. ¼ W., 4½ miles; Tusker Beacon, N.N.W. ½ W. 4¾ miles; the fair channel course from the Mumbles to this buoy inside the sands, with the Mumbles Light Tower N. N. W. ¾ W., and the Nash Low Light Tower S. S. E. ¾ E.

NASH SWATCHWAY, Black, lies in 2½ fathoms, with Sker House on with Rhwychwyn Point, N. ¼ E.; Newton Down Windmill, its apparent length open Northward to Newton Nottage Church Tower, N.N.E. ¾ E.; the Nash High Light Tower, its apparent length open Northward of the Low Light Tower, S.E.½E.; Tusker Beacon, N.E. ¼ N; East Nash Buoy, S. E. ¼ E., 4½ miles; West Nash Buoy, N. W. by W. N'ly., 2¼ miles.

WEST NASH, Black and White chequered, with Beacon, lies in 6 fathoms, with Newton Down Windmill on with the centre of the Breakwater at Porth Cawl, N. E. by E. ½ E.; Nash High Light Tower, S. E. ½ E., 7¼ miles; the Nash

Low Light Tower, S. E. ¼ E.; East Skerweather Buoy, N., 2 6-10 miles; West Skerweather, N.W.¼N., 6½ miles; Mumbles Light Tower, N.N.W.; Nash Swatchway Buoy, right between the Lighthouses, S.E. by E S'ly., 2 miles; Tusker Beacon, E., 2¾ miles.

EAST SKERWEATHER, Red and White striped, lies in 6 fathoms, with a conspicuous Shaft on the summit of the highest Hill, open Eastward of Constantinople Cottages, the apparent length of them, N.N.E. ½ E.; Margam Trees, on with the West end of a long stone wall terminating near the Beach E. ½ N.; the Windmill inland of Cwm Mawr on with Dunraven Point, S. E. ¼ E.; Kemfig Church 2½ points open Westward of the Scar House, N. E. by E. ¼ E.; Nash Low Light Tower, S. E ¼ S., 9 miles; Mumbles Light Tower, N. N. W. ½ W.; West Nash Buoy, S., 2 4-10 miles; West Skerweather Buoy, N. W. by W. ½ W., 5 miles; Mixon Buoy, N. N. W. ½ W., 9 miles; Tusker Beacon, S. E. ¼ E., 4 miles.

WEST SKERWEATHER, Red, with a Beacon, lies in 4½ fathoms, with Constantinople Cottages on with the mouth of Aberafon Harbour, E.N.E. Northerly; Margam Trees open Southward of Sker House three times their apparent width E. by S.; Nash High Light Tower, S.E, Easterly, 14 miles; Mumbles Light Tower, N., Easterly, 6 miles; East Skerweather Buoy, S E. by E. ½ E., 5 miles.

HUGO, Black, lies about a cable's length from the dry sand on the N.E. side of the Bank, in 3 fathoms low water, with a large square House on with the South end of the large Store House at Porth Cawl, S. E. ¼ E.; Kemfig Church its apparent breadth open South of a White Cottage (the Northernmost in the Village), E. ½ N.; Nash Low Light Tower, S. E. by S.; Mumbles Light, N. N. W. ¾ W.; Constantinople Cottages N. E. ½ N.; East Skerweather Buoy, S. by E.

INNER GREEN GROUNDS, Red Nun, lies in 3½ fathoms, about one and a half cable's length from 5 feet on the S.E. end of the Shoal, with Kilvey Old Mill, ⅛ distant from the Inn (a large brick house), towards Tennant's Look-out House, N.N.E. ½ E.; Swansea East Pier Head, N. by E. ¾ E., 2 3-10 miles; Mumbles Lighthouse, W.¼N.; Woodland Castle, N.W. N'rly.

OUTER GREEN GROUNDS, Black and White chequered, lies in 2½ fathoms, with the Tut between the two Houses on the Mumbles Point, W. ½ N.; Woodland Castle, N. N. W. ¾ W.; Swansea Pier and Lighthouse, N.E. by N.; Kilvey Old Mill, N.E. ¼ N.; Green Grounds Buoy, E.

MIXON, Black, with Bell, lies in 10 fathoms, with Porth Einion Point on with Oxwich Point, W. by N. ½ N.; Kilvey Old Mill Tower on with Swansea East Pier Head, N. E. ½ E.; Mumbles Light Tower, N. E. ½ N.; West Skerweather Buoy, S½E., 5½ miles.

WEST HELWICK, Black, with Beacon, lies in 13 fathoms, with Rhossily Parsonage on with East Crow of Tableland of Worms Island; Porth Einion Point, E. by S. ½ S.; Worms Head, E.N.E.E'ly; Helwick Light Vessel, S. W.; Caldy Lighthouse, N.W. by N.

HELWICK SWATCHWAY, Black and White striped, lies in 4½ fathoms, with Burry Holmes appearing in the centre of Worms Sound, N.N.E. N'ly; Oxwich Point on with Porth Einion Point, E. by S.½S., Easterly; East Helwick Buoy, E. by S. ¾ S., 3½ miles; Worms Head, N., 2 4-10 miles; West Helwick Buoy, W. by N. ¾ N., 2½ miles.

EAST HELWICK Black, lies in 2½ fathoms, with Rhossily Point open westward of Tears Point the supposed breadth of a ship, N. W. ¾ N.; a White Building upon the high land, apparently midway between two White Cottages below that building, N.N.E. ½ E.; Helwick Swatchway Buoy, W. by N.¾N., 3½ miles; West Skerweather Buoy, S. E. ½ E. S'ly., 12¼ miles; Mixon Buoy, E. by S. ¾ S., 9¼ miles; Worms Head, N. W. ¼ N., 5 miles.

TUSKER AND MONKSTONE.—A mast with a large red ball attached is erected as a beacon upon each of these rocks. From the Tusker Beacon, Porth Cawl Point, N. ½ W., is 1½ miles; Mumbles Lighthouse, N. W. by N. 13 miles; Nash Low Light Tower, S. S. E. ½ E., 5¼ miles; East Skerweather Buoy, N. W. ¼ W., 4 miles; East Nash Buoy, S.S.E. ¾ E., 5 miles; West Nash Buoy, W., 2½ miles.

BEACON ON THE WOLF ROCK.—This Beacon consists of an artificial cone, bearing a mast having a large ball upon its summit at an elevation of 36 feet above the level of the sea at high water; the mariners are to observe that spring tides rise at this station 19 feet, and that at low water of those tides, the rock is uncovered to the height of 15 feet. St. Michael's Mount open of Lemorn Cove leads 2½ miles to the Eastward of it; Longships Lighthouse touching Cape Cornwall leads 1¾ miles Westward of it. The Bearings and Distances of the undermentioned objects from this Beacon, are as follows, viz.:—Longships Lighthouse. N. E. ¼ N., 7¾ miles; Scilly Lighthouse, W. by N. ½ N., 21 miles; Rundlestone Rock, which covers at half-flood, E. by N. ½ N., 7 miles; Seven Stones Lightvessel, N.N.W.¼W., Westerly, 12½ miles; Lizard Lighthouses, E. S. E., 23 miles.

WEST COASTS OF ENGLAND AND WALES.

SMALLS LIGHT TO THE PORT OF LIVERPOOL.

Smalls Light is placed on Smalls Rocks, lying off St. David's Head in Pembrokeshire, and bearing from St. Ann's Point, N.W. by W., distant 18 miles. This light is stationary, appearing like a star of the first magnitude, at the distance of 13 miles. To avoid these rocks, keep above a mile from the highest on all sides, and do not attempt to pass inside of them without a good chart and ample directions, or a pilot; with these there is excellent anchorage to be found in St. Bride's Bay in 8 or 9 fathoms.

South Bishop Light.—The Bishop and Clerks are a number of dangerous rocks, with great overfalls, lying northwest of Ramsey Island, at the distance of 2½ miles. On the southernmost, called the South Bishop, is a lighthouse, exhibiting a revolving light, visible in all directions, and appearing with great brilliancy at intervals of 20 seconds, whereby it will be readily distinguished from the Smalls and other lights in its vicinity; it can be seen at the distance of 18 miles. This light is the principal guide the mariner has to enable him to know his exact situation, when sailing near this dangerous part of the coast of Wales. The light must be always passed to the westward, and when to the northward of it never bring it to the westward of south, until you are 3½ or 4 miles from it, particularly on a flood-tide, in moderate weather, for then you have the tide nearly on the beam, which runs rapidly through amongst the islands; at spring tides nearly 5 knots, and causes several overfalls. The passages between the rocks must not be attempted by strangers.

From St. David's Head to Strumble Head the course is E. N. E. ½ E., distant 10½ miles; between them at the distance of 5½ miles from the former, is Abercastle Island, lying close to the land. In sailing from St. David's Head to Cardigan Bay you must give the shore a good berth, for several rocks under water lie scattered about, some of which are nearly a mile from shore; they are called the Sledges, and are 2 miles eastward of St. David's Head.

Fishgard Bay.—Three miles to the eastward of Strumble Head you open Fishgard Bay, having good anchorage with any wind, except from the N. to the E., the ground holding well. The best anchorage will be to the southward of the Crow Rock, which is always above water, in 4 or 5 fathoms, the rock bearing N. by E. ½ E., distant ¼ to ½ a mile. This bay is more desirable for vessels seeking shelter in gales from S. and W. than Studwall's Road, which is 51½ miles to the leeward, as it is well sheltered from these gales, which Studwall's Road is not, and the bay affords a more ready outlet to the S. or N. than any place in the neighbourhood.

Newport Bay opens when you are 6 or 7 miles distant from Strumble Head.—The bar and channel to Newport lie about ½ a cable's length from the shore, directly below the village of Newport. On the bar are 13 feet water with spring tides, and 7 or 8 at neaps. When a vessel is over the bar, she will be sheltered from all winds.

Cardigan Bay.—The Buoy on the Causeway in Cardigan Bay has been moved, and now lies near the extremity of the Causeway Reef, in five fathoms at low water springs, with the following marks and compass bearings; Slandebrog Mill in line with the east side of West Island at St. Studwall, N. by E.; Penkilan Head, N. by W.; Bardsey Lighthouse, N. W. ½ W. A LIGHT VESSEL lies in 20 fathoms, low water, spring tides, 1 Red revolving light, shewing a flash every 30 seconds, 25 feet above the level of the sea, South Bishop Lighthouse, S. W. by W., 36½ miles; Strumble Head, S.W. ¾ S., 21½ miles; Kenmaes Head, S. ¾ W., 16½ miles; Causeway Buoy, E. by N. ¾ N., 25 miles; Bardsey Lighthouse, N.E. by N., 23 miles.

Cardigan Harbour is adapted for vessels drawing about 15 feet. In the channel over the bar, which is liable to shift, are 14 feet water with spring tides, and 8 or 9 with neap; but in Cardigan Road a ship may stop, in moderate weather, almost any part without the bar, about two cables' length from the shore, in 6 fathoms water.

Aberystwith Harbour is fit for vessels which draw 15 feet. There are land-marks to lead you over the bar, one of which is moored on wheels, as the bar shifts. When any vessel is seen off the place in the evening, there are lights put upon the marks, which must be brought in one, to direct you over the bar.

Aberdovey is about 3 leagues to the northward and eastward of Aberystwith, and 6 miles to the south of the Diamond Beacon on Beach Head. This harbour has a shifting bar about a cable's length broad, and about half that in and out. The Trinity Board have placed a large Black Buoy at the entrance, outside, and a Red one inside the bar. A good look-out should be kept for a small Buoy between the Black and Red Buoys, which makes the angle of the passage if any. These Buoys are all placed in the fairway. Vessels may come to anchor half a mile above the Red Buoy, and which is about the same distance below the town, where from 12 to 15 sail, drawing from 12 to 15 feet water may ride in safety and in good holding ground.

Barmouth Bay may be known at a distance by the highest mountain on that coast: it has two tops—the southmost is highest; and when seen from the westward, is in a line with the N. side of the entrance of Barmouth. From the N. side of the Bay, and about 1 mile from the main, a shoal called the Causeway, extends W. by S. 3 leagues: at low water there is not more than 2 or 3 feet water all along the edge of it, where at a cable's length the compass is so affected by magnetism, as to vary 90 degrees, and, as you approach nearer, quite reverse the points.

Studwall's Road affords excellent anchorage for the largest ships, sheltered from all winds except from E. to S. E. by E. It is easily known by two Islands that lie off the point, and there is no danger except a small rock about ¼ of a mile eastward of the Islands, between which there is a good passage, as well as between the westernmost and the main, at a cable and a half's length from them.

Bardsey Island is separated from the mainland by a channel more than a mile and a half wide, having from 15 to 25 fathoms in it. On the S.W. part of this Island is a Lighthouse exhibiting a bright fixed light, visible seaward from E. ¾ S. to N.E. ¼ E., and at a distance of 17 miles; but masked between the bearings of N. 50 deg. E. to S. 70 deg. E. If in a gale of wind from the W.N.W. vessels should be unable to weather Bardsey Island, this light will point out a secure asylum in Studwall's Road, enabling them to preserve a proper position until daylight, when they can proceed to the anchorage therein. Vessels bound to Studwall's Road, or laying-to for daylight, must not bring the light to bear to the westward of W. N. W.; and if they lose sight of the light when it bears from them nearly in that direction, they will be too far to the northward, and in danger of getting embayed in Hell's Mouth.

Carnarvon. — From Brauchypool Head the shore lies nearly E. N. E. to Carnarvon Bar, and from thence nearly N. by W. ½ W. to Holyhead Island, forming Carnarvon Bay. Vessels going in are to leave the outer or Black Buoy on the port hand, the Red Buoys on the starboard hand, and the Perch beacon on the port hand. The black and white chequer buoy is placed in mid-channel. Nun buoys, painted green, denoting sunken rocks, are placed off Llanddwyn Point. This Point may be distinguished in the daytime by two white towers (a large and a small one), and during the night by a fixed red light, visible in clear weather about five miles to seaward, between the bearings (from Llanddwyn by compass) of N. W. by N., and S. W. by W.; and which is intended solely as a leading light for the entrance to the Menia Straits. The bar should not be attempted until daylight, nor by vessels drawing more than 10 feet before half flood, During gales from W. to N., vessels may find shelter on the S.E. side of Llanddwyn Point. The proper anchorage is about a quarter of a mile from the shore, with the small tower a little open to the northward of the large tower. In running in give a good berth to the sunken rocks (the green buoys indicating which are placed to seaward); but it is much preferable for strangers to heave-to outside sufficiently to windward and make signal for Pilot, four of whom are stationed at Llanddwyn, with a lifeboat and Marryat's code of signals. Vessels wishing to communicate will be answered from the large tower.

South Stack Light.—Off the N.W. point of Holyhead Island is the South Stack Rock, upon which is a lighthouse, bearing a brilliant light, which revolves every minute, whereby it will be readily distinguishable from the light on the Skerries, which is a stationary light, and bears from the light on the South Stack N.E. ½ E., distant 8 miles, and may be seen through a great part of Carnarvon Bay. During foggy weather, a smaller bright light, revolving in 1½ minute, is occasionally shown, about 40 feet above the sea, and 30 yards north of the main lighthouse. Any vessel making either of these two great lights, can find no difficulty in navigating round the head, or into the harbour of Holyhead, if the wind permits; and no directions that could be given would serve equal to that of having the two lights in sight, as will be the case in the situation above mentioned.

Holyhead Refuge Harbour is chiefly formed by an immense breakwater, the heel resting on Soldier's Point, from whence it projects N.E. by E. nearly one and a half cables' length, then E.S.E. about five cables' length, and then E.N.E.

to its end, which is marked by a red light, visible at a distance of 3 or 4 miles. The end of the breakwater is N.N.E., one mile from the Old Harbour Light.—To sail into Holyhead Refuge Harbour, give the end of the breakwater a good berth, as a strong tide sets to the westward nine hours out of the twelve, and strikes hard upon it. Having rounded the breakwater, steer to the W.S.W., between it and the outer Platters, leaving all the black buoys on the port hand, and anchor well in, close to the beach. There are passages between the Platters and Salt Island; but these should never be attempted by strangers. Vessels should have both anchors ready for letting go, with 50 or 60 fathoms of chain ranged according to the weather, and should be careful to anchor well up, or they will have to shift berth. Vessels disabled or without ground-tackle may be laid on a beaching slope at the head of the harbour which has been prepared for the purpose.

Old Harbour of Holyhead.—A wooden pier has been recently built, extending from the Old Harbour Lighthouse in a direction E. by S.: two red lights of equal height mark its end.—All vessels bearing up for Holyhead Harbour should be prepared with both bower anchors ready to let go, and the end of a good warp for a boat to take to one of the dolphins, moored along the passage for that purpose. The course round the pier, up the harbour, is W. by N., then W.N.W; therefore, with the wind at N., and to the westward of that point, a press of sail should be carried, especially after sail; run the jetty close on board, and neither start tack nor sheet till the vessel is well inside the lighthouse and the packets' moorings, then act as circumstances may require. Rise of water at spring tides, 17 feet; depth of water at the entrance, at low water, spring tides, about 12 feet. Holyhead harbour being a tide harbour, and frequently with many anchors down in the way, vessels drawing 12 feet should not run in until about two hours' flood, and those of a heavy draught should, if possible, keep off until four hours' flood. In tempestuous weather no vessel should run for the harbour at night time. There is no occasion to use this as a harbour of shelter now the new harbour is established. All vessels anchoring outside must keep a light up during the night.

Holyhead Harbour Lights, situate on the starboard hand in entering the harbour, are stationary. The higher, a bright fixed light, is visible at the distance of 11 miles; and the lower, red, is visible from S.S.W. to S.W. only, serving as a mark to clear the Platters, and rocks on both sides. Vessels entering the harbour are in the fairway when they see the RED light and steer for it. A red light is shown from the eastern extremity of the new breakwater; and two red lights, of equal height, are exhibited from the end of the temporary wooden jetty which has been recently built out from the Old Harbour Lighthouse in a direction E. by S.

FOG SIGNALS AT HOLYHEAD.—A gun is fired during fogs from a position immediately over the North Stack every hour and half hour, Greenwich time; and every ¼ of an hour from 10 45 to 2 45 a.m. and p.m. pending the arrival of the packets from Ireland. The ½ hour intervals are resumed so soon as the Packets have passed

The Skerries is a cluster of islets and rocks 13-5ths mile to the northward of Carmel Point, occupying a space of about half a-mile. Upon the centre and highest islet of the group is a lighthouse 54 feet high, showing a fixed bright light at 117 feet above the level of high water, visible 16 miles. The position of this lighthouse is lat. 53° 25′ 18″ N., and long. 4° 36′ 24″ W. A short distance all round the islands is deep water, except on the northern side of the group, where is a dangerous rock of 2¾ fathoms, called the African, lying with the lighthouse in one with Pengarn Hill bearing S.S.E. Upon this rock there is a great overfall when the tide is running either way. Between the Skerries Islets and Carmel Point is a dangerous ledge of rocks, drying with spring tides only, called the East Platters. Close-to all round are 8 to 16 fathoms, and there is a strong rippling when the sea is heavy. You may sail between the rocks and the Skerries by bringing the South Stack Bridge over the North Stack and between them and Carmel Point, by bringing the South Stack and North Stack in one. The Beacon on the West Mouse Rock in one with the Middle Mouse, also clears it on the south side.

Point Lynas lies S. E. by E. ¼ E of the eastern point of Amlwch Bay, distant 1¼ mile, and is situate in lat. 53° 25′ N., and long. 4° 17′ W. It is a bold conspicuous point of land both from the eastward and westward. A lighthouse is erected on the high pitch of the point, and is a castellated building, with a white basement. It exhibits a flashing light, which becomes instantaneously obscured at intervals of 10 seconds, and remains obscured 2 seconds only, so that it is readily distinguishable from the Skerries and other lights in the vicinity. From Lynas Lighthouse to Great Orms Head, S.E., 16 miles; N.W. Lightship, Liverpool, E.S E., 37 miles; Calf of Man, N. ¼ W., 42 miles; Buoy Nelson, off Preston, E., 41 miles; St. Bee's Head, N.E., 70 miles.

Port of Amlwch, Anglesea.—In the day time, when the Breakwater Balks

are down, a Ball is fixed on a pole at the easternmost point of the harbour. When too many vessels lie at the entrance of the harbour, a Red Light will be shown, and when the entrance is clear a White Light.

To Sail into Beaumaris Harbour, THROUGH THE SOUND IN LOW WATER.—Steer in for Table Land, till the W. end of Puffin Island comes open with the E. end of Penmaenmawr Hill. These marks will clear the Dinmora Bank on your starboard hand. You then have the Sound fairly open; but to avoid the rocks off Trwyndu Point, keep more to the Perch on your left, and when Beaumaris comes open off Trwyndu Point, haul up for the red buoy off Penman, keeping it on your starboard hand, and off the red buoy of the Causeway on your left. Anchor in 4 fathoms off Penman red buoy, clean and good holding ground, well sheltered from a north-westerly wind; but if one hour's flood, you will carry 16 feet over the Flats off Penryn Point. Steer for the black buoy on the Spit of the Levan Sand, abreast of Friar's House, where anchor in 5 fathoms low water spring tides, or at half flood steer for the town, keeping the red buoy on Watch House Point on your starboard hand, in 6 and 7 fathoms. Keep that depth of water until the Church at Beaumaris bears N.N.E. by compass, when you may anchor in 9 fathoms at that time of tide. Thence you will see Bangor Pool, which is above Ferry Point. But if any of the buoys should be missing, as you steer up, keep the Church Tower and Lodge Hill in one.—Opposite the Friar's House, in mid-channel, is a sand-bank, marked by a red and white chequered buoy: in sailing up to Beaumaris, keep this buoy on the starboard hand.

To Sail out of Beaumaris Harbour, FROM THE ANCHORAGE OFF THE TOWN.—Weigh at high water, and drop down to Friar's Road. Give the black buoy off the Spit a berth on your starboard hand, and the red buoy off Penman on your larboard. At half ebb, take the eastern passage, keeping off the red buoy of the Causeway on your larboard hand. From the latter, steer for the east end of Puffin Island, on your larboard hand, keeping off it half a cable's length, and the black buoy off the Dutchman's Spit the same distance on your starboard hand.

Menai Lighthouse is erected at the north-eastern entrance of the Menai Straits. The light is STATIONARY and of a RED colour, visible from N.W. ¾ W. seaward, to S.W. ¼ W. excepting that by the intervention of Puffin Island the light will be eclipsed to vessels upon the bearings from it of E. by N. ½ N. to E. ½ S. A ledge of rocks extending under water from the base of the lighthouse nearly 50 yards, it is advisable not to approach the building within that distance.

Conway Harbour.—There are two channels leading into this harbour—the west and north. For the west channel, steer from the N.W. black buoy to the second black buoy, leaving them on your larboard hand; keep the red buoy off Penmaenbach, the chequered red and white buoy, the two red buoys, and the perch, on your starboard hand; haul up, and steer for the quay, keeping close to Deganwy Point on the larboard hand. The entrance to the north channel is marked with a black perched buoy: the second, third, and fourth are all black, and moored in the best of the channel. Vessels drawing from 10 to 12 feet may lash alongside the quay, on mud and sand, dry at low water.

To Sail from Point Lynas to the Great Ormshead.—The course from Point Lynas to the Great Ormshead is S.E. per compass; from whence keep the Ormshead as the line is drawn on the chart, till Rhyland Castle and St. Asaph Church are in one; then haul in till the south mark on Helbre and Bidstone Lighthouse come in one. Steer forward on that line which is the deepest water along the shore. It will also clear the Middle Patch on the left, which is dry at low water, spring tides. Buoys are placed here; red on the starboard, and black on the larboard hand, coming in. Give the Point of Ayr Lighthouse a berth of a mile on the starboard hand: and when it bears W. haul up S.S.E. for mid-channel. At that time the rippling of the tide on the edge of the Salisbury Bank will be very perceptible, as well as on the Welsh side. Continue that course, in mid-channel, till the Grange Mill bears N.E. by E. by compass, then haul quick for Dawpool, and keep that bearing till Burton Mill comes over the town of Parkgate. That course clears the south end of Salisbury Bank, and the Bagilt Flats on your right. As you advance, keep the lead going, and borrow on the Haswell Church side of the shore. It will carry you clear to Bearhouse Pool, where anchor till you obtain a pilot. The leading mark for passing at high water across the Salisbury Bank to Hoylake is Helbre Eye on with the Grange Mill.

Chester Bar is a narrow sandbank between 3 and 4 miles in length, stretching rather circularly from S.E. to N.W.; its south end is near to Nant House, and is called the Middle Patch, sometimes drying, the middle of it is called Earwick, and dry at low water; but much the

greater part of it never dries, having from 3 to 6 feet water over it at all times. To clear the Earwick to the eastward, bring Nant House and the barn above it in one. To SAIL OVER CHESTER BAR in a ship drawing 12 feet, take half-flood; and when Craig Disart Hill bears S. S. E., which with Middle Hill and Comb Hill form an equilateral triangle, keep the two Ormsheads shut below, and a little open above; by this you will avoid all danger on the southward. To avoid the banks and shallows on the north side, open the Ormsheads below near a ship's length, but not more. If a vessel comes to Chester Bar before half-flood, and is apprehensive of not having sufficient water to cross it, she may sail between the Middle Patch and the Earwick, keeping the Ormsheads a little open below; and when Craig Disart Hill and Middle Hill are in a line, steer N.E. by E. until you deepen your water to 4 or 5 fathoms, and sail along Hoyle Sand for the Point of Air, giving that point a berth of half-a-mile. To avoid that part of Hoyle which is opposite to Air, keep Bidston Windmill to the south of Helbre Summerhouse; this will carry you through the Swashway toward Hoyle Lake. But the mark which leads clear of the north part of the Hoyle Sand, and directly into Hoyle Lake, is the Point of Air Lighthouse open to the northward of Hilbre Island.

The River Dee.—Vessels may stop a tide about a mile to the eastward of the Point of Air, upon which a lighthouse is erected. The tide runs, when strongest, 3½ miles an hour; and when the tide and wind are contrary to each other, make a rough sea here. At this place, which is called Wild Road, you can anchor in 5 or 6 fathoms; or you may proceed higher up to the anchorage off Linacre Creek, where, in 6 or 7 fathoms, you will be much better sheltered than in Wild Road from north-westerly winds, and ride on ground that holds well. To sail from Wild Road to Dawpool, a distance of near 6 miles, bring the southernmost house of Dawpool, which stands below a clay cliff, exactly in a line with the barn having a white end, standing on the top of the cliff, but the barn must not be brought on either side of the house, anchor about 2 cables' length from high water mark in 3½ or 4 fathoms at low water. Here the stream runs 5 miles an hour when strongest. At Parkgate, which is more than 4 miles up the river, vessels must lie aground on the beach; for though there are 2½ fathoms in the channel off the town, and 3 fathoms above it, yet the stream is so strong, and the ground so indifferent, that a vessel would drag its anchor. Take the ground about 2 hours before high water, below the houses of Parkgate. Vessels in making their passage to Parkgate must use the utmost caution to avoid the Salisbury Bank, a dangerous shoal, and lying in the direction of the river. The channel now to Parkgate is opened into a swashway by Bagilt and Flint; four red buoys are placed on the edge of the Mostyn and Bagilt Banks, and two black ones on the Salisbury Bank, the former of these are to be left on the starboard side, the latter on the larboard. A black buoy lies on the SELDOM SEEN ROCKS in the channel between the Salisbury Bank and the Lime Wharf. There are three small islands or rocks, called the Helbre Islands, lying to the southward of the Hoyle Sands: on the northernmost, which is called Great Helbre, are two wooden beacons or marks, distant from each other 633 yards.

BAY AND HARBOUR OF LIVERPOOL.

In the vicinity, and to the northward and westward of the Rivers Dee and Mersey, lie the banks which form the several channels to Liverpool, viz., the Hoyle Banks, the Burbo Sands and Flats, the Jordan Banks, Formby Point Flats, &c. The principal channels are, the Horse and Rock Channels, the Victoria Channel, the Queen's Channel, the Old Formby Channel, and the Crosby or Main Channel.

The principal lights and sea-marks of Liverpool Bay are as follow:—

The NORTH-WEST LIGHT VESSEL, off the Horse and Helbre Channels, in 7½ fathoms, low water, has three masts, each bearing a lantern, so disposed as to form a triangle, and showing brilliant fixed lights of the natural colour, which may be seen at the distance of 10 miles; in the day she carries a black ball. Her hull is painted black, with a broad white streak. In thick or foggy weather, either by bay or night, a bell and gong is sounded alternately. This Light Vessel is now more particularly distinguished by the burning of a blue light, of 2 or 3 minutes' duration, at the following periods, namely, during the months of November, December, January, and February, at 6, 8, 10, and 12 o'clock, p.m., and 2, 4, and 6 o'clock, a.m. During the months of March, April, September, and October, at 8, 10, and 12 o'clock, p.m., and at 2 and 4 o'clock, a.m., During the months of May, June, July, and August, at 10 and 12 o'clock, p.m., and 2 o'clock, a.m. The instant of ignition is as near

Greenwich mean time as possible; but those approaching under difference of time at ship should look out around the anticipated bearing five minutes before the respective hours.

The FORMBY LIGHT VESSEL, at the elbow of the Crosby and Queen's Channels, moored in 25 feet at low water, shows two yellow fixed lights upon separate masts, visible 8 miles; a red ball is exhibited during the day. Her hull is painted red. In foggy weather a bell is tolled. Crosby Lightship, S. E. ½ S., 2½ miles; N. W. Mark, E. by N. ¾ N., 3⅞ miles; Buoy Q. Fy. (bell beacon), N. W. by W. ½ W., 2⅜ miles.

The CROSBY LIGHTHOUSE, situated to the north-eastward of Crosby Point, shows a fixed red light, elevated 96 feet above the level of the sea at half-tide, and visible between the bearings of S.S. E. ¾ E. and E., which limits indicate respectively when a ship is westward of Formby Spit, or to the southward of Crosby Lightship.

About a mile and a quarter to the north-eastward of Crosby Lighthouse is the FORMBY OLD LIGHTHOUSE, the light from which has been discontinued. Near the latter, on the strand, is a beacon, which formerly formed a leading mark for Victoria Channel; further to the northward is the Life Boat House; and near it just round Formby Point, is the North-west Mark. This mark is one with another on Mad Wharf, bearing S. E. by E. ¼ E., is the leading direction for entering the Old Formby Channel.

The CROSBY LIGHT VESSEL, at the north-east elbow of the Great Burbo Bank, moored in 44 feet at low water, shows a yellow fixed light, visible 8 miles, and carries a red ball at the mast-head in the daytime. Her hull is painted red. From hence the fairway course up the Mersey is S. by E. ½ E. In sailing through Crosby Channel during ebb-tide, to avoid the indraught through the gullies in Great Burbo Bank, vessels should be kept well to the eastward of a line drawn between the Rock Lighthouse and Crosby Lightship.

At Bootle, near Liverpool, are two obelisks on the shore, and behind Bootle, near Walton Church, is a beacon, called Bootle Inner or Walton Mark.

On the south side of Liverpool Bay, on the peninsula separating the Mersey from the Dee, are many objects used as seamarks, several of which will have been seen before arriving at the North-west Light Vessel. Off the west end of the peninsula are the islets, called the Great and Little Helbre, upon which are placed two beacons. On the mainland, within two miles S.E. by S. of the Helbre Islets, are the village and church of Kirby, to the east of which is Grange Hill, surmounted by a beacon, in the form of a pillar, at 173 feet above half-flood. Within two miles S. S. E. from Kirby, is Irby Hill, with its mill and wood.

About a mile and a quarter north of Kirby, near the shore, is the Hoylake Hotel, and within half a mile E.N.E. from this are the HOYLAKE LIGHTHOUSES, showing fixed lights, which mark the eastern entrance to the roadstead of that name. The upper one exhibits a brilliant light at 71 feet above half-flood, which may be seen at the distance of 13 miles. This light is decidedly and strongly lighted on a north aspect, and so masked as suddenly to appear when coming in, or disappear when going out, immediately it bears south by compass, thereby indicating when Bidston and Leasowe Lights must be crossed to clear the Six Feet Flats, when inward-bound, or the Spit-Elbow of East Hoyle, when outward-bound. It is masked so as not to show further to the westward than the bearing of south, or midway between the buoy of the flats (H 1, Black with perch and ball) and the buoy on the S.E. shoulder of East Hoyle Bank (H 3, Red Can). The lower light is 47 feet above the same level, and may be seen at the distance of 11 miles. This light is so lighted as to open abruptly when coming from the westward, or shut when going westward, directly it bears S by E. ¾ E. by compass, thereby indicating when you are approaching the line of N.W. Spit Buoy of East Hoyle (H 1, Red, with perch), and that you may haul into the Horse channel (when Bidston and Leasowe Lights open their breadth eastward) when the said Hoylake light bursts forth to view; or haul from the Horse Channel to the westward when it disappears. It will thus serve as a guide round the Spit of Hoyle (even should the N.W. Light Ship be missing), with the like effect as the Upper Hoylake Light at present indicates when to cross the line of Bidston and Leasowe Lights, to clear the Six Feet Flats. The two Hoylake Lights in a line indicate the turning point from the Horse into the Rock Channel, or the contrary. At a mile to the eastward of the lower light are the Dove Beacons, erected as a mark for the eastern passage into Hoylake, the interior channel of communication between Helbre Swatch, and the Horse Channel, which is, at times, a very desirable harbour.

The Old Bell Beacon lies at the entrance of the Rock Channel. It bears a self-acting bell, and is marked, "R 1, Spencer's Spit."

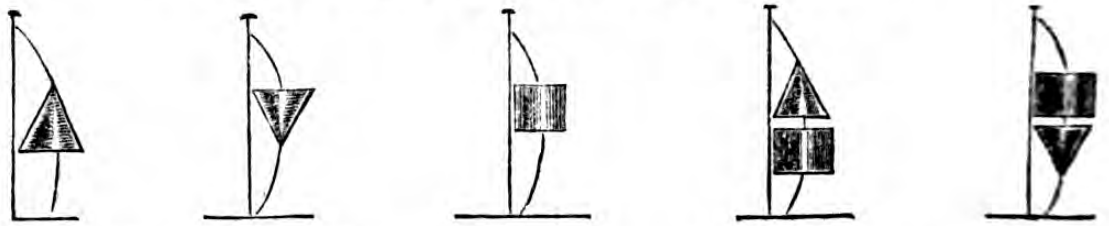
The next conspicuous object is the LEASOWE LIGHTHOUSE, which is white; its light brilliant and fixed, 110 feet above the level of half-tide, is seen 5 leagues off, and is so masked as to give a defined light in the Rock Channel, within certain

limits, and suddenly disappears, bearing S.W. ½ S. to vessels inward bound, when off West Wharf Buoy, R 3, Red, and suddenly appears when outward-bound. This is succeeded inland by the BIDSTON LIGHTHOUSE, upon the summit of Bidston Hill, with its church and mill. This lighthouse is of stone, but appears of a dark colour, and shows a brilliant fixed light at 244 feet above the level of half-tide. Its light can be seen 23 miles off. This light is so masked as to give a defined light in the Rock Channel, within certain limits, and to vessels inward bound it suddenly disappears on the bearing of S. by W. ½ W. when abreast of East Wharf Buoy, R. 4, Red, and suddenly appears when outward bound. The lights of Leasowe and Bidston are called the Sea Lights. At three-quarters of a mile eastward from the Leasowe Light is the Mockbeggar Hall, and 2½ miles further east is the Black Rock Lighthouse, standing upon the reef, so called, at the entrance of the Mersey.

THE BLACK ROCK LIGHTHOUSE is built on the rocks off New Brighton, on the west side of the entrance of the River Mersey, and is a handsome round tower of Anglesea limestone. It is surrounded by water at nearly half-tide. The height of the building, from the lantern to the base, is 75 feet, and the whole height above the level of the sea is 88 feet. The light revolves, exhibiting alternately from the same light room, two bright lights, and one of a red colour, each at intervals of a minute, the whole revolution being completed in 3 minutes. Having acquired their brightest state, they gradually become less luminous, and are eclipsed. The light in clear weather can be seen about 5 leagues off. A bright fixed light from a lower chamber is also shown down the Rock Channel and up the River while 11 feet water remain in the Gut, and a black ball denotes the same by day. Three bells toll in succession during foggy weather; and a blue flag summons the Magazine life-boat when distress appears.

Garston Dock.—This Dock, which is 4 miles south of the Liverpool Docks, and on the same side of the river, is free from the Liverpool dock rates, vessels entering it being only liable for the harbour and light dues. The channel from Liverpool is buoyed with red and black buoys.

STORM-WARNING SIGNALS.



Gale probably from the Northward. **Gale probably from the Southward.** **Dangerous winds may be expected from nearly opposite quarters successively.** **Dangerous wind probably at first from the Northward.** **Dangerous wind probably at first from the Southward.**

Whenever such a signal is shown (in consequence of a telegram from London) it will be kept up, shown distinctly, till dusk of *that day only*, unless otherwise specially directed.

These cautionary or warning signals advert to winds during some part of the next nights or two or three days; therefore due *vigilance* should prevail (until the weather is again thoroughly settled), but without suspending *departures* or any operations *unnecessarily*.

It should be remembered that only the greater and more *general* disturbances of the atmosphere are to be made known by this method (Warning Signals), not merely local or sudden changes (however violent or dangerous) which are not felt at a certain distance, and do not therefore affect other localities. Local changes may be indicated to observers at such places, by their own instruments,—by signs of the weather,—and by due consideration of the Weather Reports for a few previous days.

Fair and Foul Weather Prognosticator

The following Table and the accompanying remarks, are the results of many years actual observation; and will show the observer what kind of weather will probably follow the entrance of the Moon into any of her Quarters.

MOON	TIME OF CHANGE	IN SUMMER.	IN WINTER.
If New Moon—First Quarter—Full Moon—or last Quarter happens	Between Midnight and 2 in the Morn..	Fair	Hard Frost, unless the wind be S. or W.
	2 and 4 do	Cold, with frequent Showers	Snow and stormy.
	4 and 6	Rain	Rain.
	6 and 8	Wind and Rain	Stormy.
	8 and 10	Changeable	Cold rain, if the wind be W. Snow, if E.
	10 and 12..	Frequent Showers	Cold and high winds.
	At 12 o'clock at Noon and to 2 P.M.	Very Rainy	Snow or rain.
	Between 2 and 4 After.	Changeable	Fair and mild.
	4 and 6	Fair	Fair.
	6 and 8	Fair, if the wind N.W. Rainy, if S. or S.W.	Fair and frosty, if N. or N. E. Rain or Snow, if S. or S.W.
	8 and 10	Ditto	Ditto.
	10 and 12	Fair	Fair and Frosty.

REMARKS.—1. The nearer the time of the Moon's Change, First Quarter, Full, and Last Quarter to MIDNIGHT, the fairer will the weather be during the 7 days following. The space for this calculation occupies from 10 at night to 2 next morning.—2. The nearer to MIDDAY these phases happen, the more foul or wet the weather may be expected the next 7 days. The space for this calculation occupies from 10 in the forenoon to 2, afternoon.—3. The phases happening from 4 to 10 in the afternoon, may be followed by fair weather, but this mostly depends upon the wind.—4. To prognosticate correctly, where the WIND is concerned, a good VANE should be within sight. Dr. Kirwan remarks, if a storm arise from the East on or immediately preceding the time of the Spring Equinox, or from any point of the compass near a week after; then, in either of these cases, the succeeding summer is dry, four times out of five; but if a storm arise from the S.W., or W.SW., on or just before the Spring Equinox then the summer following is wet, five times in six.

Useful Stamp Tables

BONDS.

Given as security for money			
Not exceeding £50		1s	3d
Above £50 and not exceeding	100	2	6
Above 100 and not exceeding	150	3	9
Above 150 and not exceeding	200	5	0
Above 200 and not exceeding	250	6	3
Above 250 and not exceeding	300	7	6
For every £100 above £300, or any fractional part of £100		2	6

PROBATE OF WILLS.

£20	£100	£0	10
Above 100 and under	200	2	0
Above 200 and under	300	5	0
Above 300 and under	450	8	0
Above 450 and under	600	11	0
Above 600 and under	800	15	0
Above 800 and under	1000	22	0
Above 1000 and under	1500	30	0
Above 1500 and under	2000	40	0
Above 2000 and under	3000	50	0
3000	4000	60	0
4000	5000	80	0
5000	6000	100	0
6000	7000	120	0

INLAND BILLS.

Not exceeding £5		0s	1d
Exceeding £5 and not exceeding	10	0	2
Exceeding 10 and not exceeding	25	0	3
Exceeding 25 and not exceeding	50	0	6
Exceeding 50 and not exceeding	75	0	9
Exceeding 75 and not exceeding	100	1	0
Exceeding 100 and not exceeding	200	2	0
Exceeding 200 and not exceeding	300	3	0
Exceeding 300 and not exceeding	400	4	0
Exceeding 400 and not exceeding	500	5	0
Exceeding 500 and not exceeding	750	7	6
Exceeding 750 and not exceeding	1000	10	0
Exceeding 1000 and not exceeding	1500	15	0
Exceeding 1500 and not exceeding	2000	20	0
Exceeding 2000 and not exceeding	3000	30	0

AGREEMENTS.

Of the value of £20 and upwards, containing only 1080 words, 2s. 6d.; and for every further 1080 words 2s. 6d.

Letter of Power of Attorney	£1	10	0
Bills of Lading, each	0	0	6
Charter Party	0	5	0

APPRENTICES' INDENTURES

If no Premium	£0	2	6
Prem. under £30	1	0	0
If 30 and under 50	2	0	0
50 and under 100	3	0	0
100 and under 200	6	0	0
200 and under 300	12	0	0
300 and under 400	20	0	0
400 and under 500	25	0	0
500 and under 600	30	0	0
600 and under 800	40	0	0
800 and under 1000	50	0	0
1000 and upwards	60	0	0

SEA INSURANCE POLICIES

Upon any voyage, for every £100 charged as follows:

	s.	d
Not exc. 10s. per cent.	0	3
Exceed. 10s. and not exceed. 20s.	0	6
Exceed. 20s. and not exceed. 30s.	1	0
Exceed. 30s. and not exceed. 40s.	2	0
Exceed. 40s. and not exceed. 50s.	3	0
50s.	4	0

For every £100 insured for a term,

Not exc. six months	2	6	
Exc. six months	4	0	

Royal Family of England

Queen VICTORIA I. born 24 May, 1819
Princess Royal . . . November 21, 1840
Prince of Wales ..... November 9, 1841
Princess AliceMaude Mary, April 25, 1843
Prince Alfred Ernest Albert, Aug. 6, 1844
Princess Helena Augusta V. May 25, 1846
Princess Louisa Caroline A. March 18, 1848
Prince Arthur Wm. Patrick, May 1, 1850
Prince Leopold Geo. Albert, April 7, 1853
Princess Beatrice Mary.. . April 14, 1857
Geo. Fred. King of Hanover, May 27, 1819
Duke of Cambridge ..... March 26, 1819
Duchess of Mecklenburgh, July 19, 1822
Princess Mary of Cambridge, Nov. 27, 1833
Duchess of Cambridge..... July 25, 1797

Sovereigns of Europe

KINGDOMS.	TO WHOM SUBJECT.	WHEN BORN.	BEGAN REIGN
England, &c.	Victoria I. ..	1819	1837
France.....	Napoleon III	1808	1852
Russia	Alexander II.	1818	1855
Spain	Isabella II...	1830	1833
Portugal	Dom Louis I.	1838	1861
Prussia.....	William I ..	1797	1861
Netherlands	William III	1817	1849
Denmark . .	FrederickVII	1808	1848
Sweden.....	Charles XV.	1826	1859
Austria	Franc.Joseph	1830	1848
Belgium	Leopold . .	1790	1831
Popedom ...	Pius IX ...	1792	1846
Greece	Otho I	1815	1833
Italy	Victor E. II.	1820	1861
Ottoman Em.	AbdulA.Khan	1830	1861
Hanover	George V. ..	1819	1851

Her Majesty's Ministers.

THE CABINET.

First Lord of the Treasury..... Viscount Palmerston.
Lord High Chancellor..... Lord Westbury,
Chancellor of the Exchequer..... Right Hon. W. E. Gladstone.
Lord President of the Council.. ..... Earl Granville, K.G.
Lord Privy Seal..... Duke of Argyle, K.T.
Home Secretary ..... Sir George Grey.
Foreign Secretary..... Earl Russell
Colonial Secretary .. .. Duke of Newcastle.
War Secretary ..... Sir G. Cornewall Lewis.
Indian Secretary ..... Sir C. Wood, Bart.
First Lord of the Admiralty ..... Duke of Somerset.
Postmaster General..... Lord Stanley of Alderley.
President of the Board of Trade..... Right Hon. Milner Gibson.
Chancellor of the Duchy of Lancaster .... Mr. Cardwell.
President of the Poor-law Board..... Mr. C. P. Villiers.

NOT IN THE CABINET.

Lord-Lieutenant of Ireland..... Earl of Carlisle.
Chief Commissioner of Works.. ..... Mr. W. F. Cowper.
Attorney-General ..... Sir W. Atherton.
Solicitor-General .. .. Sir Roundell Palmer.
Attorney-General for Ireland..... Mr. O'Hagan.
Solicitor-General for Ireland..... Mr. T. A. Lawson.
Secretary for Ireland..... Sir Robert Peel.
Secretaries of the Treasury..... Mr. F. Peel. / Mr. Brand.
Secretary to the Admiralty..... Lord Clarence Paget.
Civil Lord of the Admiralty..... Mr. Whitebread.
Judge Advocate-General..... Mr. T. E. Headlam.
Secretary to the Poor-law Board..... Mr. Gilpin.
Vice-President of the Privy Council for Education.... Mr. Lowe.
Under Secretaries of State :—
Home..... Mr. G. Clive.
War..... Lord Ripon.
Foreign..... Mr. Layard.
Colonial..... Mr. C. Fortescue.
India .. .. Mr. Thomas Baring.
Lords of the Treasury..... Sir W. Dumbar, Bart. / Mr. Hugessen. / Colonel White.

THE ROYAL HOUSEHOLD.

Lord Steward ..... Lord St. Germans.
Master of the Horse .... Marquis of Aylesbury.
Master of the Buckhounds ..... Earl of Bessborough.
Mistress of the Robes ..... Duchess of Sutherland.



QUIGGIN'S

ISLE OF MAN

ALMANACK,

FOR THE YEAR OF OUR LORD

1864,

Being Bissextile or Leap-Year,

AND THE 27th-28th OF THE REIGN OF HER PRESENT MAJESTY;

WITH CORRECT

TIDE TABLES,

FOR THE

OLD DOCK SILL, LIVERPOOL, AND THE CUMBERLAND GATES, BRISTOL;

AND

MARINERS' COMPANION;

CONTAINING ALSO EVERY CALCULATION NECESSARY FOR

WORKING A LUNAR DISTANCE.

CALCULATED TO MEAN TIME, IN LATITUDE 54° 10′ N. AND LONGITUDE 4° 30′ W.

☞ The Liverpool Tides are calculated for Greenwich mean time.

THIRTY-NINTH ANNUAL IMPRESSION.

DOUGLAS, ISLE OF MAN:
PRINTED AND PUBLISHED BY MATTHEW GLOVER,
52, NORTH QUAY.

PHASES OF THE MOON.

Last Quarter,	2nd day, at	7h. 21m. morning.
New Moon,	9th day, at	7h. 28m. morning.
First Quarter,	15th day, at	10h. 48m. night.
Full Moon,	23rd day, at	9h. 44m. night.
Last Quarter,	31st day, at	11h. 59m. night.

M.	Day brek.	Twil. ends.	⊙'s semi.	☿ Mercury. sets.	☿ Mercury. sout.	♀ Venus. rises	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M. D.
1	6m 7	6 a 6	16 18	5 a 2	1 a 17	4m22	8m51	6m 9	9m56	4m 4	8m32	0m56	6m27	1
8	6 6	6 7	16 18	5 35	1 27	4 38	8 57	6 7	9 50	3 46	8 9	0 24	6 1	8
15	6 3	6 16	16 18	5 44	1 17	4 55	9 3	6 5	9 44	3 26	7 46	11a53	5 34	15
22	5 58	6 27	16 17	rises	0 33	5 10	9 10	6 2	9 38	3 5	7 23	11 20	5 7	22
29	5 49	6 39	16 16	7m 4	11m31	5 24	9 17	5 58	9 33	2 42	6 56	10 5	4 40	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	F	Circumcision.	3 24	13 8	3 43	14 0	3 38
2	S	Gen. Wolfe born	4 5	12 11	4 28	13 1	4 6
3	ℂ	2 Sun. aft. Christmas	4 55	12 4	5 30	12 6	4 34
4	M	Proper Lessons. [Isa. xli; Matt. ii. — xliii; Rom. ii.	6 4	12 0	6 41	12 3	5 1
5	Tu	Bank Dividends due	7 17	12 5	7 55	12 9	5 29
6	W	Epiphany. 12th Day	8 30	13 5	9 2	13 11	5 56
7	Th	Pleiades souths 8 a 33	9 32	15 0	9 57	15 5	6 22
8	F	Lucian, P. & M.	10 25	16 8	10 51	16 5	6 48
9	S	Fontenelle died, 1801.	11 14	18 2	11 38	18 2	7 14
10	ℂ	1 Sun. aft. Epiphany	— —	— —	0 2	19 7	7 39
11	M	Proper Lessons. [Isa. xliv; Matt. viii. — xlvi; Rom. viii.	0 25	18 10	0 48	20 1	8 3
12	Tu	Uranus south 9 a 58	1 13	18 10	1 39	19 10	8 27
13	W	Camb. Term begins	2 2	18 4	2 25	17 9	8 50
14	Th	Oxford Term begins	2 49	17 2	3 10	17 7	9 12
15	F	Brit. Musm. opd. 1759	3 32	15 9	3 55	15 10	9 34
16	S	Battle Corunna, 1809	4 18	14 2	4 47	14 0	9 55
17	ℂ	2 Sun. aft. Epiphany	5 19	12 9	5 56	12 6	10 16
18	M	Pro. Les. [Isa. li; Matt. xv. — liii; Rom. xv.	6 33	11 11	7 13	11 9	10 35
19	Tu	Copernicus b., 1473	7 51	12 0	8 29	11 11	10 54
20	W	Fabian, Bishop	9 1	12 9	9 31	12 7	11 12
21	Th	Agnes, V. & M.	9 58	13 11	10 21	13 7	11 30
22	F	Vincent, Martyr	10 43	15 0	11 1	14 6	11 46
23	S	Pleiades souths 7 a 30	11 21	15 10	11 37	15 3	12 2
24	ℂ	Septuagesima Sun.	11 53	16 7	— —	— —	12 17
25	M	Proper Lessons. [Genises i.; Matt. xxii. — ii.; i. Cor. vi.	0 9	15 11	0 25	17 1	12 32
26	Tu	Neptune south 3 a 55	0 40	16 4	0 57	17 4	12 45
27	W	Aldebaran souths 8 a 3	1 12	16 5	1 28	17 2	12 58
28	Th	Castor souths 10 a 56	1 45	16 3	2 1	16 9	13 10
29	F	Geo. III died, 1820	2 17	15 9	2 35	16 0	13 21
30	S	Proper Lessons. [Gen. 3; Matth. 28. — 6; 1 Cor. 12.	2 51	15 1	3 9	15 1	13 31
31	ℂ	Sexagesima Sunday	3 27	14 2	3 51	14 0	13 41

BRISTOL TIDES.				SUN.						MOON.				M	ASPECTS AND WEATHER.
rn.	even.	height		rises.	sets.	rt. ascen.		declin. S.		rises.	souths	declin.	☌ ☍	D.	
M.	H. M.	F.	I.	H M	H M	H. M. S.		° ′ ″		H. M.	H. M.	° ′			
4	11 23	25	2	8 23	3 44	18 45	15	23 2	52	mor.	5 m 4	3 s 7	22	1	*The year will*
44	— —	23	5	8 23	3 45	18 49	40	22 57	52	0 16	5 48	7 31	23	2	♄ ☌ ☾, 11 a 48
6	0 37	22	0	8 23	3 46	18 54	4	22 52	24	1 29	6 34	11 41	24	3	*probably be*
6	1 42	21	10	8 22	3 47	18 58	28	22 46	29	2 42	7 23	15 25	25	4	*ushered in*
25	3 10	23	5	8 22	3 49	19 2	52	22 40	6	3 57	8 16	18 26	26	5	♃ ☌ ☾, 9 m 44
52	4 26	26	3	8 21	3 50	19 7	16	22 33	17	5 11	9 12	20 25	27	6	♀ ☌ ☾, 1 m 37
57	5 23	28	10	8 21	3 51	19 11	39	22 26	1	6 16	10 13	21 3	28	7	♂ ☌ ☾, 1 m 11
54	6 23	30	2	8 20	3 53	19 16	1	22 18	18	7 13	11 15	20 8	29	8	♄ □ ☉, 5 a 1
49	7 15	32	8	8 19	3 54	19 20	23	22 10	9	sets.	0a16	17 40	N	9	☿ gr elon. E.
41	8 6	34	6	8 19	3 56	19 24	45	22 1	34	6a10	1 6	13 51	1	10	☿ ☌ ☾, 5 a 53
29	8 53	35	4	8 18	3 57	19 29	6	21 52	33	7 38	2 13	9 5	2	11	*with stormy*
17	9 38	35	1	8 17	3 59	19 33	26	21 43	7	9 3	3 8	3 49	3	12	☿ in ♌, 11 m 41
59	10 21	33	7	8 17	4 1	19 37	45	21 33	15	10 25	4 0	1 N 33	4	13	*weather.*
39	10 57	31	5	8 16	4 2	19 42	4	21 22	59	11 45	4 50	6 40	5	14	*Now expect*
17	11 36	28	5	8 15	4 4	19 46	23	21 12	18	morn	5 40	11 15	6	15	☿ stationary
—	0 2	25	0	8 14	4 6	19 50	40	21 1	13	1 4	6 30	15 7	7	16	*fair*
29	1 1	22	1	8 13	4 8	19 54	57	20 49	43	2 18	7 20	18 5	8	17	☿ in Perihel
34	2 18	21	4	8 12	4 10	19 59	14	20 37	50	3 26	8 11	20 3	9	18	*an*
4	3 49	22	7	8 10	4 11	20 3	29	20 25	34	4 29	9 1	20 57	10	19	*frosty*
24	4 55	24	4	8 9	4 13	20 7	44	20 12	54	5 24	9 51	20 47	11	20	♅ ☌ ☾, 10 m 13
23	5 47	26	1	8 8	4 15	20 11	58	19 59	52	6 9	10 39	19 36	12	21	*for some*
12	6 32	26	10	8 7	4 17	20 16	11	19 46	27	6 46	11 27	17 30	13	22	*days,*
55	7 13	27	11	8 5	4 19	20 20	23	19 32	41	rises.	morn	— —	F	23	*unless*
30	7 48	29	3	8 4	4 21	20 24	35	19 18	33	5a36	0 12	14 38	15	24	☌ ☌ 4 Sagitt.
6	8 21	30	2	8 3	4 23	20 28	46	19 4	3	6 43	0 56	11 9	16	25	☿ if ☌ ☉, 3 m 40
37	8 51	30	7	8 2	4 25	20 32	56	18 49	13	7 50	1 39	7 13	17	26	*the*
6	9 22	30	6	8 0	4 27	20 37	5	18 34	2	8 57	2 21	2 59	18	27	☿ gr. Hl. lat. N
37	9 51	29	10	7 59	4 29	20 41	14	18 18	30	10 5	3 3	1 s 24	19	28	♄ stationary
8	10 21	28	11	7 57	4 31	20 45	21	18 2	39	11 14	3 45	5 46	20	29	*wind be*
36	10 52	27	6	7 55	4 33	20 49	28	17 46	29	morn	4 29	9 57	21	30	♄ ☌ ☾, 7 m 48
12	11 31	25	7	7 54	4 35	20 53	34	17 29	59	0 25	5 16	13 47	22	31	*southerly.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

	Noon.			3 Hours.			6 Hours.			9 Hours.			Midn.			15 Hour.			18 Hour.			21 Hour.		
	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
	99	13	56	97	50	5	96	26	0	95	1	39	93	37	3	92	12	11	90	47	2	89	21	35
	87	55	51	86	29	47	85	3	25	83	36	44	82	9	42	80	42	19	79	14	35	77	46	30
	76	18	3	74	49	12	73	19	59	71	50	23	70	20	23	68	49	58	67	19	9	65	47	55
	64	16	16	62	44	11	61	11	41	59	38	44	58	5	22	56	31	33	54	57	18	53	22	37
	51	47	30	50	11	56	48	35	56	46	59	30	45	22	39	43	45	22	42	7	40	40	29	34
	38	51	4	37	12	10	35	32	54	33	53	16	32	13	18	30	33	0	28	52	25	27	11	33
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..
W	31	16	59	33	1	6	34	45	4	36	28	50	38	12	24	39	55	44	41	38	49	43	21	38
	45	4	10	46	46	24	48	28	19	50	9	54	51	51	10	53	32	4	55	12	37	56	52	49
	58	32	38	60	12	5	61	51	9	63	29	49	65	8	7	66	46	1	68	23	31	70	0	38
	71	37	21	73	13	40	74	49	35	76	25	7	78	0	16	79	35	0	81	9	21	82	43	20
	84	16	56	85	50	9	87	22	59	88	55	28	90	27	35	91	59	19	93	30	43	95	1	46
	96	32	28	98	2	50	99	32	52	101	2	35	102	31	58	104	1	3	105	29	49	106	58	17
	108	26	27	109	54	21	111	21	57	112	49	17	114	16	21	115	43	9	117	9	41	118	35	58
	120	2	1	121	27	50	122	53	25	124	18	46	125	43	53	127	8	48	128	33	30	129	57	59
	131	22	16	132	46	22	134	10	15	135	33	58	136	57	28	138	20	48	139	43	57	141	6	54
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	.	..	..	..	..	..
E	140	48	18	139	27	7	138	5	49	136	44	24	135	22	50	134	1	8	132	39	18	131	17	20
	129	55	12	128	32	55	127	10	29	125	47	52	124	25	6	123	2	8	121	39	0	120	15	40
	118	52	9	117	28	25	116	4	28	114	40	19	113	15	55	111	51	18	110	26	26	109	1	19
	107	35	57	106	10	19	104	44	25	103	18	13	101	51	45	100	24	58	98	57	53	97	30	30
	96	2	47	94	34	44	93	6	22	91	37	39	90	8	34	88	39	8	87	9	21	85	39	11

Explanations

The LIVERPOOL TIDES on the left-hand Calendar pages are this year calculated r Greenwich mean time; with the height above the level of the Old Dock Sill, ow represented by the marks on the east side of the Canning Dock, and include e diurnal inequality in the height of each Tide.

PHASES OF THE MOON. { NEW MOON, 7th day, at 5h. 52m. evening. FIRST QUARTER, 14th day, at 1h. 6m. evening. FULL MOON, 22nd day, at 4h. 43m. evening.

M D.	Day brek.	Twil. ends.	⊙'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	4 *Jupiter.* rises.	4 *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	M D.
1	5m46	6a43	16 16	6m46	11m9	5m30	9m21	5m56	9m30	2m32	6m49	10a47	4m28	1
8	5 35	6 55	16 15	6 34	10 38	5 39	9 29	5 50	9 25	2 9	6 24	10 19	4 0	8
15	5 22	7 8	16 13	6 26	10 29	5 45	9 38	5 42	9 20	1 45	6 0	9 50	3 32	15
22	5 8	7 21	16 12	6 22	10 31	5 47	9 46	5 33	9 15	1 20	5 34	9 21	3 3	22
29	4 54	7 32	16 10	6 21	10 40	5 46	9 54	5 23	9 9	0 54	5 8	8 51	2 35	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	M	Hilary Term ends	4 13	13 3	4 39	12 10	13 49
2	Tu	Purification V. Mary	5 9	12 5	5 50	11 11	13 57
3	W	Blasius, Bishop	6 33	12 1	7 14	11 11	14 4
4	Th	Pleiades souths 6 a 43	7 55	12 10	8 36	13 0	14 10
5	F	Agatha, V. & M.	9 11	14 7	9 42	13 4	14 16
6	S	Dr. Priestley d., 1804	10 10	16 7	10 38	16 8	14 21
7	ℂ	**Shrove Sunday**	11 1	18 7	11 25	18 4	14 24
8	M	*Proper Lessons.* [Gen. ix to v. 20; Mark vii. — xii; 2 Cor. iii	11 47	20 1	— —	— —	14 28
9	Tu	**Shrove Tuesday**	0 9	19 5	0 30	20 10	14 30
10	W	**Ash Wednesday**	0 55	19 8	1 16	20 7	14 31
11	Th	Rigel souths 7 a 43	1 38	19 2	1 59	19 8	14 32
12	F	Procyon souths 10 a 3	2 21	18 1	2 43	18 1	14 32
13	S	Revolution, 1688	3 3	17 1	3 24	16 0	14 31
14	ℂ	**1 Sunday in Lent**	3 48	14 8	4 12	13 10	14 29
15	M	*Proper Lessons.* [Gen. xix to v. 30; Mark xiv. — xxii; 2 Cor. x.	4 39	13 0	5 10	12 0	14 27
16	Tu	Melancthon b. 1495	5 50	11 8	6 31	10 10	14 23
17	W	Ember Week	7 13	11 4	7 54	10 10	14 20
18	Th	Luther died 1546	8 34	11 11	9 9	11 7	14 15
19	F	Galileo born, 1564	9 38	13 1	10 1	12 10	14 10
20	S	Castor souths 9 a 26	10 24	14 5	10 42	14 1	14 3
21	ℂ	**2 Sunday in Lent**	11 0	15 7	11 16	15 3	13 57
22	M	*Pro. Les.* [Genesis xxvii; Luke iv. — xxxiv; Gala. iv.	11 32	16 8	11 45	16 2	13 49
23	Tu	Regulus souths 11 a50	— —	— —	0 0	17 5	13 41
24	W	**St. Matthias, Apostle**	0 15	16 10	0 31	17 8	13 33
25	Th	Sirius souths 8 a 19	0 46	17 1	1 0	17 10	13 23
26	F	Day increa. 3h. 16m.	1 17	17 2	1 32	17 5	13 14
27	S	Hare Hunting ends	1 49	16 9	2 6	16 9	13 3
28	ℂ	**3 Sunday in Lent**	2 24	16 1	2 42	15 8	12 52
29	M	*Proper Lessons.* [Genesis xxxix; Luke xi. — xlii; Ephes. v.	3 0	15 1	3 20	14 5	12 41

To reduce the Liverpool Tides for the Isle of Man generally, subtract twelve minutes—the Tides at the Island being so much earlier than at Liverpool; and the height, or rise of water at Liverpool diminished one sixth will give the approximate rise of water in Douglas.

TOL TIDES. even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′	S. ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
— —	23 5	7 52	4 37	20 57 40	17	13 10	1m37	6m 5	17s	23	1	*Frosty*
0 56	21 6	7 50	4 39	21 1 44	16	56 4	2 48	6 58	19 27	24	2	♃ ☌ ☾, 1 m28
2 18	21 10	7 48	4 41	21 5 47	16	38 39	3 55	7 55	20 44	25	3	*which*
3 57	24 9	7 46	4 43	21 9 50	16	20 57	4 55	8 54	20 40	26	4	♀ ☌ ☾, 9 a 43
5 4	28 4	7 45	4 45	21 13 52	16	2 58	5 46	9 55	19 6	27	5	☿ stationary
6 7	31 7	7 43	4 47	21 17 53	15	44 43	6 26	10 55	16 5	28	6	♀ ☌ ♂, 5 m 24
7 0	33 1	7 41	4 49	21 21 54	15	26 11	sets.	11 54	11 50	N	7	☾ in Perigree
7 48	35 5	7 39	4 51	21 25 54	15	7 24	6a30	0a51	6 44	1	8	*will continue*
8 35	36 7	7 37	4 53	21 29 52	14	48 21	7 57	1 46	1 16	2	9	*unless the*
9 17	36 5	7 35	4 55	21 33 50	14	29 4	9 22	2 39	4N 9	3	10	*wind*
9 56	34 11	7 33	4 57	21 37 48	14	9 23	10 44	3 32	9 10	4	11	*be southerly;*
10 32	32 5	7 31	4 59	21 41 44	13	49 47	morn	4 24	13 28	5	12	*then*
11 10	29 3	7 29	5 1	21 45 40	13	29 47	0 1	5 15	16 52	6	13	*expect*
11 55	25 10	7 27	5 3	21 49 34	13	9 35	1 14	6 6	19 15	7	14	*rain*
0 21	21 11	7 25	5 5	21 53 29	12	49 10	2 22	6 57	20 32	8	15	♃ □ ☉, 9 a 2
1 32	19 10	7 22	5 7	21 57 22	12	28 32	3 19	7 48	20 45	9	16	♅ ☌ ☾, 2 a 56
2 58	20 4	7 20	5 9	22 1 15	12	7 43	4 6	8 36	19 55	10	17	*or snow.*
4 30	22 7	7 18	5 11	22 5 6	11	46 42	4 45	9 24	18 9	11	18	☿ gr. elo. W.
5 26	24 11	7 16	5 13	22 8 58	11	25 31	5 18	10 10	15 35	12	19	☿ in ♐, 8 a 58
6 10	26 0	7 14	5 15	22 12 48	11	4 8	5 45	10 54	12 20	13	20	☾ in Apogee
6 49	27 10	7 12	5 17	22 16 38	10	42 35	6 8	11 37	8 35	14	21	*Now*
7 21	29 5	7 9	5 19	22 20 27	10	20 52	rises.	morn	— —	F	22	*more*
7 55	30 9	7 7	5 21	22 24 16	9	59 0	6a47	0 20	4 27	16	23	*fair*
8 27	31 5	7 5	5 23	22 28 4	9	36 59	7 54	1 2	0 8	17	24	*and*
8 56	31 9	7 2	5 25	22 31 51	9	14 49	9 3	1 44	4 s 14	18	25	*clear*
9 26	31 4	7 0	5 27	22 35 38	8	52 31	10 14	2 28	8 28	19	26	♄ ☌ ☾, 0 a 3
9 58	30 4	6 58	5 29	22 39 24	8	30 4	11 25	3 14	12 24	20	27	*weather.*
10 29	28 10	6 56	5 31	22 43 9	8	7 30	morn	4 1	15 48	21	28	♅ stationary
11 5	26 9	6 53	5 33	22 46 55	7	44 49	34	4 52	18 27	22	29	♃ ☌ ☾, 11 m 56

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

	NOON. ° ′ ″	3 HOURS. ° ′ ″	6 HOURS. ° ′ ″	9 HOURS ° ′ ″	MIDN. ° ′ ″	15 HOUR. ° ′ ″	18 HOUR. ° ′ ″	21 HOUR. ° ′ ″
	84 8 39	82 37 43	81 6 24	79 34 41	78 2 34	76 30 3	74 57 7	73 23 46
	71 50 0	70 15 48	68 41 11	67 6 9	65 30 41	63 54 48	62 18 28	60 41 43
	59 4 33	57 26 57	55 48 56	54 10 30	52 31 39	50 52 24	49 12 46	47 32 44
	45 52 20	44 11 34	42 30 27	40 49 0	39 7 13	37 25 9	35 42 48	34 0 12
	32 17 24	30 34 23	28 51 13	27 7 58	25 24 40	23 41 23	21 58 13	20 15 16
	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
W	25 14 14	26 56 55	28 39 31	30 21 59	32 4 17	33 46 21	35 28 10	37 9 43
	38 50 57	40 31 52	42 12 26	43 52 39	45 32 30	47 11 57	48 51 1	50 29 40
	52 7 55	53 45 44	55 23 8	57 0 7	58 36 40	60 12 46	61 48 27	63 23 41
	64 58 29	66 32 51	68 6 48	69 40 18	71 13 23	72 46 3	74 18 17	76 50 6
	77 21 31	78 52 32	80 23 8	81 53 21	83 23 11	84 52 38	86 21 43	87 50 26
	89 18 48	90 46 48	92 14 28	93 41 48	95 8 48	96 35 30	98 1 52	99 27 57
	100 53 44	102 19 14	103 44 28	105 9 25	106 34 7	107 58 34	109 22 47	110 46 45
	112 10 30	113 34 2	114 57 22	116 20 29	117 43 24	119 6 9	120 28 43	121 51 6
	123 13 20	124 35 24	125 57 19	127 19 5	128 40 43	130 2 14	131 23 36	132 44 52
	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
6 E	137 48 30	136 23 52	134 59 2	133 33 58	132 8 42	130 43 13	129 17 30	127 51 34
7	126 25 24	124 59 0	123 32 22	122 5 30	120 38 23	119 11 1	117 43 24	116 15 31
8	114 47 23	113 18 58	111 50 17	110 21 19	108 52 4	107 22 32	105 52 42	104 22 34
9	102 52 8	101 21 23	99 50 19	98 18 56	96 47 14	95 15 12	93 42 50	92 10 8

The EQUATION of TIME is given to the nearest second for Greenwich mean noon; and as the difference between the equation of time for mean noon and apparent noon does not in any instance amount to the fifth part of a second, the given minutes and seconds may be used for reducing mean time into apparent time, or the contrary. When the column is headed "Clock before Sun," the Equation is to be *subtracted* from *mean* time to reduce it to *apparent*; or, in the case of a celestial observation, the result being apparent time, the equation must be added to reduce it to mean time. And when "after Sun," the equation must be added to *mean* time, to reduce it to *apparent* time, or subtracted from *apparent* time to reduce it to *mean* time.

PHASES OF THE MOON.
- Last Quarter, 1st day, at 0h. 53m. afternoon.
- New Moon, 8th day, at 3h. 41m. morning.
- First Quarter, 15th day, at 5h. 49m. morning.
- Full Moon, 23rd day, at 10h. 6m. morning.
- Last Quarter, 30th day, at 10h. 2m. night.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	4m54	7a35	16 10	6m20	10m41	5m45	9m55	5m21	9 m 8	0m51	5 m 4	8 a47	2m31	1
8	4 34	7 50	16 8	6 16	10 54	5 39	10 3	5 8	9 3	0 23	4 38	8 17	2 2	8
15	4 16	8 4	16 6	6 10	11 10	5 31	10 9	4 55	8 57	11a53	4 10	7 46	1 32	15
22	3 56	8 19	16 5	6 0	11 27	5 21	10 15	4 41	8 51	11 20	3 42	7 16	1 3	22
29	3 24	8 36	16 3	5 49	11 47	5 9	10 20	4 25	8 45	10 45	3 14	6 45	0 34	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	Tu	St. David	3 43	13 11	4 8	13 0	12 30
2	W	Chad. Archbishop	4 39	12 10	5 15	11 11	12 17
3	Th	E. Waller b. 1605	6 1	12 4	6 48	11 8	12 4
4	F	Regulus souths 11 a 9	7 33	12 11	8 16	12 9	11 50
5	S	Dr. Arnedial 1778	8 53	14 2	9 25	14 7	11 37
6	B	**4 Sunday in Lent**	9 53	16 4	10 19	16 9	11 22
7	M	*Pro. Les.* [Genesis xliii; Luke xvii. — xlv; Coloss. i.	10 42	18 8	11 5	18 4	11 8
8	Tu	Pleiades sets 1 m 10	11 26	20 1	11 48	19 6	10 53
9	W	Castor souths 8 a 16	— —	— —	0 9	20 9	10 38
10	Th	Procyon souths 8 a 17	0 30	19 10	0 52	20 6	10 22
11	F	Sirius souths 7 a 20	1 13	19 5	1 34	19 6	10 6
12	S	Gregory, M. B.	1 54	18 3	2 16	17 10	9 50
13	B	**5 Sunday in Lent**	2 36	16 8	2 58	15 9	9 33
14	M	*Proper Lessons.* [Exodus iii; Luke xxiv. — v; 1 Thess. iv.	3 18	15 0	3 43	13 8	9 16
15	Tu	Uranus souths 5 a 47	4 6	13 2	4 35	11 8	8 59
16	W	Le Brun b. 1739	5 9	11 8	5 50	10 6	8 42
17	Th	St. Patrick	6 31	11 1	7 13	10 3	8 24
18	F	Edwd., King W., Sax.	7 56	11 6	8 32	11 1	8 6
19	S	Princess Louisa born	9 5	12 8	9 29	12 5	7 48
20	B	**Palm Sunday.**	9 51	14 1	10 11	13 10	7 30
21	M	*Proper Lessons.* [Exod. ix; Matt. xxvi. — x; Heb. v to v. 11.	10 30	15 4	10 46	15 1	7 12
22	Tu	Goethe died, 1822	11 1	16 6	11 15	16 2	6 54
23	W	Day long, 12h. 17m.	11 31	17 3	11 46	17 0	6 35
24	Th	Uranus souths 5 a 5	— —	— —	0 0	17 6	6 17
25	F	**Good Friday**	0 17	17 6	0 31	17 11	5 58
26	S	**Lady Day 25th**	0 48	17 7	1 6	17 8	5 39
27	B	**Easter Sunday**	1 24	17 4	1 43	17 0	5 21
28	M	*Proper Lessons.* [Exod. xii; Rom. vi. — xiv; Acts ii to v. 22.	2 2	16 7	2 22	15 11	5 2
29	Tu	**Easter Tuesday**	2 40	15 8	3 4	14 8	4 44
30	W	Sirius souths 6 a 6	3 28	14 6	3 54	13 3	4 26
31	Th	Castor souths 7 a 8	4 26	13 4	5 3	12 1	4 7

Equation of Time: Clock before Sun.—Add to Apparent Time, or Subtract from Mean Time

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises H M	sets. H M	rt. ascen. H. M. S.	declin. S ° ′ ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	11 27	11 54	24 3	6 51	5 35	22 50 39	7 22 1	1m40	5m46	20s 8	23	1	☿ in Aphelion
2	— —	0 24	22 11	6 49	5 37	22 54 23	6 59 7	2 42	6 42	20 38	24	2	♀ in ♍, 6m18
3	1 5	1 48	21 7	6 47	5 39	22 58 7	6 36 7	3 35	7 39	19 47	25	3	*Rain*
4	2 42	3 34	24 4	6 45	5 41	23 1 50	6 13 1	4 17	8 38	17 33	26	4	♂ ☌ ☾, 8 a 35
5	4 16	4 49	28 2	6 42	5 43	23 5 33	5 49 50	4 53	9 36	14 2	27	5	♀ ☌ ☾, 8 a 9
6	5 18	5 46	31 10	6 40	5 45	23 9 15	5 26 34	5 24	10 33	9 30	28	6	☿ ☌ ☾, 6 a 44
7	6 12	6 38	33 4	6 37	5 47	23 12 57	5 3 13	5 50	11 28	4 17	29	7	*or*
8	7 2	7 26	35 6	6 34	5 49	23 16 39	4 39 49	sets.	0a22	1 N11	N	8	*probably*
9	7 48	8 11	36 4	6 32	5 51	23 20 20	4 16 22	8a13	1 17	6 29	1	9	*snow*
10	8 33	8 53	36 5	6 30	5 53	23 24 1	3 52 51	9 32	2 10	11 16	2	10	*may*
11	9 13	9 30	34 11	6 27	5 55	23 27 42	3 29 17	10 49	3 4	15 12	3	11	♅ □ ☉, 9m55
12	9 50	10 9	32 3	6 25	5 57	23 31 22	3 5 41	morn	3 57	18 7	4	12	*be*
13	10 27	10 43	29 4	6 22	5 58	23 35 2	2 42 3	0 3	4 50	19 54	5	13	♃ stationary
14	11 4	11 34	25 7	6 20	6 0	23 38 42	2 18 24	1 9	5 41	20 32	6	14	♅ ☌ ☾, 10 m 8
15	11 50	— —	22 11	6 17	6 2	23 42 21	1 54 43	2 3	6 31	20 5	7	15	*expected;*
16	0 18	0 55	19 5	6 15	6 4	23 46 0	1 31 1	2 44	7 20	18 39	8	16	*still*
17	1 32	2 18	19 4	6 12	6 6	23 49 39	1 7 19	3 18	8 6	16 22	9	17	*windy*
18	3 9	3 52	21 6	6 10	6 8	23 53 18	0 43 37	3 47	8 51	13 23	10	18	☾ in Apogee
19	4 28	4 53	24 2	6 7	6 10	23 56 56	0 19 55	4 12	9 35	9 50	11	19	*and*
20	5 16	5 37	26 7	6 5	6 12	0 0 35	N0 3 46	4 34	10 17	5 52	12	20	☉ ent. ♈.
21	5 58	6 16	27 7	6 2	6 14	0 4 13	0 27 27	4 54	11 0	1 37	13	21	[Spring com.
22	6 33	6 49	29 5	6 0	6 15	0 7 51	0 51 6	5 11	11 42	2s44	14	22	*cold*
23	7 7	7 23	30 9	5 57	6 17	0 11 29	1 14 44	rises.	morn	— —	F	23	*weather.*
24	7 29	7 58	31 9	5 56	6 19	0 15 7	1 38 20	8 a 2	0 26	7 2	16	24	♄ ☌ ☾, 2 a 44
25	8 12	8 29	32 2	5 52	6 21	0 18 16	2 1 53	9 12	1 12	11 5	17	25	*Now*
26	8 46	9 3	31 11	5 50	6 23	0 22 23	2 25 24	10 24	1 59	12 40	18	26	*more*
27	9 20	9 37	30 11	5 47	6 25	0 26 1	2 48 53	11 33	2 49	17 34	19	27	♃ ☌ ☾ ‘ 5 a 14
28	9 56	10 10	29 6	5 45	6 27	0 29 39	3 12 17	morn	3 42	19 32	20	28	*fine*
29	10 31	10 51	27 6	5 42	6 29	0 33 18	3 35 39	0 35	4 36	20 24	21	29	*and*
30	11 14	11 42	24 11	5 40	6 30	0 36 56	3 58 56	1 29	5 33	20 0	22	30	*fair*
31	— —	0 13	22 8	5 37	6 32	0 40 34	4 22 9	2 13	6 29	18 18	23	31	*at the end*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1E	90 37 5	89 3 41	87 29 56	85 55 51	84 21 24	82 46 35	81 11 25	79 35 53
2	77 59 59	76 23 43	74 47 6	73 10 6	71 32 45	69 55 2	68 16 57	66 38 31
3	64 59 43	63 20 34	61 41 4	60 1 14	58 21 3	56 40 33	54 59 43	53 18 34
4	51 37 8	49 55 23	48 13 21	46 31 4	44 48 31	43 5 44	41 22 43	39 39 30
5	37 56 6	36 12 32	34 28 50	32 45 1	31 1 8	29 17 11	27 33 15	25 49 21
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. .
10W	32 6 52	33 45 20	35 23 28	37 1 16	38 38 42	40 15 45	41 52 26	43 28 43
11	45 4 36	46 40 4	48 15 8	49 49 47	51 24 0	52 57 49	54 31 12	56 4 10
12	57 36 44	59 8 52	60 40 35	62 11 54	63 42 49	65 13 19	66 43 25	68 13 8
13	69 42 28	71 11 25	72 39 59	74 8 12	75 36 3	77 3 32	78 30 42	79 57 31
14	81 24 0	82 50 11	84 16 3	85 41 36	87 6 53	88 31 52	89 56 35	91 21 2
15	92 45 13	94 9 10	95 32 53	96 56 22	98 19 38	99 42 42	101 5 34	102 28 15
16	103 50 45	105 13 5	106 35 15	107 57 16	109 19 9	110 40 54	112 2 31	113 24 2
17	114 45 26	116 6 45	117 27 58	118 49 6	120 10 10	121 31 11	122 52 8	124 13 2
18	125 33 53	126 54 43	128 15 31	129 36 19	130 57 5	132 17 51	133 38 37	134 59 23
..	. .. ..	.. .. ..	. .. ..	.. .. .	.. .. ..	.. .. ..	. .. ..	.. . ..
27E	132 43 32	131 13 13	129 42 41	128 11 56	126 40 57	125 9 44	123 38 18	122 6 38
28	120 34 44	119 2 36	117 30 15	115 57 39	114 24 49	112 51 44	111 18 26	109 44 53
29	108 11 5	106 37 2	105 2 45	103 28 13	101 53 26	100 18 24	98 43 7	97 7 35
30	95 31 48	93 55 46	92 19 28	90 42 55	89 6 7	87 29 4	85 51 45	84 14 11
31	82 36 23	80 58 19	79 20 0	77 41 26	76 2 38	74 23 36	74 44 19	71 4 48

In the Tide Table for Bristol, on the right-hand pages, the heights are given of those Tides which happen nearest to noon in each day at the Cumberland Gates, without taking into account the diurnal inequality of the height.

PHASES OF THE MOON.

New Moon,	6th day, at	1h. 31m. afternoon.
First Quarter,	13th day, at	11h. 51m. night.
Full Moon,	22nd day, at	1h. 1m. morning.
Last Quarter,	29th day, at	4h. 16m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* rises.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* rises.	♃ *Jupiter.* sout.	♄ *Saturn.* rises.	♄ *Saturn.* sout.	M D.
1	3m36	8 a 43	16 2	5m44	11 m57	5 m 3	10 22	4 m18	8m42	10a43	3m 1	6 a 32	0m21	1
8	3 4	9 2	16 0	sets.	0 a 22	4 49	10 26	4 1	8 35	10 12	2 32	sets.	11a57	8
15	2 40	9 23	15 58	8 a 22	0 47	4 35	10 30	3 43	8 28	9 41	2 2	5m10	11 18	15
22	2 12	9 45	15 56	9 16	1 8	4 21	10 34	3 25	8 21	9 10	1 31	4 41	10 48	22
29	1 42	10 12	15 54	9 46	1 18	4 6	10 38	3 6	8 13	8 38	1 1	4 12	10 19	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	F	Cambridge Term ends	5 49	12 10	6 32	12 0	3 49
2	S	Bat. of Cophn., 1801	7 16	13 5	7 59	13 1	3 31
3	B	**Low Sunday**	8 32	14 10	9 4	14 8	3 13
4	M	*Pro.* Numbers xvi.; John xxi. *Less.* — xxii.; Heb. v.	9 32	16 7	9 56	16 5	2 55
5	Tu	Regulus souths 9 a 3	10 22	18 3	10 43	17 11	2 38
6	W	Oxford T. beg.	11 3	19 4	11 26	18 9	2 21
7	Th	Lalande died, 1811	11 46	19 9	— —	— —	2 3
8	F	Altair rises 11 a 43	0 6	19 2	0 28	19 5	1 47
9	S	Lord Bacon d., 1626	0 48	18 9	1 10	18 6	1 30
10	B	**2 Sun. after Easter**	1 30	17 11	1 49	17 0	1 17
11	M	*Proper Lessons.* Num. xxiii, xxiv.; Ac vii. — xxv; Heb. xii.	2 10	16 7	2 32	15 4	0 57
12	Tu	Dr. Young died, 1765	2 54	15 1	3 16	13 7	0 42
13	W	Arcturus souths 0m44	3 40	13 7	4 4	11 11	0 26
14	Th	Handel died, 1759	4 35	12 2	5 9	10 9	0 11
15	F	Easter T. begins	5 48	11 5	6 26	10 5	0 4
16	S	Battle Culloden, 1746	7 4	11 7	7 39	11 0	0 19
17	B	**3 Sun. after Easter**	8 14	12 5	8 43	12 1	0 33
18	M	*Proper Lessons.* Dent. iv; Acts xiv. — v; 1 Peter i.	9 7	13 7	9 29	13 5	0 47
19	Tu	Alphege, Abp.	9 49	14 9	10 8	14 8	1 0
20	W	Span. fleet des. 1657	10 26	15 10	10 42	15 10	1 13
21	Th	Day 14h. 23m. long	11 1	16 9	11 16	16 9	1 26
22	F	Spica souths 11 a 13	11 33	17 4	11 49	17 5	1 38
23	S	St. George, Martyr	— —	— —	0 7	17 7	1 50
24	B	**4 Sun. after Easter**	0 25	17 8	0 45	17 7	2 1
25	M	*Proper Lessons.* Deut. vi; Acts xxi. — vii; 2 Peter iii.	1 3	17 7	1 23	17 0	2 12
26	Tu	**St. Mark, Ev.** 25th	1 36	18 1	2 6	16 2	2 22
27	W	Sir W. Jones d. 1794	2 30	16 3	2 55	14 11	2 31
28	Th	Mut. of Bounty	3 22	15 2	3 49	13 8	2 41
29	F	Sirius sets 8 a 34	4 21	14 2	4 57	12 10	2 49
30	S	Pleiades sets 9 a 42	5 37	13 8	6 18	12 9	2 57

Clock before Sun. Add to Apparent Time. Clock after Sun—Subtract from Apparent Time

M D.	Bristol Tides morn. H. M.	even. H. M.	height F. I.	SUN rises. H M	sets. H M	rt. ascen. H. M. S.	declin. N. ° ′ ″	MOON sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	0 54	1 33	22 4	5 35	6 34	0 44 12	4 45 17	2m51	7m25	15s23	24	1	*Expect*
2	2 24	3 15	25 0	5 32	6 36	0 47 51	5 8 20	3 23	8 20	11 25	25	2	♂ ☌ ☾, 5 a 39
3	3 54	4 28	28 4	5 30	6 38	0 51 30	5 31 18	3 50	9 14	6 40	26	3	☿ in su p. ☌ ☉
4	4 57	5 22	31 6	5 27	6 40	0 55 8	5 54 10	4 14	10 8	1 27	27	4	♄ ☍ ☉, 5 m 50
5	5 51	6 14	32 7	5 25	6 42	0 58 48	6 16 56	4 36	11 1	3N50	28	5	♀ in Aphlion.
6	6 37	7 2	34 4	5 22	6 44	1 2 27	6 39 36	sets.	11 55	8 51	N	6	☿ ☌ ☾, 9 a 46
7	7 24	7 46	35 2	5 20	6 46	1 6 6	7 2 9	8a25	0a48	13 14	1	7	*showery*
8	8 9	8 29	34 10	5 18	6 47	1 9 46	7 24 34	9 41	1 43	16 42	2	8	*weather.*
9	8 50	9 8	33 7	5 15	6 49	1 13 26	7 46 52	10 49	2 37	19 3	3	9	☿ in ♌, 10m58
10	9 25	9 44	31 4	5 13	6 51	1 17 6	8 9 2	11 48	3 30	20 13	4	10	*Now*
11	10 4	10 22	28 9	5 10	6 53	1 20 46	8 31 4	morn	4 22	20 13	5	11	♅ ☌ ☾, 8 m 4
12	10 41	11 1	25 10	5 8	6 55	1 24 27	8 52 57	0 38	5 13	19 10	6	12	*more*
13	11 21	11 49	22 9	5 5	6 57	1 28 8	9 14 42	1 17	6 1	17 11	7	13	*fair*
14	— —	0 18	20 3	5 3	6 59	1 31 49	9 36 17	1 48	6 46	14 27	8	14	☿ in Perihel.
15	0 52	1 27	19 7	5 1	7 0	1 35 31	9 57 42	2 14	7 31	11 6	9	15	*and*
16	2 9	2 51	20 11	4 58	7 2	1 39 13	10 18 58	2 37	8 13	7 18	10	16	☾ in Apogee
17	3 33	4 5	23 6	4 56	7 4	1 42 55	10 40 3	2 57	8 56	3 11	11	17	*warm*
18	4 31	4 54	25 9	4 54	7 6	1 46 38	11 0 58	3 15	9 38	1s 7	12	18	*weather,*
19	5 15	5 35	27 10	4 52	7 8	1 50 21	11 21 41	3 33	10 22	5 26	13	19	*to*
20	5 55	6 13	28 9	4 49	7 10	1 54 4	11 42 14	3 53	11 7	9 37	14	20	♄ ☌ ☾, 6 a 9
21	6 34	6 51	29 11	4 47	7 12	1 57 49	12 2 35	4 14	11 54	13 25	15	21	*continue*
22	7 9	7 28	31 4	4 45	7 13	2 1 33	12 22 44	rises.	morn	— —	F	22	*to the*
23	7 48	8 6	31 11	4 42	7 15	2 5 18	12 42 41	9 a 12	0 44	16 36	17	23	♃ ☌ ☾, 7 a 30
24	8 25	8 43	31 11	4 40	7 17	2 9 3	13 2 26	10 31	1 37	18 56	18	24	☿ gr.hel.l.N.
25	9 1	9 22	31 3	4 38	7 19	2 12 49	13 21 58	11 28	2 32	20 10	19	25	*end*
26	9 40	10 2	30 1	4 36	7 21	2 16 35	13 41 16	morn	3 28	20 9	20	26	*of*
27	10 23	10 46	28 4	4 34	7 23	2 20 22	14 0 22	0 14	4 25	18 50	21	27	*the*
28	11 9	11 38	26 1	4 31	7 25	2 24 10	14 19 13	0 51	5 21	16 18	22	28	♀ gr.hel.la.S.
29	— —	0 8	21 7	4 29	7 26	2 27 57	14 37 51	1 23	6 15	12 42	23	29	*month*
30	0 43	1 19	23 9	4 27	7 28	2 31 46	14 56 14	1 52	7 8	8 18	24	30	☿ gr. elon. E.

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 E	69 25 3	67 45 5	66 4 53	64 24 29	62 43 52	61 3 2	59 22 1	57 40 49
2	55 59 26	54 17 53	52 36 10	50 54 17	49 12 17	47 30 8	45 47 52	44 5 30
3	42 23 2	40 40 28	38 57 51	37 15 11	35 32 29	33 49 45	32 7 1	30 24 19
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
8 W	25 15 37	26 51 2	28 26 8	30 0 54	31 35 19	33 9 24	34 43 7	36 16 28
9	37 49 28	39 22 5	40 54 20	42 26 13	43 57 43	45 28 51	46 59 37	48 30 0
10	50 0 2	51 29 42	52 59 0	54 27 57	55 56 33	57 24 48	58 52 43	60 20 18
11	61 47 33	63 14 29	64 41 6	66 7 25	67 33 26	68 59 9	70 24 35	71 49 45
12	73 14 38	74 39 16	76 3 40	77 27 48	78 51 43	80 15 25	81 38 54	83 2 11
13	84 25 16	85 48 10	87 10 54	88 33 28	89 55 53	91 18 9	92 40 18	94 2 18
14	95 24 12	96 46 0	98 7 42	99 29 19	100 52 52	102 12 21	103 33 46	104 55 9
15	106 16 30	107 37 49	108 59 7	110 20 25	111 41 43	113 3 2	114 24 22	115 45 44
16	117 7 8	118 28 35	119 50 5	121 11 39	122 33 18	123 55 1	125 16 50	126 38 44
17	128 0 45	129 22 52	130 45 6	132 7 28	133 29 58	134 52 36	136 15 23	137 38 18
..	.. .. ..	.. .. ..	.. . ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
25 E	137 43 59	136 9 2	134 33 55	132 58 39	131 23 13	129 47 36	128 11 51	126 35 56
26	124 59 53	123 23 40	121 47 19	120 10 49	118 34 10	116 57 23	115 20 28	113 43 25
27	112 6 14	110 28 55	108 51 28	107 13 54	105 36 12	103 58 23	102 20 27	100 42 24
28	99 4 15	97 25 58	95 47 35	94 9 5	92 30 29	90 51 47	89 12 58	87 34 4
29	85 55 5	84 16 0	82 36 49	80 57 33	79 18 13	77 38 48	75 59 18	74 19 45
30	72 40 7	71 0 26	69 20 41	67 40 53	66 1 2	64 21 9	62 41 14	61 1 16

The Sun's Right Ascension is given in time to the nearest second for Greenwich mean noon, and with the table of the right ascension of the principal fixed stars, given in page 29, is useful to find the time by the meridian distance of those stars.

The Sun's Declination is also given for *Greenwich mean noon*, and may be reduced to any other place by applying the proportional part of the daily difference.

PHASES OF THE MOON.

New Moon,	5th day, at 11h.	56m. night.
First Quarter,	13th day, at 6h.	3m. evening.
Full Moon,	21st day, at 1h.	6m. afternoon.
Last Quarter,	28th day, at 9h.	3m. morning.

M D.	Day brek.	Twil. ends	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	1m31	10a28	15 54	9a50	1a19	4m2	10m39	3m1	8m11	8a28	0m52	4m4	10a11	1
8	0 45	11 16	15 52	9 41	1 9	3 47	10 44	2 42	8 3	7 56	0 21	3 36	9 42	8
15	noreal night.	noreal night.	15 51	9 2	0 42	3 34	10 49	2 23	7 55	sets.	11a45	3 8	9 13	15
22			15 50	rises.	0 3	3 23	10 54	2 3	7 47	3m42	11 14	2 40	8 44	22
29			15 48	3m33	11m22	3 13	11 1	1 43	7 38	3 13	10 43	2 12	8 16	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	B	Rogation Sunday	6 56	14 0	7 32	13 5	3 5
2	M	[Deut. viii; John i. to v. 43 — ix; Jude.	8 7	15 0	8 36	14 8	3 12
3	Tu	Invent. of the Cross	9 5	16 2	9 32	15 11	3 18
4	W	Dr. Barrow d, 1677	9 58	17 3	10 22	17 1	3 24
5	Th	Ascension Day	10 45	17 11	11 16	17 9	3 30
6	F	St. John, Port. Lat.	11 27	18 2	11 47	18 1	3 34
7	S	Arcturus sout. 11 a 5	— —	— —	0 8	18 0	3 38
8	B	Sun. af. Ascens. Day	0 27	17 11	0 48	17 4	3 42
9	M	Pro. Les. [Deut. xii; Matthew vi. — xiii; Rom. vii.	1 9	17 4	1 28	16 3	3 45
10	Tu	Battle of Lodi, 1778	1 49	16 5	2 11	15 1	3 47
11	W	Lord Chatham d, 1778	2 30	15 4	2 50	13 9	3 49
12	Th	Spica souths 9 a 54	3 13	14 2	3 33	12 6	3 51
13	F	Cam. Term divides N.	3 59	13 0	4 25	11 8	3 52
14	S	Oxford Term ends	4 55	12 4	5 30	11 2	3 52
15	B	Whit Sunday, Pente.	6 6	12 1	6 38	10 10	3 52
16	M	[Deut. xvi to v. 18; Acts x. to v. 34 Isaiah xi; Acts xix. to v. 21	7 8	12 4	7 43	11 11	3 51
17	Tu	Whit Tuesday	8 12	13 1	8 40	12 11	3 49
18	W	Oxford Term begins	9 4	14 0	9 26	14 1	3 47
19	Th	Dunstan, Archbishop	9 48	15 0	10 10	15 3	3 45
20	F	Spica souths 9 a 23	10 30	16 0	10 50	16 4	3 42
21	S	Trinity T. beg., 22nd	11 7	16 8	11 26	17 2	3 38
22	B	Trinity Sunday.	11 45	17 3	— —	— —	3 34
23	M	Proper Lessons. [Genesis i; Matthew iii. — xviii; 1 John v.	0 5	17 10	0 26	17 5	3 30
24	Tu	Queen Victoria born	0 48	17 11	1 11	17 3	3 24
25	W	Princes Helena born	1 35	17 9	1 57	16 7	3 19
26	Th	Corpus Christi	2 23	17 1	2 49	15 8	3 13
27	F	Venerable Bede	3 15	16 3	3 44	14 7	3 6
28	S	Wm. Pitt born, 1759	4 15	15 3	4 47	13 10	2 59
29	B	1 Sun. after Trinity	5 20	14 7	5 54	13 5	2 51
30	M	[Joshua x; Matthew xxvii. — xxiii; 1 Cor. xii.	6 30	14 3	7 5	13 6	2 43
31	Tu	A. Pope died 1744	7 37	14 7	8 6	14 1	2 34

Equation of Time: Clock after Sun: Subtract from Apparent Time: Add to Mean Time.



BRISTOL TIDES.						SUN.								MOON.						M	ASPECTS AND WEATHER.
morn.		even.		height		rises.		sets.		rt. ascen.		declin. N		sets.		souths		declin.		D.	
H.	M.	H.	M.	F.	I.	H	M	H	M	H.	M. S.	°	′	″	H.	M.	H.	M.	°	′	
2	0	2	45	25	6	4	25	7	30	2	35	35	15	14	23	2 m	17	8 m	0	3 s	22	25	1	☌ ☌ ☾, 6 a 35
3	27	3	59	28	2	4	23	7	31	2	39	24	15	32	16	2	39	8	52	1 N	45	26	2	*Fair*
4	29	4	57	30	4	4	21	7	33	2	43	15	15	49	54	3	2	9	43	6	46	27	3	*and*
5	25	5	52	31	2	4	19	7	35	2	47	5	16	7	17	3	27	10	36	11	21	28	4	☿ ☌ ☾, 1 a 6
6	17	6	41	32	4	4	17	7	37	2	50	57	16	24	23	3	55	11	29	15	11	N	5	*fine*
7	3	7	26	32	11	4	15	7	39	2	54	48	16	41	14	sets.		0 a	23	18	3	1	6	*weather,*
7	49	8	8	32	8	4	13	7	41	2	58	41	16	57	47	9 a	34	1	17	19	47	2	7	☿ ☌ ☾, 10 m 36
8	28	8	48	31	9	4	11	7	43	3	2	34	17	4	4	10	27	2	11	20	19	3	8	♅ ☌ ☾, 7 a 33
9	5	9	25	30	2	4	9	7	45	3	6	27	17	30	3	11	11	3	3	19	42	4	9	*for the*
9	45	10	1	28	4	4	7	7	47	3	10	21	17	45	45	11	47	3	52	18	5	5	10	*season.*
10	18	10	37	26	5	4	5	7	49	3	14	16	18	1	9	morn		4	40	15	37	6	11	*Now*
10	54	11	17	24	2	4	4	7	50	3	18	11	18	16	14	0	16	5	25	12	29	7	12	☿ stationary
11	40	—	—	22	1	4	2	7	52	3	22	7	18	31	2	0	40	6	8	8	51	8	13	♃ ☍ ☾, 6 m 46
0	6	0	36	20	10	4	0	7	54	3	26	3	18	45	30	1	1	6	51	4	51	9	14	*more*
1	8	1	39	20	11	3	59	7	55	3	30	0	18	59	40	1	20	7	33	0	38	10	15	*changeable*
2	15	2	57	22	6	3	57	7	57	3	33	58	19	13	30	1	38	8	15	3 s	40	11	16	*or*
3	32	4	3	24	8	3	55	7	58	3	37	55	19	27	1	1	57	9	0	7	54	12	17	☿ in ♍, 8 a 14
4	28	4	51	26	8	3	54	8	0	3	41	54	19	40	12	2	18	9	46	11	52	13	18	*showery*
5	14	5	38	28	5	3	52	8	1	3	45	53	19	53	3	2	42	10	35	15	22	14	19	*about*
6	0	6	22	29	3	3	51	8	3	3	49	53	20	5	34	3	8	11	27	18	6	15	20	♃ ☌ ☾, 9 a 36
6	42	7	2	30	5	3	49	8	4	3	53	53	20	17	44	rises.		morn		—	—	F	21	*this*
7	24	7	46	31	6	3	48	8	6	3	57	53	20	29	33	9 a	18	0	23	19	50	17	22	*time,*
8	7	8	28	31	11	3	47	8	8	4	1	55	20	41	2	10	13	1	20	20	19	18	23	☿ in inf. ☌ ☉
8	50	9	12	32	0	3	46	8	9	4	5	56	20	52	9	10	57	2	18	19	27	19	24	*or*
9	32	9	56	31	0	3	44	8	11	4	9	58	21	2	55	11	29	3	15	17	15	20	25	*more*
10	18	10	41	29	10	3	43	8	12	4	14	1	21	13	19	11	56	4	11	13	55	21	26	☽ in Perigree
11	6	11	33	27	10	3	42	8	14	4	18	4	21	23	21	morn		5	5	9	42	22	27	*rainy*
—	—	0	1	26	3	3	40	8	15	4	22	8	21	33	1	0	21	5	57	4	55	23	28	☿ in Aphelion
0	29	0	58	24	11	3	39	8	16	4	26	12	21	42	18	0	45	6	48	0 N	7	24	29	*towards*
1	31	2	11	25	3	3	38	8	18	4	30	17	21	51	13	1	8	7	39	5	6	25	30	☌ ☌ ☾, 6 m 54
2	52	3	27	26	10	3	37	8	19	4	34	22	21	59	46	1	32	8	29	9	45	26	31	*the end.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M.	NOON.			3 HOURS.			6 HOURS.			9 HOURS.			MIDN.			15 HOUR.			18 HOUR.			21 HOUR		
D.	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
TH	59	21	17	57	41	17	56	1	17	54	21	16	52	41	15	51	1	14	49	21	14	47	41	16
2	46	1	19	44	21	25	42	41	33	41	1	45	39	22	0	37	42	19	36	2	44	34	23	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
SW	30	43	57	32	13	20	33	42	24	35	11	10	36	39	37	38	7	47	39	35	38	41	3	11
9	42	30	27	43	57	26	45	24	8	46	50	33	48	16	42	49	42	35	51	8	12	52	33	33
0	53	58	40	55	23	33	56	48	11	58	12	36	59	36	47	61	0	46	62	24	33	63	48	8
1	65	11	31	66	34	44	67	57	46	69	20	39	70	43	22	72	5	57	73	28	24	74	50	43
2	76	12	55	77	35	0	78	57	0	80	18	55	81	40	45	83	2	30	84	24	13	85	45	52
3	87	7	29	88	29	4	89	50	39	91	12	12	92	33	46	93	55	20	95	16	56	96	38	34
4	98	0	14	99	21	57	100	43	44	102	5	35	103	27	31	104	49	32	106	11	40	107	33	53
5	108	56	14	110	18	43	111	41	20	113	4	5	114	27	0	115	50	4	117	13	19	118	36	44
6	120	0	21	121	24	10	122	48	10	124	12	24	125	36	50	127	1	30	128	26	24	129	51	32
7	131	16	55	132	42	33	134	8	26	135	34	35	137	1	0	138	27	41	139	54	39	141	21	54
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
SE	128	22	13	126	42	27	125	2	40	123	22	51	121	43	2	120	3	13	118	23	23	116	43	34
6	115	3	45	113	23	58	111	44	12	110	4	27	108	24	45	106	45	5	105	5	27	103	25	53
7	101	46	21	100	6	52	98	27	27	96	48	6	95	8	49	93	29	36	91	50	27	90	11	23
8	88	32	24	86	53	30	85	14	41	83	35	57	81	57	18	80	18	45	78	40	19	77	1	58
9	75	23	43	73	45	34	72	7	32	70	29	37	68	51	48	67	14	7	65	36	32	63	59	5
0	62	21	46	60	44	33	59	7	29	57	30	33	55	53	45	54	17	5	52	40	34	51	4	12
1	49	27	59	47	51	55	46	16	0	44	40	16	43	4	41	41	29	16	39	54	1	38	18	58

THE SUN'S RISING AND SETTING, and the MOON'S RISING, SOUTHING, AND SETTING are given, for Latitude 54° 10′ N., and Longitude 4° 30′ W.

THE MOON'S DECLINATION is given to the nearest minute for her transit over the meridian of Greenwich.

PHASES OF THE MOON.

New Moon,	4th day, at 11h. 22m.	morning.
First Quarter,	12th day, at 11h. 30m.	morning.
Full Moon,	19th day, at 10h. 36m.	night.
Last Quarter,	26th day, at 1h. 57m.	afternoon.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. rises.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	no real ni. this mon.	no real ni. this mon.	15 48	3 m26	11 m7	3m 9	11 m4	1 m35	8 m11	3 m 0	10 a30	2 m 0	8 a 4	1
8			15 47	3 5	10 40	3 2	11 12	1 15	8 3	2 30	10 0	1 32	7 36	8
15			15 47	2 45	10 28	2 59	11 21	0 54	7 55	2 1	9 30	1 4	7 8	15
22			15 46	2 32	10 28	3 0	11 30	0 35	7 47	1 32	9 0	0 36	6 41	22
29			15 46	2 28	10 42	3 6	11 40	0 15	7 38	1 4	8 31	0 8	6 14	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	W	Nicomede, Martyr	8 39	15 1	9 8	15 0	2 25
2	Th	Antares souths 11 a 34	9 36	15 9	10 3	15 10	2 16
3	F	W. Harvey died, 1657	10 26	16 2	10 49	16 6	2 6
4	S	Battle of Mag., 1859	11 12	16 7	11 34	17 0	1 56
5	B	**2 Sun. after Trinity**	11 51	16 7	— —	— —	1 46
6	M	*Pro. Les.* [Judges iv; Matt. vi. — v.; 2 Cor. iii.	0 11	17 2	0 30	16 3	1 35
7	Tu	Count Cavour d. 1861	0 49	16 10	1 9	15 10	1 24
8	W	Lyra souths 1 m 26	1 26	16 6	1 47	15 2	1 12
9	Th	Dr. Rees died, 1825	2 6	15 9	2 27	14 5	1 1
10	F	Arcturus souths 8 a 52	2 46	14 11	3 8	13 7	0 49
11	S	**St. Barnabas, Apos.**	3 29	14 1	3 49	12 10	0 37
12	B	**3 Sun. after Trinity**	4 11	13 4	4 35	12 2	0 25
13	M	*Proper Lessons.* [1 Saml. ii; Matt. xii. — iii; 2 Cor. ix.	5 3	12 8	5 36	11 10	0 12
14	Tu	Mag. Char. sig. 1215	6 9	12 4	6 38	11 10	0 0
15	W	Antares south 10 a 43	7 8	12 6	7 40	12 5	0 13
16	Th	J. Wesley born, 1703	8 10	13 1	8 40	13 5	0 26
17	F	St. Alban, Martyr	9 7	14 0	9 33	14 8	0 38
18	S	Bat. of Waterloo, 1815	9 58	15 1	10 22	15 11	0 51
19	B	**4 Sun. after Trinity**	10 44	16 2	11 4	17 2	1 4
20	M	*Pro. Les.* [1 Saml. xii; Luke iii. — xiii; Gal. iii.	11 29	17 0	11 51	18 1	1 17
21	Tu	Queen's Accession	— —	— —	0 14	17 7	1 30
22	W	Machiavelli d. 1527	0 37	18 7	1 0	17 8	1 43
23	Th	J. Hampden died, 1643	1 24	18 8	1 47	17 6	1 56
24	F	**St. John Baptist**	2 14	18 1	2 41	16 4	2 8
25	S	B. Bannockburn, 1324	3 6	17 2	3 31	15 7	2 21
26	B	**5 Sun. after Trinity**	3 58	16 1	4 25	14 7	2 34
27	M	*Proper Lessons.* [1 Sam. xv; Luke ix. — xvii; Ephes. iii.	4 55	15 1	5 14	13 9	2 46
28	Tu	Lord Raglan d., 1855	6 0	14 1	6 35	13 2	2 58
29	W	**St. Peter, Apostle, 29**	6 57	13 7	7 43	12 4	3 10
30	Th	Antares souths	8 16	13 8	8 48	13 11	3 22

Equation of Time, Clock after Apparent Time / Clock before Apparent Time

BRISTOL TIDES. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′	N. ″	MOON. rises. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
4 3	4 32	28 4	3 36	8 20	4 38 28	22 7	55	1 m 56	9 m 21	13 n 49	27	1	☿ ☌ ♀, 10 a 30
5 2	5 30	29 5	3 35	8 21	4 42 34	22 15	41	2 25	10 14	17 2	28	2	*Showers*
5 56	6 21	29 9	3 34	8 22	4 46 40	22 23	4	3 2	11 7	19 13	29	3	☿ ☌ ☾, 7 m 10
6 47	7 11	30 3	3 33	8 23	4 50 47	22 30	4	sets.	0 a 0	20 15	N	4	*may*
7 30	7 52	30 7	3 33	8 24	4 54 54	22 36	40	9 a 7	0 53	20 8	1	5	♅ ☌ ☾, 6 m 56
8 11	8 29	30 1	3 32	8 25	4 59 1	22 42	52	9 48	1 44	18 56	2	6	*now*
8 49	9 4	29 6	3 32	8 26	5 3 9	22 48	41	10 19	2 33	16 48	3	7	*be*
9 23	9 40	28 6	3 31	8 27	5 7 17	22 54	5	10 43	3 19	13 55	4	8	*expected*
9 59	10 15	27 2	3 31	8 28	5 11 25	22 59	5	11 4	4 3	10 27	5	9	*during*
10 34	10 53	26 1	3 30	8 29	5 15 33	23 3	41	11 24	4 46	6 36	6	10	☾ in Apogee
11 10	11 28	24 5	3 30	8 30	5 19 42	23 7	53	11 43	5 28	2 28	7	11	*the*
11 50	— —	22 11	3 29	8 30	5 23 51	23 11	40	morn	6 10	1 s 47	8	12	*greater*
0 14	0 43	21 8	3 29	8 31	5 28 0	23 15	3	0 1	6 53	6 1	9	13	*part*
1 11	1 38	21 7	3 28	8 31	5 32 9	23 18	1	0 20	7 37	10 5	10	14	♄ ☌ ☾, 7 m 2
2 15	2 54	23 0	3 28	8 32	5 36 18	23 20	35	0 42	8 24	13 47	11	15	*of*
3 30	4 3	25 2	3 28	8 32	5 40 27	23 22	44	1 6	9 15	16 54	12	16	♅ ☌ ☉, 5 m 42
4 31	4 58	27 2	3 28	8 32	5 44 36	23 24	28	1 37	10 9	19 9	13	17	♃ ☌ ☾, 1 m 48
5 24	5 52	29 1	3 28	8 33	5 48 46	23 25	47	2 18	11 6	20 16	14	18	☿ gr. elon. W
6 16	6 39	30 0	3 28	8 33	5 52 55	23 26	42	rises.	morn	— —	F	19	*the*
7 5	7 30	31 5	3 28	8 33	5 57 5	23 27	12	8 a 50	0 5	20 1	16	20	*month.*
7 55	8 18	32 7	3 28	8 34	6 1 14	23 27	17	9 29	1 4	18 22	17	21	☉ enters ♋
8 40	9 3	33 0	3 29	8 34	6 5 24	23 26	57	10 1	2 2	15 24	18	22	[Sum. com.
9 23	9 48	32 9	3 29	8 34	6 9 33	23 26	13	10 28	2 59	11 22	19	23	♀ ☌ ♅, 7 a 42
10 13	10 35	31 1	3 29	8 34	6 13 42	23 25	4	10 52	3 53	6 39	20	24	*Still*
10 56	11 19	30 1	3 29	8 34	6 17 51	23 23	29	11 14	4 45	1 34	21	25	*very*
11 43	— —	27 8	3 30	8 34	6 22 1	23 21	31	11 36	5 36	3 n 30	22	26	*changeable*
0 9	0 23	25 6	3 31	8 34	6 26 10	23 19	7	morn	6 27	8 18	23	27	♂ ☌ ☾, 10 a 55
1 4	1 36	24 2	3 31	8 34	6 30 18	23 16	19	0 1	7 18	12 33	24	28	*to*
2 3	2 57	24 7	3 32	8 34	6 34 27	23 13	7	0 30	8 9	16 1	25	29	*the*
3 37	4 12	25 11	3 33	8 34	6 38 35	23 9	30	1 2	9 2	18 32	26	30	*end*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	NOON. ° ′ ″	3 HOURS. ° ′ ″	6 HOURS. ° ′ ″	9 HOURS. ° ′ ″	MIDN. ° ′ ″	15 HOUR. ° ′ ″	18 HOUR. ° ′ ″	21 HOUR. ° ′ ″
1 E	36 44 5	35 9 24	33 34 54	32 0 36	30 26 31	28 52 39	27 18 59	25 45 34
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
6 W	23 56 46	25 22 26	26 47 55	28 13 13	29 38 19	31 3 14	32 27 58	31 52 30
7	35 16 52	36 41 2	38 5 1	39 28 51	40 52 29	42 15 58	43 39 16	45 22 26
8	46 25 26	47 48 17	49 11 0	50 33 35	51 56 2	53 18 22	54 40 36	56 2 42
9	57 24 43	58 46 39	60 8 29	61 30 15	62 51 56	64 13 34	65 35 10	66 56 42
10	68 18 13	69 39 42	71 1 10	72 22 38	73 44 6	75 5 34	76 27 4	77 48 36
11	79 10 10	80 31 48	81 53 28	83 15 13	84 37 3	85 58 58	87 20 59	88 43 7
12	90 5 22	91 27 44	92 50 15	94 12 54	95 35 43	96 58 42	98 21 52	99 45 13
13	101 8 45	102 32 30	103 56 28	105 20 39	106 45 4	108 9 43	109 34 38	110 59 47
14	112 25 13	113 50 55	115 16 54	116 43 11	118 9 45	119 36 37	121 3 48	122 31 18
15	123 59 7	125 27 15	126 55 44	128 24 32	129 53 41	131 23 11	132 53 1	134 23 13
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. .	.. .. ..	.. .. .
23 E	131 16 36	129 34 33	127 52 36	126 10 47	124 29 4	122 47 30	121 6 5	119 24 49
24	117 43 42	116 2 46	114 22 1	112 41 27	111 1 4	109 20 53	107 40 54	106 1 8
25	104 21 34	102 42 13	101 3 6	99 24 11	97 45 30	96 7 4	94 28 50	92 50 51
26	91 13 6	89 35 35	87 58 18	86 21 16	84 44 28	83 7 54	81 31 34	79 55 29
27	78 19 38	76 44 2	75 8 40	73 33 33	71 58 39	70 24 0	68 49 35	67 15 25
28	65 41 28	64 7 46	62 34 17	61 1 3	59 28 2	57 55 16	56 22 43	54 50 25
29	53 18 20	51 46 29	50 14 52	48 43 28	47 12 19	45 41 23	44 10 42	42 40 14
30	41 10 1	39 40 1	38 10 17	36 40 46	35 11 31	33 42 31	32 13 46	30 45 17

THE MOON'S SEMI-DIAMETER is given to the nearest second for Greenwich mean noon and midnight on page 26, and the HORIZONTAL PARALLAX on page 27.

THE LUNAR DISTANCES FROM THE SUN are given with a view to assist those who may not have an opportunity of using the Nautical Almanack, and are given for every three hours of Greenwich astronomical mean time. As the rest of the Almanack is adapted to CIVIL time, this distinction must be kept in mind; the *Civil*



PHASES OF THE MOON.
- New Moon, 4th day, at 0h. 6m. morning.
- First Quarter, 12th day, at 3h. 33m. morning.
- Full Moon, 19th day, at 6h. 18m. morning.
- Last Quarter, 25th day, at 8h. 28m. evening.

M D.	Day brek.	Twil end.	☉'s semi.	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus* rises.	♀ *Venus* sout.	♂ *Mars.* rises	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	no real ni.	no real ni.	15 46	2m29	10m49	3 m 9	11m43	0 m 9	6 m56	0m56	8 a 23	11a57	6 a 6	1
8	this mon.	this mon.	15 46	2 45	11 19	3 20	11 53	11a47	6 47	0 28	7 54	11 29	5 40	8
15			15 46	sets.	— —	sets.	0 a 3	11 27	6 38	0 1	7 27	11 2	5 13	15
22			15 47	8a 41	0a 32	1a 24	0 12	11 9	6 28	11a28	6 59	10 35	4 47	22
29			15 47	8 40	0 59	8 18	0 20	10 52	6 18	11 1	6 33	10 8	4 21	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	F	Bat. of Boyne, 1690	9 18	14 2	9 46	14 9	3 34
2	S	Sir R. Peel died, 1850	10 13	14 9	10 37	15 7	3 45
3	B	6 Sun. after Trinity	10 58	15 3	11 18	16 3	3 56
4	M	*Proper Lessons.* [2 Samuel xii; Luke xv. — xix; Phil. iii.	11 39	15 8	11 57	16 8	4 7
5	Tu	Chusan taken, 1840	— —	— —	0 15	15 11	4 18
6	W	Old Midsummmer Day	0 33	16 11	0 50	15 10	4 28
7	Th	Antares souths 9 a 17	1 8	16 9	1 26	15 8	4 38
8	F	Adam Smith d. 1790	1 44	16 5	2 1	15 3	4 47
9	S	Oxford Term ends	2 19	15 10	2 37	14 8	4 56
10	B	7 Sun. after Trinity	2 56	15 1	3 14	14 1	5 5
11	M	[2 Samuel xxi; Luke xxii. — xxiv; 1 Thess. ii.	3 34	14 3	3 55	13 4	5 13
12	Tu	Erasmus died, 1526	4 16	13 4	4 40	12 7	5 20
13	W	Dr. Bradley d, 1752	5 8	12 6	5 32	12 1	5 28
14	Th	Bastile destroyed, 1789	6 17	12 2	6 50	12 2	5 34
15	F	Swithin, Bishop	7 25	12 4	8 0	12 11	5 40
16	S	Sir J. Reynolds born	8 35	13 2	9 3	14 2	5 46
17	B	8 Sun. after Trinity	9 33	14 5	10 0	15 10	5 51
18	M	*Proper Lessons.* [1 Kings xiii; John v. — xvii; 1 Tim. i.	10 27	15 11	10 50	17 4	5 56
19	Tu	B. Hallidon Hill, 1233	11 12	17 2	11 37	18 9	6 0
20	W	Margaret V, & M.	— —	— —	0 1	18 4	6 3
21	Th	Ld. Russel behd. 1683	0 26	19 8	0 48	18 10	6 6
22	F	St. Mary Magdalene	1 10	19 10	1 35	18 7	6 8
23	S	R. Burns died, 1796	1 58	19 4	2 21	17 10	6 10
24	B	9 Sun. after Trinity	2 47	18 3	3 10	16 7	6 11
25	M	*Proper Lessons.* [1 Kings xviii; John xii. — xix; 2 Tim. iii.	3 33	16 8	3 51	15 2	6 12
26	Tu	St. James, Aps. 25th	4 24	14 10	4 53	13 9	6 12
27	W	Fren. Revolution, 1830	5 25	13 5	6 3	12 9	6 12
28	Th	Wilberforce died 1833	6 40	12 4	7 17	12 5	6 11
29	F	Antares souths 7 a 50	7 57	12 3	8 31	12 10	6 9
30	S	*Pro. Less.* [1 Kings xxi; John xix. — xxii; Heb. iii.	9 5	12 10	9 33	13 11	6 7
31	B	10 Sun. after Trinity	10 1	13 8	10 15	14 11	6 4

	BRISTOL TIDES.				SUN.					MOON.				M	ASPECTS AND WEATHER.
	morn.	even.	heigh		rises.	sets.	rt. asc.	declin. N.		rises.	souths	declin.	age.	D.	
	H. M.	H. M.	ft.	in.	H M	H M	H. M. S.	° ′ ″		H. M.	H. M.	° ′			
1	4 42	5 12	27	2	3 33	8 33	6 42 43	23 5 28		1m42	9m54	19n59	27	1	*Fair*
2	5 40	6 7	28	1	3 34	8 33	6 46 52	23 1 3		2 29	10 46	20 18	28	2	☿ ☌ ☾ ' 2 a 2
3	6 31	6 53	28	6	3 35	8 32	6 50 59	22 56 13		3 24	11 37	19 32	29	3	♄ □ ☉, 9 m 37
4	7 16	7 36	29	3	3 36	8 32	6 55 7	22 51 0		sets.	0a27	17 46	N	4	*and*
5	7 56	8 14	29	8	3 37	8 31	6 59 14	22 45 22		8a47	1 14	15 11	1	5	*warm*
6	8 30	8 47	29	9	3 38	8 31	7 3 21	22 39 21		9 9	1 59	11 57	2	6	☿ in ♌, 10m12
7	9 4	9 21	29	5	3 39	8 30	7 7 27	22 32 57		9 30	2 42	8 15	3	7	*at*
8	9 37	9 53	28	7	3 40	8 29	7 11 33	22 26 9		9 50	3 25	4 13	4	8	*the*
9	10 9	10 25	27	8	3 41	8 29	7 15 38	22 18 58		10 9	4 6	0 2	5	9	*beginning.*
10	10 40	10 58	26	7	3 42	8 28	7 19 44	22 11 23		10 27	4 48	4s10	6	10	*Now*
11	11 16	11 34	25	0	3 43	8 27	7 23 48	22 3 26		10 46	5 31	8 16	7	11	☿ in Perihel.
12	11 55	— —	23	3	3 44	8 26	7 27 52	21 55 6		11 8	6 16	12 5	8	12	*expect*
13	0 19	0 39	21	10	3 45	8 25	7 31 56	21 46 24		11 36	7 4	15 26	9	13	*some*
14	1 19	1 51	21	9	3 47	8 24	7 35 59	21 37 19		morn	7 55	18 5	10	14	♃ ☌ ☾, 8 m 58
15	2 34	3 17	23	7	3 48	8 22	7 40 2	21 27 52		0 11	8 50	19 46	11	15	♃ stationary
16	3 57	4 27	26	1	3 50	8 21	7 44 4	21 18 4		0 56	9 47	20 15	12	16	*showers*
17	4 58	5 26	28	9	3 51	8 20	7 48 6	21 7 54		1 52	10 47	19 20	13	17	☿ ☌ ♀, 0 m 36
18	5 56	6 22	29	11	3 53	8 19	7 52 7	20 57 22		2 59	11 47	17 .1	14	18	♀ in sup. ☌ ☉
19	6 47	7 14	32	0	3 54	8 18	7 56 8	20 46 29		rises.	morn	— —	F	19	*or*
20	7 40	8 7	34	1	3 55	8 16	8 0 8	20 35 16		8a29	0 45	13 25	16	20	*rainy*
21	8 28	8 49	35	1	3 57	8 15	8 4 7	20 23 41		8 56	1 42	8 52	17	21	☿ gr. H. L. N
22	9 13	9 34	34	11	3 58	8 13	8 8 6	20 11 46		9 20	2 37	3 46	18	22	*weather*
23	9 55	10 19	33	6	4 0	8 12	8 12 4	19 59 30		9 42	3 31	1n29	19	23	*for*
24	10 39	10 58	31	7	4 1	8 10	8 16 2	19 46 54		10 7	4 23	6 32	20	24	*some*
25	11 18	11 42	28	6	4 3	8 9	8 19 52	19 33 59		10 34	5 15	11 4	21	25	*days.*
26	— —	0 7	24	5	4 4	8 7	8 23 56	19 20 43		11 3	6 7	14 51	22	26	♂ ☌ ☾, 1 a 22
27	0 34	1 7	22	9	4 6	8 6	8 27 52	19 7 9		11 41	6 59	17 42	23	27	*Fair, if*
28	1 40	2 24	22	3	4 7	8 4	8 31 48	18 53 15		morn	7 51	19 30	24	28	*the*
29	3 12	3 52	23	8	4 9	8 2	8 35 43	18 39 3		0 27	8 43	20 11	25	29	*wind be*
30	4 29	4 58	25	4	4 10	8 1	8 39 37	18 24 33		1 21	9 34	19 48	26	30	♅ ☌ ☾, 1 m 56
31	5 27	5 53	26	10	4 12	7 59	8 43 31	18 9 44		2 18	10 23	18 25	27	31	*northerly.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	NOON.			3 HOURS.			6 HOURS.			9 HOURS.			MIDN.			15 HOUR.			18 HOUR.			21 HOUR.		
	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
6 W	28	15	27	29	36	54	30	58	20	32	19	43	33	41	5	35	2	24	36	23	41	37	44	55
7	39	6	8	40	27	18	41	48	26	43	9	33	44	30	38	45	51	41	47	12	44	48	33	46
8	49	54	48	51	15	51	52	36	53	53	57	56	55	19	1	56	40	7	58	1	16	59	22	27
9	60	43	41	62	4	58	63	26	19	64	47	45	66	9	16	67	30	52	68	52	34	70	14	22
10	71	36	18	72	58	21	74	20	32	75	42	51	77	5	20	78	27	59	79	50	48	81	13	47
11	82	36	58	84	0	21	85	23	57	86	47	45	88	11	48	89	36	4	91	0	35	92	25	22
12	93	50	24	95	15	43	96	41	18	98	7	11	99	33	22	100	59	51	102	26	40	103	53	48
13	105	21	16	106	49	4	108	17	13	109	45	43	111	14	35	112	43	48	114	13	25	115	43	23
14	117	13	45	118	44	30	120	15	39	121	47	11	123	19	8	124	51	28	126	24	13	127	57	21
15	129	30	54	131	4	51	132	39	13	134	13	57	135	49	6	137	24	38	139	0	33	140	36	51
..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	.	..	..	..	..	..	..
22 E	134	24	40	132	41	51	130	59	15	129	16	53	127	34	47	125	52	56	124	11	22	122	30	5
23	120	49	5	119	8	24	117	28	1	115	47	56	114	8	11	112	28	46	110	49	41	109	10	55
24	107	32	30	105	54	25	104	16	41	102	39	18	101	2	15	99	25	33	97	49	12	96	13	11
25	94	37	31	93	2	12	91	27	13	89	52	34	88	18	15	86	44	17	85	10	39	83	37	20
26	82	4	20	80	31	40	78	59	20	77	27	17	75	55	33	74	24	8	72	53	2	71	22	13
27	69	51	41	68	21	27	66	51	30	65	21	49	63	52	26	62	23	18	60	54	27	59	25	51
28	57	57	31	56	29	26	55	1	37	53	34	2	52	6	42	50	39	37	49	12	46	47	46	9
29	46	19	46	44	53	37	43	27	41	42	2	0	40	36	32	39	11	18	37	46	17	36	21	30
30	34	56	58	33	32	39	32	8	35	30	44	46	29	21	12	27	57	54	26	34	53	25	12	10

day commences at *Midnight*, and the *Astronomical day* at the following *Noon*, being twelve hours later; thus the hours named 15, 18, and 21, on the 1st January, are according to Civil reckoning, 3, 6, and 9 in the morning of the 2nd of January, and

PHASES OF THE MOON.

New Moon,	2nd day, at	2h. 16m. afternoon.
First Quarter,	10th day, at	5h. 40m. evening.
Full Moon	17th day, at	1h. 18m. afternoon.
Last Quarter,	24th day, at	5h. 46m. morning.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ *Mercury* sets.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	no	night	15 48	8 a 36	1 a 8	8 a 14	0 a 23	10a42	6m 14	10a53	6 a 22	9 a 57	4 a 10	1
8	1m17	10a19	15 49	8 23	1 25	8 3	0 30	10 23	6 3	10 24	5 56	9 31	3 45	8
15	1 52	10 15	15 50	8 5	1 35	7 51	0 36	10 5	5 52	9 56	5 30	9 4	3 19	15
22	2 18	9 45	15 51	7 44	1 39	7 38	0 41	9 46	5 41	9 30	5 6	8 37	2 54	22
29	2 41	9 17	15 53	7 20	1 37	7 22	0 46	9 28	5 29	9 4	4 41	8 10	2 29	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time.
1	M	Lammas Day	10 43	14 7	11 3	15 11	6 1
2	Tu	Battle of Nile, 1798	11 21	15 4	11 38	16 8	5 57
3	W	E. Baines died, 1848	11 56	16 0	— —	— —	5 52
4	Th	Pilgrim Fathers sailed	0 11	17 1	0 27	16 4	5 47
5	F	Cabul taken, 1839	0 44	17 3	0 59	16 5	5 41
6	S	Transfiguration	1 16	17 1	1 32	16 3	5 35
7	B	11 Sun. after Trinity	1 48	16 8	2 4	15 9	5 28
8	M	[2 Kings v; Acts v. — ix; Heb. x.	2 20	15 11	2 38	15 1	5 20
9	Tu	Dryden born, 1631	2 56	15 0	3 13	14 2	5 12
10	W	St. Lawrence	3 35	13 11	3 56	13 3	5 3
11	Th	Dog Days end	4 22	12 9	4 51	12 4	4 54
12	F	Lyra souths 9 a 6	5 27	11 10	6 9	12 0	4 44
13	S	Old Lammas Day	6 46	11 9	7 29	12 6	4 33
14	B	12 Sun. after Trinity	8 8	11 7	8 44	13 11	4 22
15	M	Proper Lessons. [2 Kings x; Acts xii. — xviii; James iv.	9 12	14 2	9 42	15 11	4 11
16	Tu	Bomarsund tkn. 1854	10 9	15 11	10 35	17 9	3 58
17	W	Neptune souths 2m49	11 0	17 9	11 24	19 6	3 46
18	Th	Flamstead born, 1646	11 46	19 0	— —	— —	3 32
19	F	Royal Geo. sunk, 1782	0 6	20 6	0 28	19 8	3 19
20	S	R. Bloomfield d., 1823	0 49	20 8	1 11	19 5	3 5
21	B	13 Sun. after Trinity	1 37	20 0	2 0	18 7	2 50
22	M	Proper Lessons. [2 Kings xix; Acts xix. — xxiii; 2 Peter i.	2 23	18 7	2 46	17 1	2 35
23	Tu	Herschell died, 1822	3 9	16 8	3 33	15 4	2 19
24	W	St. Bartholomew	3 57	14 7	4 23	13 7	2 4
25	Th	Altair souths 9 a 26	4 53	12 7	5 29	12 4	1 47
26	F	Prince Albert b. 1819	6 13	11 4	6 52	11 9	1 31
27	S	Thomson died, 1748	7 32	11 2	8 10	12 4	1 14
28	B	14 Sun. after Trinity	8 45	11 11	9 15	13 4	0 56
29	M	Proper Lessons. [Jeremiah v; Acts xxvi. — xxii; 1 John iii.	9 42	13 1	10 5	14 7	0 38
30	Tu	Paley born, 1743	10 25	14 3	10 41	15 8	0 20
31	W	J. Bunyan died, 1688	10 57	15 3	11 14	16 8	0 2

d	Bristol Tides.				SUN.					MOON.			M	ASPECTS AND WEATHER
	morn.	even.	height		rises.	sets.	rt. ascen.	declin. N.		rises.	souths	declin	age.	D.	
D.	H. M.	H. M.	F. I.		H M	H M	H. M. S.	° ′ ″		H. M.	H. M.	° ′			
1	6 13	6 36	27 7		4 13	7 57	8 47 24	17 54 37		3m19	11 m11	16 N9	28	1	*Expect*
2	6 56	7 15	28 9		4 15	7 55	8 51 17	17 39 13		sets.	11 56	13 11	N	2	*changeable*
3	7 35	7 51	29 10		4 17	7 53	8 55 8	17 23 31		7a38	0a40	9 40	1	3	☿ ☌ ☾, 4 m 0
4	8 8	8 25	30 4		4 19	7 51	8 59 0	17 7 33		7 56	1 23	5 46	2	4	☿ ☌ ☾, 9 m 2
5	8 39	8 56	30 6		4 21	7 49	9 2 51	16 51 18		8 15	2 5	1 40	3	5	*weather*
6	9 10	9 24	30 2		4 22	7 47	9 6 41	16 34 47		8 34	2 46	2s31	4	6	*but*
7	9 39	9 54	29 3		4 24	7 45	9 10 30	16 17 59		8 54	3 28	6 37	5	7	*inclined*
8	10 10	10 25	28 2		4 26	7 43	9 14 19	16 0 56		9 15	4 12	10 29	6	8	♄ ☌ ☽, 2 m
9	10 39	10 58	26 6		4 28	7 41	9 18 8	15 43 38		9 39	4 58	13 57	7	9	*to*
10	11 16	11 39	24 4		4 30	7 39	9 21 55	15 26 4		10 10	5 46	16 51	8	10	♃ ☌ ☾, 6 a 5
11	— —	0 4	22 5		4 32	7 37	9 52 42	15 8 16		10 49	6 37	18 56	9	11	♃ □ ☉, 7 m 3
12	0 33	1 12	21 2		4 34	7 35	9 29 29	14 50 13		11 37	7 32	19 59	10	12	*fair*
13	1 47	2 39	22 3		4 35	7 33	9 33 15	14 31 57		morn	8 29	19 48	11	13	☿ in ♉ 7 a 2
14	3 26	4 6	25 5		4 37	7 31	9 37 1	14 13 26		0 37	9 28	18 16	12	14	*for*
15	4 36	5 7	28 9		4 39	7 29	9 40 45	13 54 42		1 48	10 27	15 23	13	15	*some*
16	5 36	6 5	31 10		4 41	7 27	9 44 30	13 35 44		3 9	11 25	11 20	14	16	*days*
17	6 33	7 0	33 3		4 42	7 24	9 48 14	13 16 34		rises.	morn	— —	F	17	♀ gr. H. L. N.
18	7 24	7 45	35 6		4 44	7 22	9 51 57	12 57 11		7a21	0 22	6 26	16	18	♂ □ ☉, 6 a 4
19	8 9	8 29	36 7		4 46	7 20	9 55 39	12 37 35		7 45	1 18	1 8	17	19	*Now*
20	8 51	9 15	36 3		4 48	7 17	9 59 22	12 17 48		8 10	2 12	4 N11	18	20	*showery*
21	9 36	9 57	34 7		4 50	7 15	10 3 4	11 57 48		8 38	3 6	9 6	19	21	*or*
22	10 17	10 37	32 0		4 51	7 13	10 6 46	11 37 37		9 10	4 0	13 19	20	22	*wet,*
23	10 58	11 18	28 7		4 53	7 10	10 10 27	11 17 15		9 46	4 54	16 35	21	23	☿ in Aphelion
24	11 40	-- —	24 10		4 55	7 8	10 14 7	10 56 42		10 27	5 47	18 47	22	24	♂ ☌ ☾, 1 m 35
25	0 6	0 36	21 7		4 57	7 6	10 17 48	10 35 59		11 16	6 39	19 52	23	25	*which*
26	1 15	1 54	20 6		4 59	7 3	10 21 28	10 15 5		morn	7 31	19 50	24	26	♅ ☌ ☾, 9 m 48
27	2 43	3 28	21 11		5 0	7 1	10 25 7	9 54 1		0 12	8 20	18 47	25	27	*may*
28	4 7	4 39	24 2		5 2	6 59	10 28 46	9 32 48		1 13	9 8	16 49	26	28	☿ gr. elong E.
29	5 7	5 31	26 3		5 4	6 56	10 32 25	9 11 26		2 17	9 54	14 6	27	29	*still*
30	5 53	6 11	27 2		5 6	6 54	10 36 4	8 49 55		3 22	10 39	10 48	28	30	*continue.*
31	6 29	6 49	28 9		5 8	6 51	10 39 42	8 28 15		4 27	11 22	7 5	29	31	☾ in Apogee

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M.	Noon.			3 Hours.			6 Hours.			9 Hours.			Midn.			15 Hour.			18 Hour.			21 Hour.		
D.	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″	°	′	″
5W	31	52	51	33	13	8	34	33	30	35	53	58	37	14	31	38	35	8	39	55	51	41	16	40
6	42	37	33	43	58	32	45	19	37	46	40	48	48	2	5	49	23	28	50	44	59	52	6	36
7	53	28	21	54	50	14	56	12	15	57	34	24	58	56	43	60	19	11	61	41	48	63	4	37
8	64	27	36	65	50	46	67	14	8	68	37	42	70	1	29	71	25	29	72	49	43	74	14	11
9	75	38	53	77	3	51	78	29	4	79	54	34	81	20	20	82	46	24	84	12	45	85	39	24
10	87	6	22	88	33	39	90	1	16	91	29	13	92	57	31	94	26	10	95	55	10	97	24	23
11	98	54	17	100	24	25	101	54	56	103	25	50	104	57	8	106	28	51	108	0	58	109	33	29
12	111	6	26	112	39	48	114	13	36	115	47	49	117	22	28	118	57	33	120	33	3	122	8	59
13	123	45	21	125	22	9	126	59	22	128	37	0	130	15	3	131	53	32	133	32	24	135	11	39
..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20E	138	22	33	136	40	20	134	58	27	133	16	52	131	35	38	129	54	46	128	14	15	126	34	7
21	124	54	22	123	15	0	121	36	2	119	57	28	118	19	19	116	41	33	115	4	13	113	27	17
22	111	50	46	110	14	40	108	38	59	107	3	42	105	28	50	103	54	23	102	20	20	100	46	41
23	99	13	26	97	40	35	96	8	7	94	36	2	93	4	21	91	33	1	90	2	4	88	31	29
24	87	1	15	85	31	22	84	1	50	82	32	38	81	3	46	79	35	14	78	7	0	76	39	5
25	75	11	28	73	44	9	72	17	7	70	50	23	69	23	54	67	57	42	66	31	45	65	6	3
26	63	40	36	62	15	23	60	50	24	59	25	39	58	1	6	56	36	46	55	12	39	53	48	44
27	52	25	0	51	1	27	49	38	6	48	14	55	46	51	54	45	29	3	44	6	23	42	43	51
28	41	21	29	39	59	16	38	37	13	37	15	18	35	53	32	34	31	54	33	10	26	31	49	6

in any other part of the Almanack would be set down as such. The letters E. and W. inserted in the first column refer to the position of the Sun; E. East, W. West

The Planets

Mercury [☿] will be visible in the mornings about the 18th February, 18th June

PHASES OF THE MOON.

New Moon,	1st day, at	5h. 50m. morning.
First Quarter,	9th day, at	5h. 32m. morning.
Full Moon,	15th day, at	8h. 51m. evening.
Last Quarter,	22nd day, at	6h. 36m. evening.
New Moon,	30th day, at	10h. 25m. night.

M D.	Day brek.	Twil. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. sets.	♄ Saturn. sout.	M D.
1	2m52	9 a 6	15 54	7 a 9	1 a 34	7 a 16	0 a 48	9 a 20	5 m23	8 a53	4 a 31	7 a 59	2 a 19	1
8	3 10	8 44	15 55	6 41	1 18	7 0	0 52	9 1	5 10	8 27	4 7	7 33	1 54	8
15	3 27	8 21	15 57	rises.	0 48	6 44	0 56	8 42	4 55	8 2	3 44	7 6	1 29	15
22	3 45	8 0	15 59	6m23	0 0	6 28	1 0	8 21	4 39	7 37	3 21	6 40	1 5	22
29	3 58	7 40	16 1	5 9	11m11	6 13	1 4	8 0	4 22	7 12	2 59	6 13	0 40	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	Th	Giles, Abbot	11 31	16 2	11 46	17 3	0 17
2	F	London burnt, 1666	11 59	16 9	— —	— —	0 36
3	S	Cromwell died, 1658	0 15	17 7	0 31	17 0	0 55
4	B	15 Sun. aft. Trinity	0 45	17 6	1 3	16 1	1 14
5	M	Proper Lessons. [Jere. xxxv; Matt. v. — xxxvi; Rom. v.	1 18	17 2	1 33	16 6	1 34
6	Tu	Hannah More d. 1823	1 50	16 6	2 7	15 10	1 54
7	W	Enurchus, Bishop	2 24	15 5	2 43	14 10	2 14
8	Th	Nativity B. V. Mary	3 2	14 2	3 25	13 10	2 35
9	F	Altair souths 8 a 27	3 50	12 11	4 19	12 9	2 55
10	S	Tea first import. 1391	4 54	11 10	5 36	12 2	3 16
11	B	16 Sun. after Trinity	6 20	11 6	7 3	12 8	3 37
12	M	Proper Lessons. [Ezekiel ii; Matt. xii. — xiii; Rom. xii.	7 46	12 5	8 22	14 2	3 58
13	Tu	Battle of Quebec, 1769	8 52	14 3	9 22	16 3	4 19
14	W	Holy Cross day	9 51	16 3	10 16	18 3	4 40
15	Th	Moscow burnt, 1812	10 36	18 1	10 59	19 10	5 1
16	F	James II died, 1701	11 21	19 4	11 42	20 8	5 22
17	S	Lambert, Bishop	— —	— —	0 5	19 11	5 44
18	B	17 Sun. after Trinity	0 28	20 8	0 50	19 8	6 5
19	M	Proper Lessons. [Ezekiel xiv; Matt. xix. — xviii; 1 Cor. iii.	1 12	19 10	1 33	18 8	6 26
20	Tu	Manx fish flt. lt. 1787	1 55	18 3	2 17	17 4	6 47
21	W	St. Matthew, Apostle	2 38	16 3	3 1	15 5	7 8
22	Th	Neptune souths 0m 24	3 25	14 4	3 50	13 6	7 29
23	F	Uranus souths 5 m 48	4 21	12 1	4 56	12 2	7 50
24	S	Charles II. dethroned	5 38	10 10	6 19	11 6	8 11
25	B	18 Sun. after Trinity	6 58	10 8	7 40	11 11	8 31
26	M	Proper Lessons. [Ezekiel xx; Matt. xxvi. — xxiv; 1 Cor. x.	8 14	11 5	8 47	12 11	8 51
27	Tu	Andromeda s. 11 a 32	9 10	12 8	9 31	14 3	9 11
28	W	Buchanan died, 1592	9 53	13 11	10 13	15 4	9 31
29	Th	St. Michael	10 31	15 2	10 45	16 5	9 51
30	F	St. Jerome	11 0	16 1	11 16	17 1	10 10

Equation of Time. Clock after Sun.—Subtract from Apparent Time, or Add to Mean Time.

M.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″	N.	MOON. sets. H. M.	souths H. M.	declin. ° ′	Age.	M D.	ASPECTS. AND WEATHER.
1	7 7	7 24	30 1	5 10	6 49	10 43 20	8 6 28		6a23	0 a 4	3N 4	N	1	*Changeable*
2	7 38	7 56	31 0	5 11	6 46	10 46 57	7 44 32		6 42	0 45	1s 4	1	2	☿ ☌ ☾, 2 a 29
3	8 12	8 25	31 3	5 13	6 44	10 50 35	7 22 29		7 1	1 28	5 11	2	3	☿ ☌ ☾, 3 a 7
4	8 42	8 56	31 2	5 15	6 42	10 54 12	7 0 19		7 21	2 11	9 6	3	4	♄ ☌ ☾, 0 a 49
5	9 10	9 26	30 4	5 17	6 39	10 57 48	6 38 2		7 44	2 55	12 40	4	5	*but fair*
6	9 41	9 56	29 1	5 19	6 37	11 1 25	6 15 38		8 12	3 42	15 43	5	6	*if the*
7	10 12	10 27	27 5	5 21	6 35	11 5 1	5 53 8		8 48	4 31	18 3	6	7	♃ ☌ ☾, 6m 53
8	10 48	11 9	25 3	5 22	6 32	11 8 37	5 30 33		9 31	5 23	19 29	7	8	*wind be*
9	11 35	— —	23 0	5 24	6 30	11 12 13	5 7 52		10 25	6 18	19 49	8	9	*Northerly.*
10	0 5	0 41	21 3	5 26	6 27	11 15 49	4 45 5		11 29	7 13	18 55	9	10	☿ stationary
11	1 21	2 8	22 1	5 27	6 25	11 19 25	4 22 14		morn	8 10	16 46	10	11	*Still*
12	3 1	3 43	25 7	5 29	6 22	11 23 1	3 59 19		0 43	9 7	13 24	11	12	*variable,*
13	4 16	4 47	29 4	5 31	6 20	11 26 36	3 36 19		2 4	10 4	9 2	12	13	☿ gr. H.L.S.
14	5 17	5 45	32 7	5 32	6 17	11 30 11	3 13 16		3 28	11 0	3 59	13	14	☿ ☌ ♀, 4 m 7
15	6 8	6 34	34 1	5 34	6 15	11 33 47	2 50 9		rises.	11 56	1N21	F	15	☾ in Perigree
16	6 58	7 21	36 2	5 36	6 12	11 37 22	2 26 58		6a10	morn	— —		15	16	*but*
17	7 46	8 9	37 0	5 38	6 10	11 40 57	2 3 45		6 37	0 51	6 34		16	17	*inclined*
18	8 30	8 51	36 4	5 39	6 7	11 44 33	1 40 29		7 7	1 46	11 14		17	18	*to showers*
19	9 10	9 30	34 5	5 41	6 5	11 48 8	1 17 11		7 42	2 42	15 4		18	19	*and*
20	9 50	10 8	31 8	5 43	6 2	11 51 43	0 53 50		8 23	3 37	17 48		19	20	*wet.*
21	10 27	10 47	28 3	5 45	6 0	11 55 19	0 30 28		9 11	4 32	19 22		20	21	☌ ☌ ☾, 8 m 55
22	11 9	11 36	24 4	5 47	5 57	11 58 55	0 7 5		10 6	5 25	19 45		21	22	♅ □ ☉, 5 m 57
23	— —	0 6	21 2	5 49	5 55	12 2 30	0s16 20		11 6	6 16	19 2		22	23	♀ ☌ ♄, 6 a 18
24	0 43	1 20	19 9	5 51	5 52	12 6 6	0 39 45		morn	7 5	17 23		23	24	♀ in inf. ☌ ☉
25	2 3	2 54	20 10	5 53	5 50	12 9 42	1 3 10		0 9	7 52	14 55		24	25	*Now*
26	3 44	4 10	23 3	5 55	5 47	12 13 19	1 26 35		1 13	8 37	11 50		25	26	*more*
27	4 34	4 56	25 9	5 56	5 45	12 16 55	1 50 0		2 18	9 20	8 16		26	27	☾ in Apogee
28	5 19	5 41	27 8	5 58	5 42	12 20 32	2 13 24		3 24	10 2	4 22		27	28	*fair and*
29	6 1	6 17	28 7	6 0	5 40	12 24 9	2 36 47		4 29	10 44	0 17		28	29	*fine,*
30	6 34	6 52	29 11	6 2	5 37	12 27 46	3 0 8		5 35	11 26	3s50	N	30	☿ ☌ ☾, 0 m 45

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
3W	24 37 18	25 58 7	27 19 7	28 40 20	30 1 43	31 23 17	32 45 2	34 6 56
4	35 29 1	36 51 16	38 13 40	39 36 14	40 58 59	42 21 53	43 44 58	45 8 13
5	46 31 39	47 55 16	49 19 5	50 43 4	52 7 16	53 31 39	54 56 15	56 21 4
6	57 46 5	59 11 20	60 36 49	62 2 33	63 28 30	64 54 43	66 21 11	67 47 55
7	69 14 55	70 42 11	72 9 44	73 37 35	75 5 43	76 34 10	78 2 55	79 31 59
8	81 1 23	82 31 7	84 1 10	85 31 34	87 2 20	88 33 26	90 4 54	91 36 45
9	93 8 57	94 41 32	96 14 30	97 47 51	99 21 36	100 55 45	102 30 17	104 5 13
10	105 40 34	107 16 19	108 52 28	110 29 2	112 6 1	113 43 24	115 21 11	116 59 23
11	118 37 59	120 17 0	121 56 24	123 36 12	125 16 23	126 56 57	128 37 54	130 19 13
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. .	.. .. ..	.. .. ..	.. .. ..
19E	130 17 53	128 40 37	127 3 47	125 27 23	123 51 26	122 15 54	120 40 50	119 6 11
20	117 31 59	115 58 12	114 24 52	112 51 57	111 19 28	109 47 24	108 15 45	106 44 31
21	105 13 41	103 43 14	102 13 12	100 43 32	99 14 15	97 45 21	96 16 48	94 48 37
22	93 20 46	91 53 16	90 26 5	88 59 14	87 32 42	86 6 27	84 40 31	83 14 52
23	81 49 29	80 24 23	78 59 32	77 34 56	76 10 35	74 46 27	73 22 33	71 58 52
24	70 35 23	69 12 6	67 49 0	66 26 5	65 3 20	63 40 44	62 18 18	60 56 0
25	59 33 50	58 11 48	56 49 54	55 28 6	54 6 24	52 44 48	51 23 17	50 1 52
26	48 40 30	47 19 13	45 58 0	44 36 50	43 15 43	41 54 39	40 33 37	39 12 37
27	37 51 38	36 30 41	35 9 46	33 48 51	32 27 57	31 7 3	29 46 10	28 25 18

and 9th October—the times of its greatest western elongation; and in the evenings about the 9th Jnauary, 30th April, 28th August, and 22nd December, when at its greatest eastern elongation. The most favourable time for observation will be at the elongations in January and April.

Venus [♀] will be a morning star to the 18th July, then an evening star to the end of the year.



PHASES OF THE MOON.
- First Quarter, 8th day, at 3h. 19m. afternoon.
- Full Moon, 15th day, at 5h. 57m. morning.
- Last Quarter, 22nd day, at 11h. 9m. morning.
- New Moon, 30th day, at 3h. 10m. afternoon.

M D.	Day brek.	Twil. end.	☉'s semi	☿ *Mercury* rises.	☿ *Mercury* sout.	♀ *Venus.* sets.	♀ *Venus.* sout.	♂ *Mars.* rises.	♂ *Mars.* sout.	♃ *Jupiter.* sets.	♃ *Jupiter.* sout.	♄ *Saturn.* sets.	♄ *Saturn.* sout.	M D.
1	4 m 3	7 a 36	16 1	4 m 53	11 m 1	6 a 9	1 a 6	7 a 54	4 m 16	7 a 6	2 a 52	6 a 6	0 a 33	1
8	4 18	7 19	16 3	4 27	10 44	5 55	1 11	7 31	3 56	6 41	2 57	rises.	0 9	8
15	4 30	7 0	16 5	4 44	10 48	5 42	1 17	7 4	3 33	6 17	2 8	6 14	11 m 45	15
22	4 44	6 46	16 7	5 21	11 1	5 32	1 24	6 35	3 8	5 53	1 47	5 52	11 20	22
29	4 56	6 31	16 9	6 4	11 17	5 24	1 32	6 4	2 39	5 30	1 25	5 30	10 56	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	S	Cambridge T. begins	11 30	16 10	11 43	17 6	10 29
2	B	19 Sun. after Trinity	11 59	17 4	— —	— —	10 48
3	M	*Pro.* Daniel iii; Mark v. *Less.* — vi; 2 Cor. i.	0 16	17 8	0 32	17 4	11 6
4	Tu	Neptune souths 11a32	0 49	17 4	1 6	17 0	11 24
5	W	☿ souths 5 m 1	1 22	16 8	1 40	16 5	11 42
6	Th	Faith, V. & M.	2 0	15 8	2 21	15 3	11 59
7	F	Cassiopea s. 11 a 24	2 44	14 5	3 5	14 5	12 16
8	S	Dr. Kippis died, 1795	3 32	13 2	4 0	13 4	12 33
9	B	20 Sun. after Trinity	4 35	12 2	5 15	12 8	12 49
10	M	*Pro.* Joel ii; Mark xii. *Les.* Micah vi; 2 Cor. i.	6 1	11 10	6 43	13 1	13 5
11	Tu	Old Michaelmas day	7 25	12 9	7 59	14 5	13 20
12	W	Wat Tyler died, 1381	8 31	14 4	9 1	16 3	13 35
13	Th	Trans. King Edward	9 28	16 3	9 52	18 1	13 49
14	F	Wm. Penn b., 1644	10 15	17 11	10 36	19 5	14 3
15	S	Virgil born, B.C. 70	10 58	19 1	11 19	20 0	14 16
16	B	21 Sun. after Trinity	11 41	19 7	— —	— —	14 29
17	M	*Proper Lessons.* Haba. ii; Luke ii, Prov. i; Gal ii.	0 5	19 11	0 27	19 4	14 41
18	Tu	St. Luke, Evangelist	0 49	19 1	1 1	18 6	14 52
19	W	Neptune souths 10a31	1 31	17 7	1 52	17 1	15 3
20	Th	Uranns souths 4 m 2	2 15	15 11	2 37	15 6	15 13
21	F	Battle Trafalgar, 1805	3 1	13 11	3 26	14 0	15 22
22	S	Dr. Arnold died, 1802	3 51	12 3	4 21	12 6	15 31
23	B	22 Sun. after Trinity	4 56	11 0	5 38	11 8	15 39
24	M	Prov. ii; Luke ix. — iii; Ephes. iii.	6 15	10 7	6 50	11 9	15 46
25	Tu	Crispin, Martyr	7 28	11 2	8 1	12 6	15 53
26	W	Hogarth died, 1764	8 21	12 2	8 53	13 7	15 59
27	Th	Servetus burnt, 1553	9 16	13 5	9 36	14 9	16 4
28	F	St. Sim. & St. Jude	9 56	14 7	10 14	15 9	16 8
29	S	Bristol Riots, 1831	10 30	15 8	10 46	16 7	16 12
30	B	23 Sun. after Trinity	11 2	16 6	11 8	17 1	16 15
31	M	*Proper Lessons.* Prov. xi; Luke xvi. — xii; Philipp. v.	11 33	17 1	11 49	17 3	16 17

M D.	Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. ° ′ ″ S.	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
1	7 7	7 22	31 1	6 4	5 34	12 31 24	3 23 28	5a28	0 a 9	7s49	1	1	*Fair*
2	7 40	7 57	31 7	6 6	5 31	12 35 2	3 46 45	5 51	0 54	11 31	2	2	♄ ☌ ☾, 0 a s
3	8 12	8 28	31 7	6 8	5 29	12 38 40	4 10 0	6 18	1 40	14 44	3	3	*weather*
4	8 44	8 59	31 0	6 10	5 24	12 42 18	4 33 11	6 50	2 29	17 18	4	4	♃ ☌ ☾, 8 a s
5	9 15	9 34	29 8	6 11	5 26	12 45 57	4 56 19	7 29	3 20	18 59	5	5	*will*
6	9 52	10 12	28 2	6 13	5 21	12 49 36	5 19 24	8 18	4 12	19 40	6	6	☿ in Perihe
7	10 29	10 51	26 1	6 15	5 19	12 53 16	5 42 24	9 18	5 6	19 12	7	7	*probably*
8	11 17	11 48	23 8	6 17	5 17	12 56 56	6 5 20	10 27	6 1	17 34	8	8	*commence*
9	— —	0 22	22 0	6 19	5 14	13 0 36	6 28 11	11 42	6 56	14 46	9	9	☿ gr. elon. W
10	1 3	1 46	23 8	6 21	5 12	13 4 17	6 50 56	morn	7 51	10 59	10	10	*the*
11	2 37	3 19	25 1	6 23	5 9	13 7 58	7 13 36	1 2	8 45	6 24	11	11	*month.*
12	3 54	4 25	29 4	6 25	5 7	13 11 40	7 36 10	2 25	9 39	1 19	12	12	♀ in ♐, 11 a
13	4 54	5 20	32 6	6 26	5 4	13 15 22	7 58 38	3 50	10 34	3N53	13	13	*Now*
14	5 45	6 9	34 7	6 28	5 2	13 19 5	8 20 59	5 14	11 29	8 50	14	14	♄ ☌ ☉, 2 m 5
15	6 34	6 56	35 5	6 29	5 0	13 22 49	8 43 13	rises.	morn	— —	F	15	*expect*
16	7 20	7 46	35 10	6 32	4 57	13 26 33	9 5 20	5a36	0 25	13 8	16	16	*rain*
17	8 8	8 29	35 3	6 34	4 55	13 30 17	9 27 18	6 15	1 21	16 29	17	17	☿ gr. Hl. L. N
18	8 49	9 7	33 7	6 36	4 53	13 34 2	9 49 9	7 1	2 18	18 40	18	18	*to set in*
19	9 26	9 47	30 10	6 38	4 51	13 37 48	10 10 51	7 55	3 13	19 36	19	19	♂ ☌ ☾, 5 m 3
20	10 6	10 36	28 1	6 40	4 49	13 41 34	10 32 24	8 54	4 7	19 20	20	20	♅ ☌ ☾, 1 m 5
21	10 47	11 8	24 10	6 42	4 46	13 45 22	10 53 48	9 57	4 58	18 1	21	21	*if the wind*
22	11 34	— —	21 10	6 44	4 44	13 49 9	11 15 3	11 2	5 47	15 49	22	22	*be south.*
23	0 5	0 42	19 11	6 46	4 42	13 52 58	11 36 7	morn	6 33	12 56	23	23	♂ stationar
24	1 16	1 55	20 3	6 48	4 40	13 56 47	11 57 1	0 7	7 17	9 31	24	24	*Still*
25	2 40	3 20	22 4	6 50	4 38	14 0 37	12 17 43	1 13	7 59	5 44	25	25	☿ ☌ ♄, 6 a 5
26	3 52	4 17	24 8	6 52	4 36	14 4 28	12 38 15	2 18	8 41	1 43	26	26	*inclined*
27	4 41	5 2	26 9	6 54	4 33	14 8 19	12 58 34	3 24	9 23	2s23	27	27	♀ ☌ ♃, 8 a 2
28	5 23	5 43	28 6	6 56	4 31	14 12 11	13 18 42	4 30	10 6	6 26	28	28	*to wet*
29	6 1	6 19	29 3	6 58	4 29	14 16 4	13 38 37	5 37	10 50	10 16	29	29	♄ ☌ ☾, 1 a 3
30	6 37	6 55	30 4	7 0	4 27	14 19 58	13 58 19	sets.	11 37	13 42	N	30	☿ ☌ ☾, 1 m 5
31	7 12	7 30	31 1	7 2	4 25	14 23 52	14 17 47	4a50	0a25	16 31	1	31	*weather.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ″ ′	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
3w	28 28 42	29 53 47	31 19 4	32 44 32	34 10 13	35 36 4	37 2 8	38 28 23
4	39 54 50	41 21 30	42 48 21	44 15 24	45 42 40	47 10 9	48 37 51	50 5 45
5	51 33 53	53 2 14	54 30 49	55 59 37	57 28 40	58 57 57	60 27 29	61 57 16
6	63 27 18	64 57 35	66 28 8	67 58 56	69 30 1	71 1 22	72 33 0	74 4 55
7	75 37 7	77 9 36	78 42 23	80 15 28	81 48 51	83 22 32	84 56 32	86 30 50
8	88 5 27	89 40 23	91 15 38	92 51 13	94 27 7	96 3 20	97 39 54	99 16 46
9	100 53 58	102 31 30	104 9 22	105 47 33	107 26 4	109 4 54	110 44 3	112 23 32
10	114 3 19	115 43 25	117 23 50	119 4 33	120 45 33	122 26 51	124 8 26	125 50 17
11	127 32 25	129 14 48	130 57 26	132 40 18	134 23 24	136 6 43	137 50 14	139 33 57
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..	.. .. ..
18E	136 56 34	135 25 2	133 50 55	132 17 14	130 43 58	129 11 7	127 38 41	126 6 41
19	124 35 5	123 3 54	121 33 7	120 2 44	118 32 45	117 3 9	115 33 56	114 5 6
20	112 36 38	111 8 31	109 40 47	108 13 23	106 46 19	105 19 35	103 53 11	102 27 6
21	101 1 18	99 35 49	98 10 37	96 45 42	95 21 2	93 56 39	92 32 30	91 8 35
22	89 44 55	88 21 27	86 58 12	85 35 9	84 12 18	82 49 37	81 27 6	80 4 45
23	78 42 33	77 20 29	75 58 34	74 36 45	73 15 3	71 53 26	70 31 56	69 10 30
24	67 49 8	66 27 51	65 6 36	63 45 24	62 24 14	61 3 6	59 41 59	58 20
25	56 59 46	55 38 38	54 17 30	52 56 21	51 35 9	50 13 56	48 52 39	47
26	46 9 56	44 48 28	43 26 56	42 5 19	40 43 36	39 21 49	37 59 55	
27	35 15 48	33 53 34	32 31 12	31 8 43	29 46 7	28 23 22	27 0	

Mars [♂] will be a morning star until the time of its or December, at which time this planet will appear to grea easily known by its red colour; from thence to the e evening star.

PHASES OF THE MOON.
- First Quarter, 6th day, at 11h. 35m. evening.
- Full Moon, 13th day, at 5h. 15m. evening.
- Last Quarter, 21st day, at 6h. 59m. morning.
- New Moon, 29th day, at 6h. 58m. morning.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury rises.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. rises.	♂ Mars. sout.	♃ Jupiter. sets.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5 m 2	6 a 24	16 10	6 m 23	11 m 24	5 a 22	1 a 36	5 a 50	2 m 26	5 a 19	1 a 16	5 m 21	10 m 45	1
8	5 13	6 13	16 12	7 6	11 40	5 19	1 46	5 15	1 53	4 56	0 55	4 58	10 21	8
15	5 24	6 5	16 13	sets.	11 56	5 22	1 56	4 38	1 18	4 33	0 34	4 35	9 56	15
22	5 34	5 58	16 14	3 a 56	0 a 14	5 30	2 6	sets.	0 40	rises.	0 13	4 12	9 32	22
29	5 44	5 53	16 16	4 0	0 33	5 43	2 16	8 m 36	0 1	7 m 56	11 m 52	3 49	9 7	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	Tu	All Saints	— —	— —	0 8	17 5	16 18
2	W	Michael. T. beg.	0 26	17 3	0 44	17 4	16 19
3	Th	Neptune s. 9 a 31	1 3	16 9	1 24	16 11	16 18
4	F	Wm. III. land. 1688	1 43	16 0	2 6	16 2	16 17
5	S	Gunpowder Plot	2 29	14 11	2 52	15 3	16 15
6	B	24 Sun. after Trinity	3 20	13 10	3 47	14 3	16 12
7	M	Proper Lessons. [Prov. xiii; Luke xxii. — xiv; 1 Thes. ii.	4 20	12 11	4 58	13 7	16 9
8	Tu	Cam. Term div. N	5 38	12 7	6 18	13 8	16 4
9	W	P. of Wales born	6 56	13 1	7 30	14 7	15 59
10	Th	☿ souths 2 m 37	8 6	14 3	8 36	15 10	15 53
11	F	St. Martin, Bishop	9 4	15 8	9 29	17 1	15 46
12	S	Aldebaran sou. 1 m 2	9 56	17 0	10 19	18 0	15 38
13	B	25 Sun. after Trinity	10 42	17 11	11 4	18 6	15 30
14	M	Proper Lessons. [Prov. xv; John v. — xvi; 1. Tim. i.	11 26	18 6	11 47	18 6	15 20
15	Tu	Machutus, Bishop	— —	— —	0 7	18 4	15 10
16	W	Pleiades south 11 a 54	0 29	17 6	0 50	18 0	14 59
17	Th	Hugh, Bishop	1 11	16 11	1 31	17 1	14 47
18	F	Capella souths 1 m 17	1 53	15 7	2 16	15 11	14 34
19	S	Regulus souths 6 m 3	2 39	14 3	3 0	14 7	14 20
20	B	26 Sun. after Trinity	3 21	13 0	3 43	13 5	14 6
21	M	Proper Lessons. [Prov. xvii; John xii. — xix; 2 Tim. iii.	4 9	11 11	4 40	12 6	13 50
22	Tu	Cecilia V and M	5 15	11 3	5 49	12 0	13 34
23	W	St. Clement	6 21	11 2	6 53	12 2	13 17
24	Th	Neptune souths 8 a 7	7 25	11 9	7 58	12 9	13 0
25	F	Michaelmas Term ends	8 28	12 7	8 54	13 7	12 41
26	S	☿ souths 1 m 32	9 16	13 9	9 39	14 7	12 22
27	B	Advent Sunday	9 57	14 11	10 17	15 6	12 2
28	Tu	Proper Lessons. [Isaiah i; John xix. — ii; Heb. iii	10 36	15 11	10 53	16 3	11 41
29	M	Pleiades south 11 a 3	11 13	16 10	11 34	16 10	11 20
30	W	St. Andrew, Ap.	11 51	17 6	— —	— —	10 58

Equation of Time. Clock after Sun. Subtract from Apparent time. Add to Mean Time.

M D.	Bristol Tides. morn. H. M.	even. H. M.	height. F. I.	SUN. rises. H M	sets. H M	rt ascen. H. M. S.	declin. ° ′	S. ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER.
1	7 49	8 6	31 4	7 4	4 23	14 27 48	14 37	2	5a30	1a16	18s31	2	1	♃ ☌ ☾, 1 a 15
2	8 23	8 42	31 3	7 6	4 21	14 31 44	14 56	3	6 16	2 9	19 32	3	2	*This*
3	9 0	9 17	30 5	7 8	4 19	14 35 41	15 14	49	7 12	3 3	19 26	4	3	*month*
4	9 39	9 58	29 2	7 10	4 17	14 39 38	15 33	20	8 17	3 57	18 8	5	4	*begins*
5	10 17	10 42	27 4	7 12	4 15	14 43 37	15 51	35	9 29	4 51	15 44	6	5	*fair*
6	11 5	11 35	25 3	7 14	4 13	14 47 36	16 9	35	10 46	5 45	12 19	7	6	*and*
7	— —	0 7	23 8	7 16	4 12	14 51 37	16 27	18	morn	6 37	8 7	8	7	*frosty,*
8	0 42	1 18	23 8	7 17	4 10	14 55 37	16 44	44	0 6	7 30	3 22	9	8	*which*
9	2 3	2 48	25 10	7 19	4 8	14 59 39	17 1	54	1 27	8 22	1N38	10	9	☿ in ♐, 6 a 44
10	3 27	4 0	28 8	7 21	4 6	15 3 42	17 18	45	2 49	9 15	6 35	11	10	☿ in sup. ☌ ☉
11	4 29	4 55	31 0	7 23	4 4	15 7 45	17 35	19	4 12	10 9	11 7	12	11	*may*
12	5 24	5 50	32 6	7 25	4 2	15 11 50	17 51	35	5 33	11 5	14 55	13	12	*continue*
13	6 15	6 40	33 1	7 27	4 0	15 15 55	18 7	32	rises.	morn	— —	F	13	*until about*
14	7 4	7 27	33 8	7 29	3 59	15 20 1	18 23	10	4a50	0 1	17 42	15	14	*this date.*
15	7 48	8 9	33 4	7 31	3 58	15 24 8	18 38	29	5 44	0 58	19 17	16	15	♂ ☌ ☾, 9 m 5
16	8 29	8 49	32 4	7 33	3 56	15 28 15	18 53	27	6 41	1 53	19 37	17	16	♀ in Aphelion
17	9 7	9 27	30 4	7 35	3 55	15 32 24	19 8	6	7 41	2 47	18 46	18	17	*Now*
18	9 48	10 7	28 6	7 37	3 53	15 36 33	19 22	24	8 45	3 38	16 54	19	18	*expect*
19	10 25	10 42	26 1	7 39	3 52	15 40 44	19 36	21	9 52	4 26	14 15	20	19	☿ in Aphelion
20	11 1	11 24	23 8	7 41	3 50	15 44 55	19 49	57	10 58	5 11	10 59	21	20	*some*
21	11 51	— —	21 9	7 43	3 49	15 49 7	20 3	11	morn	5 55	7 19	22	21	*dark*
22	0 22	0 52	20 8	7 44	3 48	15 53 19	20 16	3	0 4	6 37	3 22	23	22	☿ ☌ ♃, 4 m 31
23	1 21	1 59	21 2	7 46	3 47	15 57 33	20 28	33	1 10	7 19	0s43	24	23	*and*
24	2 39	3 18	23 1	7 48	3 46	16 1 47	20 40	40	2 16	8 1	4 47	25	24	*stormy*
25	3 49	4 18	25 0	7 49	3 45	16 6 2	20 52	24	3 23	8 44	8 43	26	25	*weather*
26	4 41	5 5	26 11	7 51	3 44	16 10 18	21 3	44	4 30	9 30	12 21	27	26	♄ ☌ ☾, 3 m 28
27	5 24	5 46	28 5	7 53	3 43	16 14 34	21 14	41	5 38	10 18	15 28	28	27	*at the*
28	6 7	6 27	29 2	7 54	3 42	16 18 52	21 25	13	sets.	11 8	17 52	29	28	*end.*
29	6 50	7 12	30 4	7 56	3 41	16 23 10	21 35	22	4a 9	0 a 1	19 19	N	29	♃ ☌ ☾, 7 m 53
30	7 31	7 50	31 4	7 57	3 40	16 27 28	21 45	5	5 19	0 56	19 39	1	30	♃ ☌ ☉, 7 m 8

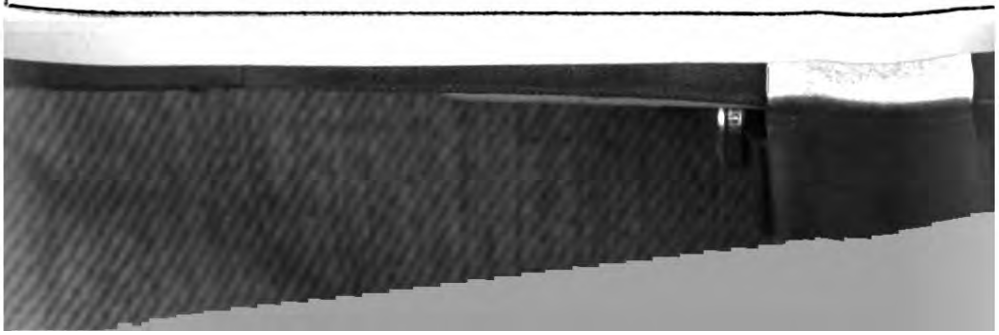
LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 W	21 40 15	23 9 26	24 38 47	26 8 20	27 38 5	29 8 1	30 38 8	32 8 26
2	33 38 56	35 9 38	36 40 30	38 11 34	39 42 49	41 14 15	42 45 53	44 17 41
3	45 49 42	47 21 53	48 54 16	50 26 50	51 59 36	53 32 33	55 5 41	56 39 1
4	58 12 33	59 46 16	61 20 10	62 54 16	64 28 33	66 3 3	67 37 44	69 12 36
5	70 47 41	72 22 57	73 58 25	75 34 4	77 9 56	78 45 59	80 22 15	81 58 42
6	83 35 21	85 12 12	86 49 15	88 26 29	90 3 55	91 41 33	93 19 23	94 57 24
7	96 35 36	98 14 0	99 52 35	101 31 22	103 10 19	104 49 26	106 28 44	108 8 13
8	109 47 51	111 27 40	113 7 38	114 47 45	116 28 1	118 8 25	119 48 58	121 29 38
9	123 10 25	124 51 20	126 32 21	128 13 28	129 54 40	131 35 57	133 17 18	134 58 43
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
17 E	132 44 38	131 16 21	129 48 24	128 20 48	126 53 31	125 26 33	123 59 54	122 33 34
18	121 7 32	119 41 47	118 16 20	116 51 10	115 26 16	114 1 38	112 37 16	111 13 8
19	109 49 14	108 25 35	107 2 9	105 38 55	104 15 54	102 53 4	101 30 26	100 7 58
20	98 45 39	97 23 30	96 1 30	94 39 38	93 17 53	91 56 15	90 34 44	89 13 18
21	87 51 57	86 30 40	85 9 27	83 48 18	82 27 11	81 6 6	79 45 3	78 24 0
22	77 2 57	75 41 54	74 20 50	72 59 45	71 38 37	70 17 27	68 56 13	67 34 56
23	66 13 34	64 52 7	63 30 35	62 8 57	60 47 12	59 25 20	58 3 21	56 41 14
24	55 18 58	53 56 34	52 34 1	51 11 17	49 48 24	48 25 20	47 2 5	45 38 39
25	44 15 2	42 51 13	41 27 11	40 2 57	38 38 31	37 13 52	35 48 59	34 23 54
26	32 58 35	31 33 3	30 7 18	28 41 20	27 15 8	25 48 43	24 22 5	22 55 16

JUPITER [♃] will be a morning star to 13th May, an evening star thence to the 30th November, then a morning star to the end of the year.

SATURN [♄] will be a morning star to the 4th April, an evening star to the 14th October, then a morning star to the end of the year.



PHASES OF THE MOON.
- First Quarter, 6th day, at 7h. 16m. morning.
- Full Moon, 13th day, at 6h. 54m. morning.
- Last Quarter, 21st day, at 4h. 45m. morning.
- New Moon, 28th day, at 9h. 3m. night.

M D.	Day brek.	Twi. ends.	☉'s semi.	☿ Mercury sets.	☿ Mercury sout.	♀ Venus. sets.	♀ Venus. sout.	♂ Mars. sets	♂ Mars. sout.	♃ Jupiter. rises.	♃ Jupiter. sout.	♄ Saturn. rises.	♄ Saturn. sout.	M D.
1	5m48	5 a 50	16 16	4 a 2	0 a39	5a 47	2m19	8m25	11 a44	7m52	11 m46	3m42	9m 0	1
8	5 53	5 50	16 17	4 17	0 59	6 6	2 29	7 44	11 5	7 33	11 25	3 18	8 35	8
15	6 1	5 51	16 17	4 40	1 16	6 27	2 37	7 5	10 28	7 13	11 4	2 54	8 10	15
22	6 4	5 53	16 18	5 5	1 26	9 50	2 45	6 29	9 54	6 54	10 43	2 30	7 45	22
29	6 6	5 58	16 18	5 12	1 16	7 15	2 51	5 56	9 22	6 34	10 22	2 5	7 19	29

M D	W D	Remarkable Days	HIGH WATER.—LIVERPOOL. Morning. Time.	Morning. Height.	Evening. Time.	Evening. Height.	Equation of Time. ′ ″
1	Th	Regulus rises 9 a 59	0 9	17 2	0 30	17 10	10 35
2	F	Mariners' Comp. inv.	0 51	17 2	1 13	17 8	10 11
3	S	James II. abdi. 1688	1 34	16 8	1 58	17 3	9 47
4	℣	2 Sunday in Advent	2 22	15 11	2 48	16 5	9 23
5	M	Proper Lessons. [Isaiah v; Acts v. — xxiv; Heb. x.	3 12	15 1	3 39	15 7	8 58
6	Tu	Nicholas, Bishop	4 6	14 1	4 36	14 8	8 32
7	W	Aldebaran sou. 11a20	5 11	13 5	5 49	14 2	8 6
8	Th	Conception V. Mary	6 23	13 3	7 1	14 2	7 40
9	F	Milton born, 1608	7 34	13 8	8 11	14 9	7 13
10	S	Neptune souths 7 a 4	8 39	14 8	9 10	15 6	6 45
11	℣	3 Sunday in Advent	9 36	15 9	10 5	16 3	6 18
12	M	Proper Lessons. [Isaiah xxv; Acts xi. — xxvi; James iv.	10 29	16 9	10 52	16 10	5 50
13	Tu	Lucy V and M	11 13	17 5	11 34	17 2	5 21
14	W	Ember Week	11 55	17 10	— —	— —	4 52
15	Th	Aldebaran sou. 10a49	0 16	17 1	0 35	17 8	4 23
16	F	Cambridge Term ends	0 57	16 7	1 15	17 3	3 54
17	S	Oxford Term ends	1 34	15 11	1 54	16 6	3 25
18	℣	4 Sunday in Advent	2 14	15 1	2 35	15 7	2 55
19	M	Pro. Les. [Isaiah xxx; Acts xviii. — xxxii; 2 Peter ii.	2 53	14 2	3 12	14 8	2 25
20	Tu	♅ souths 11 a 49	3 32	13 3	3 53	13 7	1 55
21	W	St. Thomas.	4 13	12 5	4 41	12 9	1 25
22	Th	Pleiades souths 9 a 32	5 10	11 9	5 45	12 1	0 55
23	F	Regulus souths 3m 53	6 19	11 6	6 51	11 11	0 25
24	S	Sirius souths 0 m 28	7 22	11 10	7 57	12 4	0 4
25	℣	Christmas Day	8 27	12 8	8 59	13 3	0 34
26	M	[Isaiah ix. to 8; Luke ii. to 15 — vii. v.10to v17; Tit.iiiv.4to9	9 24	13 11	9 46	14 4	1 4
27	Tu	St. John	10 10	15 3	10 33	15 6	1 34
28	W	Innocents	10 54	16 7	11 15	16 7	2 4
29	Th	Neptune souths 5 a 49	11 35	17 9	11 57	17 6	2 33
30	F	♅ souths 11 a 28	— —	— —	0 18	18 7	3 2
31	S	Silvester, Bishop	0 39	17 11	1 3	18 11	3 31

Bristol Tides. morn. H. M.	even. H. M.	height F. I.	SUN. rises. H M	sets. H M	rt. ascen. H. M. S.	declin. S. ° ′ ″	MOON. sets. H. M.	souths H. M.	declin. ° ′	age.	M D.	ASPECTS AND WEATHER
8 11	8 31	31 9	7 59	3 39	16 31 48	21 54 24	6a30	1a52	18s45	2	1	*Expect*
8 51	9 10	31 7	8 1	3 38	16 36 8	22 3 17	7 41	2 47	16 40	3	2	☿ ☌ ☾, 2 m 2
9 32	9 54	30 8	8 2	3 37	16 40 28	22 11 45	8 52	3 42	13 31	4	3	*some*
10 17	10 37	29 7	8 4	3 37	16 44 49	22 19 47	10 4	4 35	9 32	5	4	*stormy*
11 0	11 24	27 9	8 5	3 36	16 49 11	22 27 23	11 16	5 26	4 57	6	5	*weather*
11 50	— —	25 10	8 7	3 36	16 53 33	22 34 32	morn	6 18	0 5	7	6	☾ in Perigre
0 20	0 53	24 5	8 8	3 35	16 57 56	22 41 15	0 30	7 9	4N48	8	7	*about*
1 24	2 7	24 10	8 9	3 35	17 2 19	22 47 31	1 50	8 1	9 24	9	8	☿ gr. Hl. L.S
2 49	3 32	26 9	8 11	3 35	17 6 42	22 53 21	3 13	8 54	13 25	10	9	*this*
4 3	4 35	28 8	8 12	3 35	17 11 6	22 58 43	4 32	9 48	16 36	11	10	☿ gr. H. L. S
5 2	5 32	30 0	8 13	3 34	17 15 30	23 3 38	5 45	10 44	18 43	12	11	*time*
5 59	6 25	30 6	8 14	3 34	17 19 55	23 8 5	6 54	11 39	19 39	13	12	♂ ☌ ☾, 0 m 5
6 49	7 12	31 3	8 15	3 34	17 24 20	23 12 5	rises.	morn	— —	F	13	♅ ☌ ☾, 5 a 5
7 34	7 57	31 8	8 16	3 34	17 28 45	23 15 37	5a22	0 34	19 22	15	14	*which*
8 16	8 37	31 4	8 17	3 34	17 33 11	23 18 41	6 29	1 26	17 58	16	15	*may*
8 54	9 11	30 6	8 18	3 34	17 37 37	23 21 18	7 36	2 16	15 39	17	16	*continue*
9 29	9 48	29 5	8 19	3 35	17 42 3	23 23 26	8 42	3 4	12 37	18	17	*for*
10 6	10 21	27 10	8 19	3 35	17 46 29	23 25 6	9 48	3 49	9 4	19	18	*some*
10 37	10 54	26 3	8 20	3 35	17 50 55	23 26 18	10 54	4 32	5 12	20	19	♅ ☌ ☉, 1 m 4
11 12	11 29	24 2	8 21	3 36	17 55 22	23 27 2	11 59	5 14	1 9	21	20	*days.*
11 54	— —	22 7	8 21	3 36	17 59 48	23 27 17	morn	5 56	2s56	22	21	☉ enters ♑
0 19	0 50	21 1	8 22	3 36	18 4 15	23 27 4	1 5	6 38	6 55	23	22	[Win. com
1 20	1 54	21 0	8 22	3 37	18 8 41	23 26 22	2 12	7 22	10 40	24	23	♄ ☌ ☾, 4 a 5
2 32	3 14	22 7	8 22	3 37	18 13 8	23 25 13	3 19	8 8	14 1	25	24	*Rain*
3 49	4 23	24 10	8 22	3 38	18 17 34	23 23 35	4 25	8 57	16 47	26	25	*or*
4 48	5 12	26 11	8 23	3 39	18 22 1	23 21 29	5 30	9 49	18 43	27	26	*snow.*
5 37	6 3	28 10	8 23	3 40	18 26 27	23 18 54	6 35	10 43	19 38	28	27	♃ ☌ ☾, 4 m 1
6 26	6 50	29 10	8 23	3 41	18 30 53	23 15 52	sets.	11 40	19 19	N	28	*Fair if*
7 12	7 36	30 7	8 23	3 42	18 35 19	23 12 21	5 a 1	0a37	17 45	1	29	☿ stationar
7 59	8 20	32 10	8 23	3 43	18 39 45	23 8 23	6 18	1 33	14 58	2	30	*wind be*
8 43	9 5	33 5	8 23	3 44	18 44 10	23 3 57	7 39	2 29	11 10	3	31	*northerly.*

LUNAR DISTANCES FROM THE SUN.

Mean Astronomical Time at Greenwich.

M. D.	Noon. ° ′ ″	3 Hours. ° ′ ″	6 Hours. ° ′ ″	9 Hours. ° ′ ″	Midn. ° ′ ″	15 Hour. ° ′ ″	18 Hour. ° ′ ″	21 Hour. ° ′ ″
1 W	27 40 43	29 15 35	30 50 39	32 25 54	34 1 19	35 36 55	37 12 41	38 48 36
2	40 24 39	42 0 51	43 37 11	45 13 38	46 50 13	48 26 55	50 3 43	51 40 38
3	53 17 39	54 54 45	56 31 57	58 9 14	59 46 35	61 24 2	63 1 33	64 39 8
4	66 16 47	67 54 29	69 32 15	71 10 5	72 47 57	74 25 52	76 3 51	77 41 51
5	79 19 54	80 58 0	82 36 7	84 14 16	85 52 27	87 30 39	89 8 52	90 47 7
6	92 25 23	94 3 40	95 41 57	97 20 15	98 58 33	100 36 51	102 15 9	103 53 27
7	105 31 45	107 10 1	108 48 17	110 26 32	112 4 45	113 42 56	115 21 6	116 59 13
8	118 37 18	120 15 21	121 53 20	123 31 16	125 9 8	126 46 56	128 24 39	130 2 18
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	. .. ..	.. .. ..	. .. ..	.. .. ..
17 E	130 21 17	128 57 56	127 34 46	126 11 48	124 49 1	123 26 24	122 3 57	120 41 40
18	119 19 32	117 57 33	116 35 42	115 13 59	113 52 24	112 30 55	111 9 33	109 48 16
19	108 27 4	107 5 57	105 44 55	104 23 56	103 3 0	101 42 6	100 21 14	99 0 23
20	97 39 33	96 18 43	94 57 52	93 37 0	92 16 7	90 55 12	89 34 13	88 13 10
21	86 52 4	85 30 53	84 9 36	82 48 14	81 26 45	80 5 9	78 43 25	77 21 33
22	75 59 32	74 37 22	73 15 2	71 52 31	70 29 49	69 6 55	67 43 50	66 20 32
23	64 57 0	63 33 15	62 9 16	60 45 3	59 20 35	57 55 51	56 30 52	55 5 37
24	53 40 5	52 14 17	50 48 11	49 21 48	47 55 8	46 28 11	45 0 55	43 33 22
25	42 5 30	40 37 21	39 8 53	37 40 8	36 11 6	34 41 46	33 12 9	31 42 16
..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..	.. .. ..
30 W	21 51 2	23 29 4	25 7 27	26 46 9	28 25 6	30 4 16	31 43 37	33 23 8
31	35 2 47	36 42 33	38 22 24	40 2 19	41 42 18	43 22 19	45 2 21	46 42 24

Uranus [♅] will be best observed in the evenings of January to May, and in the mornings from July to the end of the year.

Neptune—This newly discovered Planet will be best observed when near its opposition on the 30th September, its Right Ascension at Noon on that day being 0h. 27m. 50sec., and Declination 1° 20′ 29″ North.



M D.	JANUARY. Noon	Midn.	FEBRUARY. Noon	Midn.	MARCH. Noon.	Midn.	APRIL. Noon.	Midn.	MAY. Noon.	Midn.	JUNE. Noon.	Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	15 2	15 7	15 37	15 44	15 48	15 54	16 16	16 19	16 14	16 14	15 49	15 46	1
2	15 13	15 19	15 52	16 0	16 1	16 7	16 22	16 25	16 13	16 12	15 42	15 37	2
3	15 26	15 33	16 7	16 15	16 14	16 20	16 27	16 28	16 10	16 7	15 33	15 29	3
4	15 41	15 49	16 22	16 29	16 25	16 30	16 28	16 27	16 4	16 0	15 24	15 20	4
5	15 57	16 5	16 35	16 39	16 34	16 38	16 25	16 22	15 56	15 51	15 15	15 11	5
6	16 13	16 20	16 43	16 46	16 40	16 40	16 18	16 13	15 46	15 41	15 7	14 3	6
7	16 26	16 32	16 47	16 46	16 40	16 38	16 8	16 2	15 35	15 29	14 59	15 56	7
8	16 37	16 40	16 44	16 41	16 35	16 31	15 56	15 49	15 24	15 18	14 53	14 51	8
9	16 43	16 44	16 37	16 31	16 26	16 20	15 42	15 35	15 13	15 8	14 49	14 48	9
10	16 43	16 41	16 25	16 18	16 13	16 6	15 28	15 22	15 4	15 0	14 47	14 48	10
11	16 38	16 34	16 10	16 2	15 58	15 50	15 16	15 10	14 56	14 53	14 48	14 50	11
12	16 29	16 23	15 54	15 47	15 43	15 35	15 5	15 0	14 51	14 49	14 52	14 55	12
13	16 17	16 10	15 39	15 31	15 28	15 21	14 56	14 53	14 48	14 48	14 59	15 3	13
14	16 3	15 56	15 24	15 18	15 14	15 9	14 50	14 49	14 49	14 50	15 8	15 13	14
15	15 49	15 42	15 12	15 7	15 3	14 59	14 48	14 47	14 52	14 54	15 19	15 25	15
16	15 35	15 29	15 2	14 58	14 55	14 52	14 47	14 48	14 58	15 1	15 32	15 38	16
17	15 23	15 18	14 54	14 51	14 49	14 47	14 50	14 52	15 6	15 10	15 45	15 52	17
18	15 12	15 8	14 48	14 46	14 46	14 45	14 54	14 57	15 15	15 21	15 58	16 4	18
19	15 4	15 0	14 45	14 44	14 45	14 45	15 1	15 4	15 26	15 32	16 10	16 14	19
20	14 57	14 54	14 44	14 43	14 46	14 48	15 8	15 12	15 37	15 42	16 18	16 22	20
21	14 51	14 49	14 44	14 44	14 49	14 52	15 17	15 21	15 48	15 52	16 24	16 25	21
22	14 47	14 46	14 45	14 47	14 54	14 57	15 26	15 30	15 57	16 1	16 26	16 26	22
23	14 45	14 44	14 48	14 50	15 0	15 3	15 34	15 38	16 4	16 7	16 24	16 22	23
24	14 43	14 43	14 53	14 55	15 7	15 10	15 42	15 46	16 9	16 11	16 20	16 17	24
25	14 44	14 44	14 58	15 2	15 14	15 18	15 50	15 53	16 12	16 13	16 13	16 9	25
26	14 45	14 47	15 5	15 9	15 22	15 26	15 56	15 59	16 13	16 13	16 5	16 1	26
27	14 49	14 51	15 13	15 18	15 30	15 35	16 2	16 5	16 13	16 12	15 56	15 52	27
28	14 54	14 58	15 24	15 29	15 39	15 44	16 7	16 9	16 10	16 9	15 47	15 43	28
29	15 1	15 6	15 35	15 41	15 49	15 53	16 11	16 12	16 7	16 4	15 38	15 34	29
30	15 11	15 17	.. ..	.. ..	15 58	16 3	16 13	16 14	16 2	15 59	15 29	15 25	30
31	15 23	15 30	.. ..	.. ..	16 7	16 12	.. ..	.. ..	15 56	15 53	.. ..	.. ..	31

M D.	JULY. Noon.	Midn.	AUGUST. Noon.	Midn.	SEPT. Noon.	Midn.	OCTOBER. Noon.	Midn.	NOVEMBER Noon.	Midn.	DECEMBER Noon.	Midn.	M D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
1	15 20	15 17	14 52	14 50	14 43	14 44	14 52	14 55	15 22	15 26	15 52	15 55	1
2	15 13	15 9	14 48	14 46	14 45	14 46	14 58	15 1	15 30	15 34	15 58	16 0	2
3	15 5	15 2	14 45	14 44	14 48	14 50	15 4	15 8	15 38	15 42	16 3	16 5	3
4	14 59	14 56	14 44	14 44	14 52	14 55	15 12	15 16	15 46	15 50	16 6	16 8	4
5	14 53	14 51	14 44	14 45	14 59	15 2	15 20	15 25	15 54	15 58	16 9	16 9	5
6	14 49	14 47	14 46	14 48	15 7	15 12	15 30	15 36	16 2	16 5	16 10	16 10	6
7	14 46	14 45	14 50	14 53	15 17	15 23	15 41	15 47	16 9	16 12	16 10	16 9	7
8	14 45	14 46	14 57	15 1	15 29	15 35	15 53	15 59	16 15	16 17	16 8	16 7	8
9	14 47	14 49	15 6	15 11	15 42	15 49	16 5	16 10	16 19	16 21	16 5	16 3	9
10	14 51	14 54	15 17	15 24	15 57	16 4	16 16	16 21	16 22	16 22	16 1	15 58	10
11	14 58	15 2	15 31	15 38	16 11	16 18	16 26	16 30	16 21	16 19	15 54	15 51	11
12	15 7	15 13	15 46	15 54	16 25	16 31	16 33	16 35	16 17	16 13	15 46	15 42	12
13	15 19	15 26	16 2	16 10	16 36	16 40	16 36	16 36	16 9	16 4	15 37	15 32	13
14	15 33	15 40	16 17	16 24	16 43	16 44	16 35	16 32	15 59	15 53	15 27	15 22	14
15	15 48	15 56	16 30	16 36	16 45	16 44	16 29	16 24	15 47	15 41	15 17	15 12	15
16	16 3	16 10	16 40	16 43	16 41	16 37	16 19	16 13	15 34	15 28	15 7	15 3	16
17	16 17	16 23	16 45	16 46	16 33	16 27	16 6	15 58	15 22	15 16	14 59	14 56	17
18	16 28	16 32	16 45	16 42	16 20	16 13	15 51	15 43	15 10	15 5	14 53	14 51	18
19	16 36	16 38	16 39	16 34	16 5	15 57	15 36	15 29	15 1	14 57	14 49	14 48	19
20	16 38	16 38	16 29	16 22	15 49	15 41	15 22	15 16	14 53	14 51	14 48	14 48	20
21	16 36	16 34	16 15	16 8	15 34	15 27	15 10	15 4	14 49	14 48	14 49	14 51	21
22	16 30	16 26	16 1	15 53	15 20	15 14	15 0	14 56	14 48	14 48	14 54	14 57	22
23	16 21	16 15	15 46	15 38	15 8	15 3	14 52	14 50	14 49	14 51	15 1	15 6	23
24	16 9	16 3	15 31	15 25	14 58	14 54	14 48	14 47	14 53	14 56	15 11	15 16	24
25	15 56	15 50	15 19	15 13	14 51	14 49	14 46	14 46	14 59	15 3	15 22	15 28	25
26	15 44	15 38	15 8	15 3	14 47	14 45	14 47	14 48	15 7	15 11	15 34	15 41	26
27	15 32	15 27	14 59	14 56	14 44	14 44	14 49	14 51	15 16	15 21	15 47	15 52	27
28	15 21	15 17	14 52	14 50	14 44	14 44	14 54	14 57	15 26	15 30	15 58	16 3	28
29	15 12	15 8	14 48	14 46	14 45	14 47	15 0	15 3	15 35	15 40	16 7	16 11	29
30	15 4	15 1	14 45	14 44	14 48	15 50	15 7	15 10	15 44	15 48	16 14	16 16	30
31	14 57	14 54	14 43	14 43	.. ..	.. ..	15 14	15 18	.. ..	.. ..	16 17	16 18	31

	JANUARY.		FEBRUARY		MARCH		APRIL.		MAY.		JUNE.		M
	Noon.	Midn.	Noon.	Midn.	Noon	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	D.
	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
	55 5	55 24	57 12	57 39	57 52	58 16	59 35	59 48	59 29	59 28	57 58	57 44	1
	55 44	56 8	58 7	58 36	58 40	59 4	60 0	60 9	59 25	59 20	57 30	57 15	2
	56 33	57 0	59 4	59 32	59 28	59 50	60 15	60 18	59 13	59 3	56 59	56 43	3
	57 28	57 57	59 59	60 23	60 10	60 28	60 18	60 15	58 52	58 38	56 26	56 10	4
	58 26	58 55	60 44	61 2	60 44	60 55	60 8	59 57	58 22	58 5	55 53	55 37	5
	59 24	59 50	61 16	61 24	61 3	61 6	59 43	59 26	57 46	57 27	55 22	55 8	6
	60 14	60 35	61 28	61 27	61 4	60 58	59 6	58 45	57 6	56 45	54 54	54 42	7
	60 52	61 5	61 20	61 9	60 46	60 32	58 21	57 56	56 25	56 5	54 32	54 24	8
	61 14	61 17	60 52	60 32	60 13	59 51	57 31	57 6	55 45	55 27	54 18	54 13	9
	61 15	61 9	60 9	59 43	59 26	58 59	56 41	56 17	55 11	54 56	54 11	54 12	10
	60 58	60 43	59 15	58 46	58 31	58 2	55 55	55 34	54 43	54 32	54 15	54 21	11
	60 24	60 2	58 17	57 48	57 34	57 6	55 15	54 58	54 24	54 18	54 29	54 39	12
	59 39	59 14	57 20	56 53	56 39	56 14	54 44	54 32	54 15	54 14	54 53	55 8	13
	58 48	58 22	56 27	56 3	55 50	55 29	54 23	54 16	54 16	54 21	55 26	55 46	14
	57 56	57 31	55 41	55 22	55 9	54 53	54 12	54 10	54 28	54 37	56 7	56 30	15
	57 7	56 44	55 4	54 49	54 38	54 26	54 11	54 14	54 49	55 3	56 54	57 18	16
	56 22	56 2	54 35	54 24	54 17	54 10	54 19	54 27	55 18	55 35	57 43	58 7	17
	55 43	55 26	54 15	54 8	54 5	54 3	54 36	54 47	55 54	56 13	58 31	58 52	18
	55 11	54 57	54 3	53 59	54 2	54 4	55 0	55 13	56 33	56 53	59 12	59 30	19
	54 45	54 34	53 57	53 57	54 7	54 12	55 28	55 43	57 13	57 33	59 45	59 57	20
	54 25	54 17	53 58	54 0	54 19	54 27	55 59	56 15	57 52	58 9	60 5	60 11	21
	54 10	54 5	54 4	54 9	54 36	54 46	56 31	56 47	58 26	58 40	60 12	60 11	22
	54 1	53 58	54 15	54 22	54 57	55 9	57 3	57 18	58 53	59 3	60 7	60 0	23
	53 57	53 56	54 31	54 40	55 21	55 35	57 33	57 46	59 12	59 18	59 50	59 39	24
	53 57	54 0	54 51	55 3	55 48	56 3	58 0	58 12	59 23	59 26	59 26	59 11	25
	54 3	54 9	55 17	55 32	56 17	56 33	58 24	58 35	59 26	59 26	58 56	58 40	26
	54 16	54 25	55 48	56 5	56 49	57 5	58 46	58 55	59 23	59 20	58 24	58 7	27
	54 36	54 48	56 24	56 44	57 21	57 38	59 3	59 11	59 14	59 9	57 50	57 33	28
	55 3	55 20	57 6	57 28	57 56	58 13	59 17	59 22	59 1	58 53	57 17	57 1	29
	55 38	55 59	.. ..	.. ..	58 30	58 48	59 26	59 29	58 44	58 34	56 45	56 29	30
	56 22	56 46	.. ..	.. ..	59 4	59 20	.. ..	.. ..	58 23	58 11	.. ..	.. ..	31

	JULY.		AUGUST.		SEPT.		OCTOBER.		NOVEMBER		DECEMBER		M
	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	Noon.	Midn.	D.
	′ ″	′ ″	″ ′	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	′ ″	
	56 14	55 59	54 28	54 19	53 56	53 58	54 30	54 39	56 18	56 32	58 6	58 19	1
	55 45	55 31	54 12	54 7	54 1	54 6	54 49	55 1	56 47	57 2	58 30	58 39	2
	55 17	55 5	54 2	53 59	54 12	54 20	55 13	55 26	57 17	57 31	58 47	58 54	3
	54 53	54 42	53 57	53 57	54 29	54 40	55 41	55 56	57 46	58 1	59 0	59 5	4
	54 32	54 24	53 58	54 1	54 52	55 6	56 12	56 30	58 15	58 30	59 9	59 11	5
	54 16	54 11	54 6	54 13	55 22	55 40	56 48	57 8	58 44	58 57	59 13	59 13	6
	54 6	54 4	54 22	54 33	55 59	56 20	57 28	57 49	59 10	59 22	59 12	59 11	7
	54 4	54 6	54 46	55 2	56 43	57 7	58 11	58 32	59 32	59 41	59 7	59 3	8
	54 10	54 16	55 19	55 39	57 32	57 59	58 54	59 15	59 49	59 54	58 57	58 49	9
	54 25	54 36	56 1	56 25	58 26	58 53	59 36	59 54	59 56	59 56	58 40	58 29	10
	54 50	55 6	56 51	57 18	59 19	59 45	60 11	60 26	59 53	59 47	58 16	58 3	11
	55 24	55 45	57 46	58 15	60 9	60 30	60 37	60 45	59 38	59 26	57 47	57 31	12
	56 8	56 32	58 44	59 12	60 49	61 4	60 49	60 48	59 11	58 54	57 13	56 55	13
	56 58	57 25	59 40	60 5	61 14	61 20	60 44	60 35	58 34	58 13	56 36	56 18	14
	57 53	58 21	60 28	60 48	61 21	61 17	60 22	60 6	57 50	57 27	55 59	55 42	15
	58 48	59 15	61 4	61 16	61 8	60 55	59 46	59 23	57 3	56 40	55 25	55 9	16
	59 39	60 2	61 22	61 24	60 37	60 15	58 58	58 32	56 17	55 55	54 54	54 42	17
	60 21	60 36	61 21	61 12	59 51	59 24	58 4	57 37	55 35	55 16	54 31	54 23	18
	60 48	60 55	61 0	60 43	58 56	58 27	57 10	56 43	55 0	54 46	54 17	54 14	19
	60 58	60 57	60 22	59 59	57 58	57 29	56 18	55 54	54 34	54 24	54 13	54 15	20
	60 51	60 41	59 34	59 7	57 1	56 35	55 33	55 13	54 18	54 13	54 19	54 26	21
	60 28	60 12	58 39	58 12	56 10	55 47	54 56	54 41	54 12	54 13	54 36	54 48	22
	59 53	59 32	57 44	57 18	55 26	55 7	54 29	54 20	54 17	54 23	55 3	55 19	23
	59 10	58 47	56 52	56 28	54 51	54 37	54 13	54 8	54 31	54 42	55 38	55 58	24
	58 24	58 1	56 6	55 45	54 25	54 16	54 6	54 6	54 54	55 8	56 19	56 41	25
	57 38	57 16	55 26	55 10	54 9	54 3	54 8	54 12	55 23	55 39	57 4	57 26	26
	56 55	56 35	54 55	54 41	54 0	53 59	54 18	54 26	55 56	56 14	57 48	58 10	27
	56 16	55 58	54 30	54 20	53 59	54 1	54 35	54 45	56 31	56 49	58 30	58 48	28
	55 42	55 26	54 12	54 6	54 4	54 9	54 57	55 9	57 6	57 23	59 4	59 17	29
	55 12	54 59	54 1	53 58	54 14	54 22	55 22	55 35	57 38	57 53	59 28	59 36	30
	54 18	54 37	53 56	53 55	.. ..	.. ..	55 49	56 3	.. ..	.. ..	59 41	59 44	31



Mean Refraction.

App Alt.	Refr.	App Alt.	Refr	App. Alt	Refr	App. Alt.	Refr	App. Alt.	Refr
° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
0 0	33 0	5 0	9 54	10 0	5 15	20 0	2 35	34 0	1 24
0 5	32 10	5 5	9 46	10 10	5 10	20 10	2 34	34 30	1 23
0 10	31 22	5 10	9 38	10 20	5 5	20 20	2 32	35 0	1 21
0 15	30 35	5 15	9 30	10 30	5 0	20 30	2 31	35 30	1 20
0 20	29 50	5 20	9 23	10 40	4 56	20 40	2 29	36 0	1 18
0 25	29 6	5 25	9 15	10 50	4 51	20 50	2 28	36 30	1 17
0 30	28 23	5 30	9 8	11 0	4 47	21 0	2 27	37 0	1 16
0 35	27 41	5 35	9 1	11 10	4 43	21 10	2 26	37 30	1 14
0 40	27 0	5 40	8 54	11 20	4 39	21 20	2 25	38 0	1 13
0 45	26 20	5 45	8 47	11 30	4 34	21 30	2 24	38 30	1 11
0 50	25 42	5 50	8 41	11 40	4 31	21 40	2 23	39 0	1 10
0 55	25 5	5 55	8 34	11 50	4 27	21 50	2 21	39 30	1 9
1 0	24 29	6 0	8 28	12 0	4 23	22 0	2 20	40 0	1 8
1 5	23 54	6 5	8 21	12 10	4 20	22 10	2 19	41 0	1 5
1 10	23 20	6 10	8 15	12 20	4 16	22 20	2 18	42 0	1 3
1 15	22 47	6 15	8 9	12 30	4 13	22 30	2 17	43 0	1 1
1 20	22 15	6 20	8 3	12 40	4 9	22 40	2 16	44 0	0 59
1 25	21 44	6 25	7 57	12 50	4 6	22 50	2 15	45 0	0 57
1 30	21 15	6 30	7 51	13 0	4 3	23 0	2 14	46 0	0 55
1 35	20 46	6 35	7 45	13 10	4 0	23 10	2 13	47 0	0 53
1 40	20 18	6 40	7 40	13 20	3 57	23 20	2 12	48 0	0 51
1 45	19 51	6 45	7 35	13 30	3 54	23 30	2 11	49 0	0 49
1 50	19 25	6 50	7 30	13 40	3 51	23 40	2 10	50 0	0 48
1 55	19 0	6 55	7 25	13 50	3 48	23 50	2 9	51 0	0 46
2 0	18 35	7 0	7 20	14 0	3 45	24 0	2 8	52 0	0 44
2 5	18 11	7 5	7 15	14 10	3 43	24 10	2 7	53 0	0 43
2 10	17 48	7 10	7 11	14 20	3 40	24 20	2 6	54 0	0 41
2 15	17 26	7 15	7 6	14 30	3 38	24 30	2 5	55 0	0 40
2 20	17 4	7 20	7 2	14 40	3 35	24 40	2 4	56 0	0 38
2 25	16 44	7 25	6 57	14 50	3 33	24 50	2 3	57 0	0 37
2 30	16 24	7 30	6 53	15 0	3 30	25 0	2 2	58 0	0 35
2 35	16 4	7 35	6 49	15 10	3 28	25 10	2 1	59 0	0 34
2 40	15 45	7 40	6 45	15 20	3 26	25 20	2 0	60 0	0 33
2 45	15 27	7 45	6 41	15 30	3 24	25 30	1 59	61 0	0 32
2 50	15 9	7 50	6 37	15 40	3 21	25 40	1 58	62 0	0 30
2 55	14 52	7 55	6 33	15 50	3 19	25 50	1 57	63 0	0 29
3 0	14 36	8 0	6 29	16 0	3 17	26 0	1 56	64 0	0 28
3 5	14 20	8 5	6 25	16 10	3 15	26 10	1 55	65 0	0 26
3 10	14 4	8 10	6 22	16 20	3 12	26 20	1 55	66 0	0 25
3 15	13 49	8 15	6 18	16 30	3 10	26 30	1 54	67 0	0 24
3 20	13 34	8 20	6 15	16 40	3 8	26 40	1 53	68 0	0 23
3 25	13 20	8 25	6 11	16 50	3 6	26 50	1 52	69 0	0 22
3 30	13 6	8 30	6 8	17 0	3 4	27 0	1 51	70 0	0 21
3 35	12 53	8 35	6 5	17 10	3 3	27 15	1 50	71 0	0 19
3 40	12 40	8 40	6 1	17 20	3 1	27 30	1 49	72 0	0 18
3 45	12 27	8 45	5 58	17 30	2 59	27 45	1 48	73 0	0 17
3 50	12 15	8 50	5 55	17 40	2 57	28 0	1 47	74 0	0 16
3 55	12 3	8 55	5 52	17 50	2 55	28 15	1 46	75 0	0 15
4 0	11 51	9 0	5 48	18 0	2 54	28 30	1 45	76 0	0 14
4 5	11 40	9 5	5 45	18 10	2 52	28 45	1 44	77 0	0 13
4 10	11 29	9 10	5 42	18 20	2 51	29 0	1 42	78 0	0 12
4 15	11 18	9 15	5 39	18 30	2 49	29 30	1 40	79 0	0 11
4 20	11 8	9 20	5 36	18 40	2 47	30 0	1 38	80 0	0 10
4 25	10 58	9 25	5 34	18 50	2 46	30 30	1 37	81 0	0 9
4 30	10 48	9 30	5 31	19 0	2 44	31 0	1 35	82 0	0 8
4 35	10 39	9 35	5 28	19 10	2 43	31 30	1 33	83 0	0 7
4 40	10 29	9 40	5 25	19 20	2 41	32 0	1 31	84 0	0 6
4 45	10 20	0 45	5 23	19 30	2 40	32 30	1 30	86 0	0 4
4 50	10 11	9 50	5 20	19 40	2 38	33 0	1 28	88 0	0 2
4 55	10 2	9 55	5 18	19 50	2 37	33 30	1 26	90 0	0 0

Dip of The Horizon.

Height of the Eye.	Dip of the Horizon.	Height of the Eye.	Dip of the Horizon.
ft.	′ ″	*ft.*	′ ″
1	0 59	19	4 17
2	1 24	20	4 24
3	1 42	21	4 31
4	1 58	22	4 37
5	2 12	23	4 43
6	2 25	24	4 49
7	2 36	25	4 55
8	2 47	26	5 1
9	2 57	27	5 7
10	3 7	28	5 13
11	3 16	29	5 18
12	3 25	30	5 24
13	3 33	31	5 29
14	3 41	32	5 34
15	3 49	33	5 39
16	3 56	34	5 44
17	4 4	35	5 49
18	4 11	38	6 4

Dip at Different Distances.

Miles.	Height of the Eye in Feet.					
	5	10	15	20	25	30
	′	′	′	′	′	′
¼	11	23	34	45	57	68
½	6	12	17	23	28	34
¾	4	8	12	15	19	23
1	3	6	9	12	15	17
1¼	3	5	7	10	12	14
1½	3	4	6	8	10	12
2	2	4	5	7	8	9
2½	2	3	4	6	7	8
3	2	3	4	5	6	7
3½	2	3	4	5	6	6
4	2	3	4	5	5	6
5	2	3	4	4	5	6
6	2	3	4	4	5	5

Table Of Corrections

To be applied to the Rising and Setting of the Sun, Moon, and Planets, when viewed from elevations above the sea level—Subtract from Rising, add to Setting.

ft	*s.*	*ft.*	*m.s.*	*ft.*	*m.s.*
5	16	50	0 51	120	1 18
10	23	60	0 56	140	1 26
15	28	70	1 1	160	1 32
20	30	80	1 5	180	1 38
30	38	90	1 8	200	1 43
40	46	100	1 10	300	2 5

ight Ascensions, and Declinations, and Semi-diurnal Arcs,

FOR LATITUDE 54° 10′,

Of the Principal Fixed Stars

NAMES.	Magnitude.	Right Ascension. H. M. S.	Annual Variations ″	Declination. ° ′ ″	Annual Variations ″	Semi-diurnal Arcs. H. M.
Andromedæ	2	0 1 22	+ 3·08	N 28 20 22	+19·90	9 19
Pegasi (Algenib)	3·2	0 6 14	+ 3·08	14 25 38	+20·03	7 27
Cassiopeæ	Var.	0 32 48	+ 3·36	55 47 27	+19·81	sets not
Ceti	2	0 36 45	+ 3·01	S 18 44 2	+19·82	4 12
Ursæ Minor.(Polaris)	2	1 9 19	+18·84	N 88 35 4	+19·18	sets not
Eripani (Achernar)..	1	1 32 39	+ 2·24	S 57 55 42	+18·43	rises not
Arietes.	2	1 59 31	+ 3·36	N 22 49 3	+17·25	8 27
Ceti	2·3	2 55 10	+ 3·13	3 33 14	+14·38	6 23
Persei	2	3 14 38	+ 4·24	49 22 26	+13·22	sets not
Tauri	3	3 39 24	+ 3·55	23 40 54	+11·50	8 34
Tauri (Aldebaran) ..	1	4 28 7	+ 3·43	16 13 58	+ 7·67	7 39
Aurigæ (Capella)....	1	5 6 39	+ 4·42	45 51 20	+ 4·22	sets not
Orionis (Rigel).. . .	1	5 8 0	+ 2·88	S 8 21 42	+ 4·50	5 17
Tauri	2	5 17 42	+ 3·79	N 28 29 20	+ 3·50	9 21
Orionis	2	5 25 4	+ 3·06	S 0 24 11	+ 3·02	6 1
Leporis	3	5 26 44	+ 2·64	17 55 20	+ 2·92	4 10
Orionis	2	5 29 19	+ 3·04	1 17 31	+ 2·68	5 57
Columbæ	2	5 34 44	+ 2·18	34 8 53	+ 2·22	sets not
Orionis	Var.	5 47 49	+ 3·25	N 7 22 42	+ 1·08	6 45
Argus (Canopus) .. .	1	6 20 56	+ 1·33	S 52 37 21	− 1·82	rises not
Canis Majoris (Sirius)	1	6 39 9	+ 2·64	16 31 57	− 4·62	4 27
Geminorum (Castor)	2·1	7 25 55	+ 3·84	N 32 11 0	− 7·40	10 13
Canis Minoris (Proc.)	1	7 32 11	+ 3·14	5 34 16	− 8·87	6 35
Geminorum (Pollux)	1·2	7 36 59	+ 3·68	28 21 5	− 8·28	9 20
Hydræ.....	2	9 20 54	+ 2·95	S 8 4 15	−15·37	6 49
Leonis (Regulus)....	1·2	10 1 8	+ 3·20	N 12 37 50	−17·40	7 17
Ursæ Majoris.....	2	10 55 19	+ 3·77	62 29 3	−19·34	sets not
Leonis.....	2·3	11 6 52	+ 3·20	21 16 5	−19·66	8 16
Leonis....	2	11 42 7	+ 3·06	15 19 56	−20·09	7 34
Ursæ Majoris.....	2·3	11 46 40	+ 3·19	54 27 3	−20·02	sets not
Crucis.....	1	12 19 3	+ 3·26	S 62 20 39	−19·94	rises not
Corvi	2·3	12 27 15	+ 3·13	22 38 40	−19·98	3 44
Virginis(Spica).. ...	2	13 18 2	+ 3·15	10 27 2	−18·95	5 5
Centauri	1	13 54 15	+ 4·15	59 42 54	−17·69	rises not
Bootis (Arcturus)....	1	14 9 27	+ 2·73	N 19 53 31	−18·93	8 5
2 Centauri.....	1	14 13 24	+ 4·03	S 60 16 9	−15·06	rises not
Bootis	2·3	14 39 3	+ 2·62	N 27 38 57	−15·42	9 13
2 Libræ	2·3	14 43 21	+ 3·30	S 15 28 28	−15·24	4 34
Ursæ Minoris.....	2	14 51 8	− 0·26	N 74 42 40	−14·75	sets not
Libræ	2	15 9 41	+ 3·22	S 8 52 44	−13·60	5 14
Coronæ Borealis	2	15 28 56	+ 2·54	N 27 10 28	−12·36	9 8
Serpentis	2·3	15 37 34	+ 2·95	6 51 21	−11·63	6 42
Scorpii (Antares)....	1·2	16 21 4	+ 3·67	S 26 7 37	− 8·44	3 15
Trianguli Australis ..	2	16 34 18	+ 6·27	68 46 20	− 7·44	rises not
Herculis	Var.	17 8 27	+ 2·73	N 14 32 53	− 4·44	7 29
Draconis.....	3·2	17 27 22	+ 1·35	52 24 12	− 2·85	sets not
Lyræ (Vega)	1	18 32 20	+ 2·03	38 39 32	+ 3·10	sets not
Lyræ	Var.	18 45 3	+ 2·21	33 12 24	+ 3·88	10 31
Aquilæ..... ...	3	19 38 48	+ 2·85	10 17 3	+ 8·45	7 2
Aquilæ (Altair).....	1·2	19 44 9	+ 2·93	8 30 42	+ 9·17	6 51
Aquilæ	4	19 48 38	+ 2·94	6 4 10	+ 8·66	6 37
Pavonis	2	20 14 52	+ 4·80	S 57 10 0	+11·08	rises not
Cygni	2·1	20 36 48	+ 2·04	N 44 47 45	+12·66	sets not
Cephei....	3·	21 15 20	+ 1·44	62 0 36	+15·10	sets not
Aquarii	3	21 24 24	+ 3·16	S 6 10 4	+15·60	5 29
Cephei....	3	21 26 54	+ 0·80	N 69 57 50	+15·70	sets not
Aquarii	3	21 58 48	+ 3·08	S 0 58 46	+17·29	5 58
Gruis	2	21 59 39	+ 3·82	47 37 3	+17·16	rises not
Piscium Australis....	1·2	22 50 8	+ 3·33	30 20 32	+19·95	2 29
Pegasi (Markab)	2	22 57 59	+ 2·98	N 14 28 27	+19·30	7 27



General Tide Table,

By which the times of High Water may be CORRECTLY FOUND *on* ANY *Day.*

N.B.—ADD to the time of High Water in the Tide Table in this Almanack, the Hours and Minutes in the Column opposite the Place required.

ENGLAND	H. M.
Alderney Pier.	7 35
Alne River	3 35
Barnstaple Bar .. .	6 20
Berwick	3 8
Blakeney	7 40
Blythe	3 35
Boston..	8 5
Bridgewater	7 35
Bridlington..	5 20
Bridport	6 50
Carlisle	0 50
Chatham	1 44
Christchurch . ..	9 40
Dartmouth..	6 55
Exmouth Bar	7 15
Falmouth	6 20
Flamboro' Head ..	5 20
Flatholm	7 18
Fowey	6 20
Gravesend	2 20
Guernsey (Eng.Chan)	7 20
Hartlepool	4 35
Hull	6 50
Humber River	6 20
Ilfracombe	6 20
Ipswich	0 50
Jersey (En. Ch.) ..	7 0
Land's End	5 20
London Bridge	2 57
Longships	5 20
Lyme Regis	7 20
Needles Point	10 35
Newcastle	4 50
Penzance	5 20
Plymouth Dock.. ..	6 20
Poole	9 50
Portsmouth Dock ..	0 30
Ramsgate	0 36
Robin Hood's Bay ..	4 35
Scarborough	5 15
Scilly Islands	5 0
Sheerness	1 29
Shields	3 50
Southampton	0 30
Spithead	10 20
St. Ives	5 20
Sunderland	3 50
Tees River	4 20
Torbay..	6 50
Tynemouth Bar ..	3 40
Weymouth..	7 20
Whitby	4 35
Wisbeach	8 20
Yarmouth Roads ..	9 30
Yarmouth, Isle Wight	10 20

WALES.	H. M.
Aberdovey	8 20
Aberystwith	8 20
Barmouth	8 45
Bardsey Island	9 5
Burrey Harbour.. ..	6 50
Cardiff	6 50
Cardigan Bar	7 50
Caermarthen Bar ..	7 0
Carnarvon Bar . ..	9 50
Denbigh	3 5
Fisgard Bay	7 20
Milford Haven.. ..	6 35
Newport	7 35
Pembroke	6 54
Skerries	10 35
Smalls and Swansea..	6 40
Strumble Head	7 5

IRELAND.	H. M.
Arklow	10 5
Baltimore	4 35
Bantry Bay	4 36
Broadhaven .. .	6 50
Cork Harbour	5 20
Crookhaven	4 20
Donaghadee.	10 5
Donegal Bar	5 55
Downing Bay	6 10
Dungarvon..	5 20
Foyn's Island	4 50
Galway Bay	5 20
Kinsale..	5 20
Limerick	6 50
Lough Swilly	8 20
Londonderry . ..	6 50
Malbay	4 50
Newry	0 50
Port Rush	6 35
Saltees..	6 30
Shannon	4 35
Skerries	5 35
Sligo Bay	5 35
Tory Island..	6 50
Tralee Bay..	4 35
Valentia Harbour ..	4 20
Waterford	6 40
Wexford	8 20
Wicklow	9 50
Youghal	5 50

SCOTLAND.	H. M.
Aberdeen	2 2
Banff	0 20
Buchanness	0 50
Burnt Island	3 20
Cromarty	0 35
Dee (River)	1 35
Dunbar	2 50
Dundee	3 5
Eyemouth	3 5
Leith Pier	3 10
Montrose	2 35
Tay Bar	2 35
Wick	10 5

SHETLANDS.	H. M.
Balta	3 50
Brassa Sound	10 50
Lerwick Harbour ..	10 35
Westra	0 50

ORKNEYS.	H. M.
Cairston	9 50
Fair Isle	10 50
Pomona	3 50
Ronaldsha	10 35

FOREIGN PORTS.	H. M.
Amsterdam	3 50
Antwerp	6 50
Bahia, Brazil	5 5
Bilboa, Spain	4 5
Biscay, Spain	5 20
Bonny River, Africa..	5 50
Bordeaux	3 50
Bremen, Germany ..	6 50
Brest, France . ..	4 38
Cadiz, Spain . ..	3 20
Calabar, Africa .	5 50
Calcutta	3 55
Carthagena, S. Amer	2 50
Charleston Bar, U.S.	7 50
Charante, France ..	4 50
Cape Coast, Africa..	4 20
Cape Good Hope town	3 10
Fort St. John, N.A..	9 50
Funchal, Madeira ..	1 5
Hamburg	6 50
Rio Janeiro, Brazil..	3 30
St. John's, N.Foundl.	8 40
Lisbon	4 50
L'Orient, France .	4 20
New York E. River..	9 44
Oporto, Portugal ..	4 5
Panama, S. A.	3 50
Pernambuca, S. A ..	8 5
Philadelphia, U. S..	3 50
Quebec, Canada ..	7 35
Rotterdam . ..	3 50
Santa Cruz, S.A. ..	9 30
Whampoa, China ..	3 20

The Tides at the following places are nearly the same as the Tide-Table:—

Ardglass,	Chester	Dublin	Hastings	Mull of Galloway	St. Helen
Arran Island	Conway	Dumfries	Kingstown	Newhaven	Strangford
Bangor	Cowes	Dundalk	Killough	Pargate	Stromness
Balbriggan	Copeland Island	Dundrum	Kirkcudbright	Preston	Troon
Belfast	Deal	Folkstone	Lancaster	Pentland Frith	Warren's Point
Beaumaris	Dover	Glasgow	Liverpool	Ramsgate	Ulverston, and
Carlingford	Downs	Greenock	Maryport	Rothsay	Whitehaven.
Carrickfergus	Drogheda	Harwich	Margate	Roseness	

ISLE OF MAN INFORMATION.

Manx Legislature

enry B. Loch, Esq..... Lieut.-Governor
ec. to his Excellency.... James Burman

COUNCIL.

on.&Rt.Rev.H.Powys,D.D.,Lord Bishop
harles R. Ogden .... Attorney-General
on. W. L. Drinkwater, South. Deemster
on. J. C. Stephen, Northern Deemster
m. W. Christian ..... Water-Bailiff
on. Mark H. Quayle, Clerk of the Rolls
en. Joseph C. Moore ..... Archdeacon
ichard Jebb ..... Vicar General
ames Burman ..... Clerk of Council

HOUSE OF KEYS.

dw. Moore Gawne, Speaker, Kentraugh
obert John Moore, Secretary ..... Peel
ohn F. Crellin ..... Orrisdale
van Gell .... Whitehouse
rederick J. D. Lamothe ..... Ramsey
lexander Spittall.... ..... Laureston
ichard Quirk ..... . Rheaby, Patrick
rank Matthews .. .. Glenmoore
lenry Murray..... Thornton
Villiam Callister ..... Thornhill
. G. Bennett ..... Willaston
dward Curphey Farrant.. Ballakillingan
atrick T. Cuninghame .... . Ballanorris
eorge P. Goldie ..... . Marown
ohn Gell .... Kennaa
hilip Killey ..... . Douglas
ohn M. Jeffcott ..... Castletown
idgway Harrison..... Douglas
Villiam Harrison ..... German
V. F. Moore .. .. Cronkbourne
Villiam Haslam ..... Ballaglass
Villiam Farrant ..... Ballamoore
. S. Goldie Taubman..... Nunnery
dward Faulder..... Ellerslie

Committee of the Legislature

OR REGULATING ALL MATTERS RELATIVE TO HIGHWAYS, BRIDGES, &c.

V. Callister, E. C. Farrant, F. Matthews, Ridgway Harrison, and J. M. Jeffcott.

urveyor-General, R. Anderson, Douglas

Constituted Authorities

HIGH BAILIFFS.

enhouse Wilson ..... Douglas
ames Gell..... Castletown
rederick Tellett..... ..... Ramsey
obert J. Moore ..... Peel

oroner-General for holding Inquests of Death.... W. W. Christian, Andreas
egistrar of Deeds .. S. Wilson, Douglas
egistrar General of Births and Marriages ...James Burman, Castletown
eputy Registrars do.—R. Harrison, Douglas; James Gell, Castletown; Robert J. Moore, Peel; F. Tellett, Ramsey

Episcopal Registrar .... . Samuel Harris
Deputy Episc. Registrar ....
Archdeacon's Registrar.. R. H. L. Brown
Archdeacon's Official .....T. C. Callow
Seneschal ..... L. Adamson, Douglas
Crown Solicitor .. A. W. Adams, Douglas
Visiting Magistrate for Gaol of Castle Rushen ..... James Gell, Castletown
Regulator of Weights and Measures .. F. L. Gelling, Castletown
Agent for Woods and Forests ...F. C. Skrimshire, Douglas
Tithe Agent.....S. Harris, Douglas
Southern Deemster's Clerk, R. Harrison
Northern Deem. do., ...F. B. Clucas

Magistrates

The Members of the Council....
The High Bailiff of Castletown..
The High Bailiff of Douglas ....
The High Bailiff of Ramsey ....
The High Bailiff of Peel .....
} For the time being.

Thomas Moore .....Ballown
Mark H. Quayle, C.R. .....Castletown
Wm. Watson Christian .....Ballacurry
James Campbell .....New Zealand
Samuel Pollock .....Strathallan House
Evan Gell .....Whitehouse
Richard Quirk ....Rheaby
Cesar Bacon ....Seafield
William Callister.....Thornhill
Ewan Cameron.....Ballatessen
Clarence Horatio Cary ....Beach House
John Frissell Crellin ....Orrisdale
Edward Moore Gawne.... ...Kentraugh
Alexander Taubman Goldie . ..Douglas
John Berkely Harrison ....Douglas
Richard Simpson .....The Cliff
J. G. Bennett.. .....Williston
P. T. Cunninghame .....Ballanorris
William Farrant ....Ballamoar
John Gell..... .....Kennaa
William Haslam .. . .Ballaglass
F. Matthews ....Glenmoore
W. F. Moore .....Cronkbourne
G. H. Newton ....Westham
J. S. Goldie Taubman.....Nunnery
Samuel Harris.....Marathon

CLERKS—James Spittall.....Douglas
Henry C. Gill....Castletown
F. J. D. Lamothe ..Ramsey
John Kelly .....Peel

Members of Manx Bar

* Members of the House of Keys.

William Corlett..... . ...Ballamona
Frederick Tellett, H.B. .....Ramsey
Frederick L. Gelling .. ..Castletown
James Quirk ....Douglas
William W. Christian .....Andreas
William Clague . .....Peel
Mark H. Quayle, C.R.....Castletown
George Wm. Dumbell ... .Douglas

* Frederick J. D. Lamothe .. . . Ramsey
Henry B. Watts .... Douglas
J. C. Stephen, Deemster ..... Ramsey
Frederick B. Clucas ... . Ramsey
Edward H. Frizelle .. .. Peel
Senhouse Wilson, H.B. ..... Douglas
Robert J. Kelly ..... Ramsey
* Robert J. Moore, H.B .. .. Peel
Thomas C. Howard..... New Zealand
*John M. Jeffcott ....Castletown
Laurence Craigie .... Douglas
Edward C. Fleetwood ..... Douglas
*Ridgway Harrison .. .. Douglas
Samuel Harris .... Douglas
Edward Callow .... Manchester
Charles J. Stewart .... Lancashire
Chas. R. Ogden.... . ..... Liverpool
John Kelly ..... Peel
Thomas C. Callow ..... Douglas
James Gell, H.B..... Castletown
Daniel F. Wilson ..... . Ramsey
J. G. M'Hutchin ... . Exeter
Samuel S. Rogers..... Australia
James Spittall ..... Douglas
Alfred Walter Adams ..... . Douglas
Frederick Call ..... Australia
James Burman .. .. Douglas
A. N. Laughton .... Douglas
Thomas A. Corlett, jun. ..... Ramsey
Laurence W. Adamson ..... Douglas
Henry C. Gill .... Castletown
J. C. Tobin Harrison ..... Douglas
Richard Tuton ... . Douglas
John Thomas Clucas ..... Castletown
Richard Sherwood ..... Douglas
Alured Dumbell .... Ramsey
Henry Evans Gelling..... Castletown
Henry T. Lamothe..... Ramsey
Claude Cannell, B.A..... Douglas
J. C. Lamothe .... Ramsey
W. E. S. Moore ..... Peel

Notaries Public

DOUGLAS. — John Moore, Henry B. Watts, J.C.T. Harrison, Senhouse Wilson, James Spittall, Ridgway Harrison, T. C. Callow, A. N. Laughton, R. Tuton

CASTLETOWN.—Frederick L. Gelling, H. C. Gill.

RAMSEY.—Fred. B. Clucas, Robt. J. Kelly, D. F. Wilson. T. A. Corlett.

PEEL.—J. Kelly

Commissioners

To take Affidavits in the English Courts of Queen's Bench, Common Pleas, and Exchequer—T. C. Callow, Douglas

To take Affidavits for Courts of Queen's Bench, Exchequer, and Common Pleas, Ireland—R. J. Kelly, Ramsey

Coroners

Glenfaba ..... William Quayle
Michael .... William Corlett
Ayre ..... John Chrystall
Garff .... John Stephen
Middle .... John Cannell
Rushen ....John Cosnahan

Sumners

Sumner-General .... S. Harris
Kirk Maughold ..... John Bridson
—— Lonan . .....Jas. Cannon
—— Onchan ... .George Maley
—— Braddan .....George Maley
—— Marown .....T. Christian
—— Santon.....Wm. Corlett
—— Malew ....Wm. Corlett
—— Arbory ..... . Robert Shimmin
—— Christ Rushen.....John Hodson
—— Patrick .... P. Clucas
—— German .....Robert Kewin
—— Michael ..... Edward Cannell
—— Andreas .....Matthias Curphey
—— Bride ....John Kneale
Ballaugh .....John Stephen
Jurby .....J. Moughtin
Lezayre..... ..... . John Cain

Chief Constables

James Martin .... Castletown
John Sayle ..... Douglas
Claude Bennett ... . Ramsey
Matthias Collister..... Peel

Officers of Customs

PORT DOUGLAS.

Collector ..... R. S. D'Ousely
Collector's First Clerk .... N. W. Walker
Collector's 2nd Clerk and Assistant Landing-waiter ..... } G. A. M'Cammon
Searcher, Landing-waiter, Coast-wtr. and Tide Surveyor } R. J. Weaver
Locker and Weigher .. Terence Carroll
Tide Waiters and Boatmen.. Wm. Kirkbride, J. Quine, R. Quine, John Kelly R. Gelling, and G. Wainman.

CREEK OF PEEL.

Principal Coast Officer .. Leslie Lockhart
Tide Waiters and Boatmen .. J. Cowley and J. J. Corlett

PORT DERBYHAVEN.

Principal Coast Officer .... R. Q. Crellin
Tide Waiters and Boatmen, W. Archer, J. Watterson, W. Bell, and Jas. Lawson

PORT RAMSEY.

Collector ..... A. Macdonald
Landing-waiter, Searcher, Coast-waiter, and Tide Surveyor .. .. } G. A. Adams
Tide Waiters and Boatmen.. Thos. Corlett, S. Farrington, and J. Quayle

Customs Brokers

H. Johnson ....Market Place, Douglas
W. Berey ..... North Quay, Douglas

Vice Consuls

Danish ..... W. F. Moore
Swedish and Norwegian .. . H. B. Nobbs

Harbour Masters

Douglas ..... { .... John Clague / Deputy, Robert Gelling
Ramsey .... Charles Teare
Castletown . ..... J. Caveen
Peel .... R. Kerruish
Port St. Mary ..... Thomas Qualtrough

Commissioners of Harbours

R. Quirk, Receiver General

R. S. D'Ousely | James Corlett
James Gell | Robert J. Moore
R. J. T. Quayle | William Callister
Henry Graves | William F. Moore
R. J. Weaver

Douglas Town Commissioners.

G. Torrance, J. Mylrea, J. Kelly, T. Kewley, C. Cleator H. Wallace, T. Quayle, T. Richards, R. Clague.

C. Craine, Clerk to Commissioners.

Receiver of Droits of Admiralty

R. S. D'Ousely .... Douglas

Agents for Lloyd's

Southern District, William Berey, Douglas
Also for the Underwriters of Glasgow and Liverpool
Northern District .. Hugh Brown, Ramsey

Bankers

Bank of Mona, Douglas—(Draw on Prescott, Grote, & Co., London) — J. S. Jackson, Manager
Douglas and Isle of Man Bank—(Draw on Glynn, Mills, & Co., London)—Dumbell, Son, & Howard.
Bank for Savings, Thomas-st, Douglas —J. Spittall, Secretary

Law Courts

COMMON LAW.— *Castletown*, Feb. 9.—May 10—July 5— October 11—*Ramsey*, Feb. 16—May 17—July 12—October 18.

CHANCERY AND EXCHEQUER.—On the first THURSDAY in each month; the months of Jan., August, and September excepted; besides which, Special Courts are held as occasion may require.

ADMIRALTY, OR WATER-BAILIFF'S.—At Castletown, weekly.

DEEMSTERS' SUMMARY.—At Castle-Rushen, Douglas, Ramsey, and Peel, every fortnight.

VICAR'S GENERAL.—At Douglas, Castletown, Peel, and Ramsey once monthly.

CHAPTER.—Half-yearly, in Spring and Autumn.

HIGH BAILIFFS'.—At Castletown, Douglas, Peel, and Ramsey, weekly.

BARON.—Held in April and October.

MAGISTRATES'.—Fortnightly.

Isle of Man Post-Office

Atholl Street, Douglas.... Miss Macadam

SUB-POST-OFFICES & RECEIVING HOUSES.

Duke Street, Douglas ..... R. Cain
Pillar Letter Box, Osborne Terrace, Douglas
Shore Road, Douglas..... J. Clague
Crescent, Douglas ..... Geo. M. Jones
Ballaughton, near Douglas.... J. Aspell
Ballasalla ..... H. Caugherty
CASTLETOWN .... Walter Wallace
Wall Box, the Green, Castletown..
Port St. Mary ..... Miss Harley
Union Mills .... W. Dalrymple
Crosby ..... R. Kelly
St. John's ..... Mary Quayle
PEEL..... John Morrison
Onchan ..... J. Lewin
Laxey ..... J. Kinley
RAMSEY .... John Hampton
Wall Box, Sandy Road, Ramsey ..
Kirk Andreas..... .. Fred. Radcliffe
Sulby ..... W. H. Ward
Ballaugh ..... W. Teare
Michael..... .....J. Cannan
Jurby .... A. Joughin
St. Mark's..... ..... .P. Mylrea
Foxdale ..... E. Buzzo
Glenmay .... W. Quayle
Maughold ..... D. Kinrade
Bride .... R. Pass
Colby .... H. Moore
Port Erin ..... H. McComb

LIVERPOOL INFORMATION.

Pilot Boat Stations.

NOTICE.—From the Liverpool Pilot Boats is shown a single Light at the Mast Head.

The boat having the turn to board displays a red and white Flag at the masthead by day; by night, a white light and exhibits a flare-up light every 15 minutes; the other boats a white light only.

The TWO western boats cruise off Point Lynas, and as far to the westward as the Middle Mouse, and to the eastward until Priestholm Island bears S.S.W.

The THIRD western boat cruises from Point Lynas to S.S.W. off west end of Great Ormshead, to board any vessels that may pass the first and second boats.

The FOURTH western boat cruises from eastern limits of third boat's station, and eastward to N.N.E. from west end of Bar Land.

The FIFTH, or first Hoylake boat cruises to the westward so as to keep sight of the Northwest Light-Ship from the deck.

The SIXTH, or second Hoylake boat, to board vessels after they pass the line of the Northwest Light-Ship and Point of Air, when the first boat is not within a reasonable distance, and after high water to take pilots from vessels outward bou



Rates of Pilotage.

For all Vessels Trading Foreign.

INWARD. PER FOOT.	s.	d.
From the lengh of the west end of the Great Ormshead, bearing S. by W., or before Penman Bachan be shut in with the Great Ormshead, at the rate of	9	0
From the eastward of the Great Ormshead, as above.....	8	0
From the only house now on Great Hilbre Island, bearing S.S.W. by the compass, or shall be piloted from the road of Hoylake only, or from the Buoy of the Fairway in Formby Channel	4	0

OUTWARD.	s.	d.
Whether through the Rock or Formby Channel	4	0

No Vessel, trading to Foreign Parts, inward or outward bound, is to refuse a Pilot; but if such vessel has passed the Brazil Buoy in the Rock Channel, or the Middle Patch Buoy in Formby Channel, or if a Pilot-boat falls in with a vessel in the narrows of the Channels in stormy weather, that she cannot board her without eminent danger, the Pilot shall then lead the way, and in either case be entitled to such Pilotage as shall be awarded by the Committee at their next meeting.

For coasting Vessels, and those trading to and from Ireland, the Islands of Faro or Ferro, Jersey, Guernsey, Alderney, Sark and Man.

INWARDS.	s.	d.
From the length of the Great Ormshead, as above, at the rate of	4	6
From the eastward of the Great Ormshead, as above..... .	4	0
From the only house now on Great Hilbre Island, &e., as above	2	0

OUTWARD. PER FOOT.	s.	d.
Whether through the Rock or Formby Channel	2	0

No coasting vessel to pay for less than eight feet of water, nor any vessel to pay for odd inches under half a foot. No coasting vessel, inward or outward bound of the burden of one hundred tons or upwards (unless she be in ballast), is to refuse a Pilot, as the master or owner, &c., must pay the full Pilotage, if one is offered. No vessel to be deemed a coaster unless she has been six months in that trade.

EXTRA PAY. PER DAY.	s.	d.
For every day of attendance whilst in the River, except the day of going to sea with such ships or vessels as shall be outward bound and the day of returning from sea and the day of docking for such as shall be inward bound	5	0
And if the attendance of a Pilotboat be requested	42	0

Though the Pilot or boat be not employed a whole day, to be paid for a day.

CHARGES ON THE MERSEY.—For taking a vessel from one dock to another, £1; from Liverpool to Garston. £2, and vice versa.

Pilots' Rules and Regulations.

Any person acting as Pilot without a license, to forfeit £20.

Pilots refusing to conduct or assist ships in distress, to forfeit £10, and license.

Masters of vessels forcibly taking Pilots beyond the limits of port, to forfeit not more than £20, nor less than £5.

Pilots misbehaving to have their license recalled, and if they act afterwards the same penalties as if they were not Pilots.

Vessels liable to pay Pilotage coming into port, to display signal for a Pilot, under a penalty of £5.

Reward for Pilots assisting the ships in distress to be settled by the Committee.

Compensation to be made to Pilots for taking vessels out of port which have been forced back, to be fixed by the Committee.

When in stormy weather, a vessel cannot be boarded with Pilots' small boats, the vessel should be steered with the wind on the quarter, the yards braced bye, when the large boat sheers under the lee quarter, and the Pilot jumps on board.

Life Boats.

All masters and others, entering or quitting the port, and requiring the assistance of the Life Boats are requested to hoist the Distress Signal, in order that they may be despatched to their assistance as soon as possible. Vessels aground on the Banks, and not hoisting the Distress Signal, will be supposed not to require the assistance of the Life Boats.

Life Boat Stations.

At Liverpool, on the North Landing Stage, and on the North Pier of the Prince's Basin, two boats; the key kept at the Marine Surveyor's Office. Custom-house, at the Dock Master's Office, Waterloo Dock, and at the Life Boat Master's house, Pownall Street. Magazines, two boats; the key kept at the Life Boat Master's house. Hoylake, one boat; the key kept at the Lower Hoylake Light-house. Point of Air, two Boats; the key kept at the Master's house. Formby, one boat; the key kept at the Life Boat House by the keeper. Hilbre Island, one boat.

Bidston Hill Signals.

SIGNALS OF DISTRESS.—For vessels in distress or on shore in the Rock Channel or about Hoyle—Coming in; On the

oblique pole to the southward of the ighthouse—for every ship, a ball with a lag half-mast; for every snow, a cone, road end up and a flag half-mast; for very brig or small vessel, a cone small nd up and a flag half mast. Going out; he same as above, but a broad pendant nstead of a flag.

N.B.—For vessels in distress to the southward, when on shore to the main, the ball or cone to be put on the outside of the flag or pendant; but if on shore on Hoyle Bank, then the ball or cone to be put on the inside of the flag or pendant.

In Formby Channel.—The same signals to the northward of the Lighthouse.

Pilot Boats, Masters, &c.

No.	NAMES.	FIRST AND SECOND MASTERS.
1,	Queen (schooner)..	Wm. Hughes, Fairfield-crescent, Fairfield. R. Taggart, Olive Cottage, St. George's Road, West Derby Road.
2,	Leader (schooner)..	Joseph Powell, Islington; John Corrin, 173, Duke-st.
3,	The Duke (schooner)	J. Williams, Liscard, Cheshire; Thos. Parry, Sackville-st
4,	Auspicious (cutter)..	J. Shepherd, 40 Wesley-st.; C. Christie, Upper Warrick-st.
5,	Victoria and Albert..	Isaac Williams, Back Lane. Wallasey, Cheshire; Peter Dickenson, Lower Mersey View, North-shore.
6,	Pioneer (schooner)..	T. Parry, 18, Stafford-st; T. Davies, Sackville-st.
7,	George Canning..	W. Rowlands, Gt. Mersey-st.; John Williams, Raglan-terrace Netherfield-road, North.
8,	Albert Edward, Prince of Wales	John Bark, Stanley-crescent, North-shore; William J. Mc. Cracken, Thomaston-st.
9,	Liver (cutter)..	William Lancaster, Beacon-field, Bootle.
10,	Criterion (schooner)..	J. Wilson, 146, Falkner-st.; H. Williams, 16, Percy-st.
11,	Mersey (cutter)..	R. Parry, Cazneau-st.; R. Williams, Clarence-st., Everton.
12,	Perseverance (cutter)..	George Bark, Juvinal-st.; John Tunstall.

Superintendent of Pilots, Robert J. Simpson, Church-st., Woodside, Cheshire.

The Pilot Committee meet for the transaction of business, every Monday, at twelve o'clock, at the Committee Room, south end of Prince's Dock.

Mersey Docks and Harbour Board.

OFFICERS.

Mr. John North, Solicitor.—Office, Dock Office.
Mr. George Fosbery Lyster, Engineer of the Docks, &c.—Office, south side of Coburg Dock.
Mr. John Harrison, Secretary.
Mr. G. J. Jefferson, Treasurer.
Lieut. M. T. Parks, R.N., Marine Surveyor.—Office, Dock Office.
Mr. A. E. Parks, R.N., Water Bailiff.—Office, George's Pier.
Mr. Wm. Marrow, Receiver of Duties on Tonnage.
Mr. John Evans, Receiver of Duties on Goods Inwards.
Mr. Wm. Laidlaw, Receiver of Duties on Goods Outwards.
Mr. T. L. Burgess, Receiver of Duties on Goods Coastwise.
Mr. Richard Jones, Receiver of Duties at Runcorn.
Mr. R. Cowan, Superintendent of Albert Dock Warehouses.
Mr. W. D. Turner, Superintendent of Stanley Dock Warehouses.
Mr. J. Ayre, Superintendent of Wapping Warehouses.
Mr. W. H. Sloman, Superintendent of Birkenhead Warehouses.

Mr. Thomas Hodgson, Harbour Master.—Office. George's Dock Passage.
Mr. Wm. Foyle, South Assistant Harbour Master.—Office, south end of Wapping Dock.
Lieut. Jas. Hookey, R.N., Birkenhead Assistant Harbour Master.—Office, Morpeth Dock Entrance.

Dock Masters.

Canada..... Mr. Josh. Woods
Huskisson..... George Corfield
Sandon..... Thomas Barnes
Wellington & Half-tide. Shad. Williams
Nelson & Bramley Moore. Ed. Edwards
Salisbury, Collingwood, and Stanley..... Edward Carey
Clarence Half-tide, Clarence, and Trafalgar..... Thomas Stirzaker
Waterloo & Victoria.. (under alteration)
Prince's..... William Asbridge
George's..... Charles Purnell
Canning and Half-tide.... Thos. Prenton
Albert and Salthouse Docks, and Wapping Basin..... George Wilson
King's and Wapping..... Joseph Curry
Queen's and Half-tide.. George Palmer
Coburg..... John Curry
Brunswick..... J. H. Henrichson
Toxteth and Harrington.. Thomas King

The Dock Masters' Officers are at the entrances of the respective Docks.



Dock and Basin Signals.

All vessels are allowed to enter the Docks when signals are not hoisted at the respective pier heads. All owners, masters, and consignees are however, recommended to register their vessels as expeditiously as possible, in order the better to secure their right of turn to accommodation at the Dock quays.

DOCK SIGNALS.

HUSKISSON—Flag on N. pier of Sandon Basin entrance.

SANDON—Flag on N. side of gateway.

WELLINGTON AND HALF-TIDE—Flag on S. pier of Sandon Basin entrance.

SALISBURY, COLLINGWOOD, AND STANLEY—Flag on S. pier of Salisbury Dock entrance.

CLARENCE AND HALF-TIDE—Flag on N. pier of Clarence Half-tide entrance.

TRAFALGAR—Flag on S. pier of Clarence Half-tide Dock entrance.

WATERLOO AND VICTORIA—Flag on N. pier of Prince's Basin entrance.

PRINCE'S NORTH ENTRANCE—Flag on S. pier of Prince's Basin entrance.

PRINCE'S SOUTH ENTRANCE—Flag on N. Pier of George's Basin entrance.

GEORGE'S—Flag on S. pier of George's Basin entrance.

CANNING AND HALF-TIDE—Flag on N. pier of Canning Half-tide entrance.

ALBERT AND SALTHOUSE—Flag on S. pier of Canning half-tide entrance.

KING'S—Flag on N. pier of King's and Queen's Basin entrance.

WAPPING—Flag on N. end of the King's Parade.

QUEEN'S—Flag on S. pier of King's and Queen's Basin entrance.

COBURG—Flag on S. pier of Coburg entrance.

BRUNSWICK—Flag on S. side of entrance

TOXTETH—Flag on N. side of entrance

HARRINGTON—Flag on S. side of entrance.

BASIN SIGNALS.

SANDON—Ball on the north side.

PRINCE'S—Ball on S. pier of entrance.

GEORGE'S—Ball on S. pier of entrance.

Abstract of Dock Laws.

Goods causing obstruction on the Dock quays, may be removed by the Trustees at expense of owners.

Such a quantity of cargo or ballast to be kept on board each vessel as to enable it to be safely removed; penalty £50.

Harbour and Dock Masters may remove vessels in dock, or from one dock to another, at owner's expense; penalty for obstructing them, disobeying their orders, or using abusive or offensive language to them £10.

Vessels on which dues, &c., are owing may be detained until such are paid.

Shipowners have a lien for freight and all other lawful claims on goods discharged into dock warehouses.

Manifest of all goods imported or exported to be delivered at the dock Office within 14 days after the discharge inwards or clearance outwards; penalty £20.

Collector, &c., not to receive entry of any vessel until the dock and light duties are paid; penalty £20.

No ballast to be thrown into the docks, penalty £20.

After ballast is discharged to be carted away as the trustees of the docks shall appoint; penalty £5.

Vessels not to come into dock under sail; penalty £5.

Persons wilfully & maliciously damaging docks, &c., adjudged guilty of felony.

Water-baliff empowered to remove vessels lying in the river; penalty for obstructing him £10.

Persons firing cannon, &c., within the port (except signals of distress) to forfeit £10 for every offence.

CUMBERLAND INFORMATION.

Members of Parliament, &c.

WHITEHAVEN.—G. Lyall, Esq., 17 Park Crescent, Regent's Park, London, W.C.

COCKERMOUTH—J. Steel, Esq, 13 Bury Street, London. Lord Nass, 79 Eccleston Square, Palmerston House, London

EASTERN DIVISION—Hon. Chas. W. G. Howard, Naworth Castle; 56 Park-street Grosvenor Square, London. W. Marshall, Esq, Paterdale Hall; 85 Easton Square, London.

WESTERN DIVISION.—Hon. Percy Wyndham. H. Lowther, Esq, 21 Wilton Crescent, London.

CARLISLE—E. Potter, Esq, Manchester; Reform Club, London. Wilfred Lawson, Esq. Braytow, Boodles, London. S.W.

Lord Lieutenant.....Earl of Lonsdale
Clerk of the Peace ..T. H. Hodgson, Esq
County Treasurer ..Mr, Dobson, Carlisle
Gov. of Gaol ..Mr. T. H. Redin, Carlisle
County Coroners.. { Wm. Carrick, Esq
{ W. Lumb, jun., Esq

Quarterly Sessions.

Easter, in the first week after 31 March
Midsummer, first week after 24 June
Michaelmas, first week after 11 Oct.
Christmas, first week after 28 Dec.

The Easter, Midsummer, Michaelmas, and Christmas Sessions for Cumberland are held at Carlisle.

Bankers.

WHITEHAVEN—The Whitehaven Joint Stock Banking Company, Peter Cameron, Manager.—London Joint Stock Bank, 5 Prince's Street.

Bank of Whitehaven, G. W. Brown, Manager.—Price, Marryatt, and Co., 54 King William Street, City.

J. M. Head & Co's. (of Carlisle) Branch Bank, W. Miller, Manager.—Masterman & Co., 35 Nicholas Lane, London.

Savings Bank—Open Saturdays, from 6 to 8 p.m.—F. J. Lowes, Sec.

WORKINGTON. — Cumberland Union Banking Company, W. B. Gordon, Manager.—Barclay, Bevan, & Co., 54 Lombard Street.

J. M. Head & Co's. (of Carlisle) Branch Bank, John Allison, Agent.—Masterman & Co., 35 Nicholas Lane, London.

MARYPORT.—Branch of the Cumberland Union Banking Company, Joseph Thompson, Agent.—Barclay, Bevan, and Co., 54 Lombard Street.

COCKERMOUTH.—Branch of the Cumberland Union Banking Company, John S. Hellon, Agent.—Barclay, Bevan, and Co., 54 Lombard Street.

WHITEHAVEN AND WEST CUMBERLAND BENEFIT LAND AND BUILDING SOCIETY. —Public Office, Lowther Street; open on Saturdays, from six to eight, p.m.—J. Jackson, Secretary.

The Whitehaven and Furness Junction Railway.

Trains leave Bransty Station three times daily (Sunday excepted) for Bootle, Ulverston, Broughton, Fleetwood, Preston, Manchester, Liverpool, &c. This is the nearest route to Preston, Manchester, Liverpool, &c.—(*See West Cumberland Railway Guide*).

The Whitehaven and Maryport Junction Railway.

Trains leave Bransty Station four times daily (Sundays excepted) for Workington, Maryport, Wigton, Carlisle and Cockermouth; three times daily for Edinburgh, London, Birmingham, Liverpool, Manchester, Preston, Newcastle, York, and Darlington.—(*See West Cumberland Railway Guide.*

The Whitehaven, Cleator, and Egremont Railway.

Trains leave Whitehaven three times daily (Sundays excepted) for Cleator Moor, Frizington, Woodend, and Egremont.—(*See West Cmmberland Railway Guide*).

Steamers and Traders.

LIVERPOOL.—The Whitehaven Steam Navigation Company's powerful and commodious first-class steamers sail regularly with goods and passengers.—Fares: Cabin, 7s., Deck, 4s. Passengers are coveyed, in connection with the Railway Companies, between Newcastle, Carlisle, Dalston, and Wigton, to Liverpool at a through fare. Passengers by Railway arrive at Whitehaven by the last train before the steamer's sailing, and those from Liverpool being forwarded by first train after the vessel's arrival in Whitehaven.—Fares: Cabin and First-class, 10s.; Deck and Third-class, 4s. Agents—Carlisle, Edward Jobling; Liverpool, Fisher. Wilson, and Co.; Whitehaven, J. and J. Hodgson.

BELFAST. — The Whitehaven Steam Navigation Company's steamers sail regularly with goods and passengers.—Fares: Cabin, 10s.; Deck, 3s. Passengers are conveyed, in connection with the Railway companies, between Carlisle, Dalston, and Wigton, to Belfast, at a through fare. Those from Carlisle, &c., arriving in Whitehaven by the last train before the steamer's sailing, and those from Belfast being forwarded by first train after the vessel's arrival in Whitehaven.—Fares· Cabin and First-class, 12s.; Deck and Third-class, 5s. Agents—Belfast, R. Henderson and Son, Donegal Quay; Carlisle, Edward Jobling; Whitehaven, J. & J. Hodgson.

DUBLIN.—The Whitehaven Steam Navigation Company sail a vessel regularly with goods and passengers. Fares: Cabin 15s.; Deck, 6s. Passengers and goods are conveyed between Carlisle, Dalston, and Wigton, to Dublin, at a through fare, arriving in Whitehaven by the last train before the steamer's sailing, and those from Dublin being forwarded by first train after the steamer's arrival in Whitehaven. Fares.—Cabin 15s.; Deck 4s. Agents.—Wells and Holohan, Dublin; Whitehaven, J. & J. Hodgson.

DOUGLAS.—The Whitehaven Steam Navigation Company's Steamers sail regularly to Douglas, Isle of Man, with goods and passengers. Fares: Cabin, 6s.; Deck, 3s. Agents—William Berry, Douglas; J. & J. Hodson, Whitehaven.

LONDON.—The Whitehaven Steam Navigation Company in connection with the Belfast Screw Steam Company, sail a vessel once a week. Agents:—Belfast, Robert Henderson & Son. London, Ogilby Moore & Co., Ingram Court, Fenchurch Street; Whitehaven, J. & J. Hodgson.

DUNDRUM.—The 'Ansbro',' and 'Robert Burns,' screw steamers, sail regularly between Dundrum and Whitehaven. Agents—Chas. Fisher & Co., 36 King Street, Whitehaven.

LIVERPOOL—The Silloth Bay Steam Ship Navigation Company's (limited) Steam Ship 'Silloth' is appointed to sail between Silloth and Liverpool twice weekly, calling off Whitehaven. Fares: Carlisle and Liverpool First Cabin 8s.; Second Cabin 4s. Silloth and Liverpool First Cabin 7s.; Second Cabin 3s. 6d. Whitehaven and Liverpool First Cabin 7s.; Second Cabin 3s. 6d. Agent for Whitehaven John Kitchen, 87 George Street.

Carriers.

Leave Whitehaven for Harrington, Workington, Cockermouth, Keswick, and Egremont every Tuesday, Thursday, and Saturday; for Wigton every Wednesday; and for Gosforth every Tuesday, Thursday and Saturday.

Rates for the Steam Tugs.

Vessels employed in the Coal or Coasting Trade shall pay every voyage on clearing for sea one half-penny per Ton Register. Vesssls arriving from a Foreign Port or from a discharging Port one penny per Ton Register.

Vessels engaged in the Coal or Coasting Trade pay an additional half-penny per ton when they require the use of the Steam Tug, Outward, and the same, In wards.

No Vessel towed out for less than 1s.

Foreign Vessels as above one penny per ton.

That the limits for towing vessels into and out of the harbour for one half-penny and one penny per ton respectively, be as follows, viz:—say a line drawn from St. Bee's Head to Mickleham Pit, on the Hill north of Parton, and two lines intersecting the above, from Redness Point and Tom Hurd Rock, bearing N.W. by N. and S.E. by S. by compass.

If the vessel first in turn be not afloat or not ready for the Tug Boats, then she is to take the first that is.

Vessels wanting the use of the Steam Tug are to hoist the Union Jack on the Main Top Gallant Mast Head.

Harbour Boat Rates.

A boat is stationed at the Old Quay Watch House to attend on vessels entering the Port and also to give assistance to those outward bound, charges are as follows, viz.:—

	s. d
Vessels of 120 tons and upwards	4 0
Vessels from 100 to 120	3 6
Vessels from 80 to 100	3 0
Vessels from 60 to 80	2 6
Vessels from 40 to 60	2 0
Vessels from 20 to 40	1 6
Vessels less than 20	1 0

FOREIGN LADEN VESSELS.

Under 120 tons	4 0
Above 120 tons	6 0

The Harbour Boat to be paid as above by all vessels entering the port; but if not employed by those leaving it, no charge to be demanded.

Rates for the Gridiron.

Every vessel previous to going on must be entered at the Harbour Office, and payment made according to the established rates, for which she may remain on four tides, counting the tide going on and the tide coming off.

		s	d		s	d
Vessels not exc. 50 tons		5	0	Every Tide above four	1	0
Above 50 & not exc. 100		7	6		2	6
.. 100	150	10	0		3	4
.. 150	200	15	0		5	0
.. 200	250	20	0		6	8
.. 250	300	25	0		8	4

On Entry

Post Office, Whitehaven.—WILLIAM B. GIBSON, POSTMASTER.

Arrivals.—*Week days*—London and all parts 9h., a.m.; 8h. 35m., p. m. *Sundays*—London and all parts 10h. 35m., a.m. Despatches.—*Week days*—Local parts, 9h. 30m. a.m.; North mail, 2h. 35m. p.m.; London and all parts, 6h. 15m. p.m. *Sundays*—North mail, 7h. 50m. a.m.; Local parts, 11h. 30m. a.m.; London and all parts, 5h. p.m. The letter box is closed 15 minutes before each despatch Letters bearing one additional stamp will be forwarded for the first ten minutes. The deliveries by letter carriers commence during the week days at 9h. 35m. a.m., and 8h. 55m. p.m.; and on Sundays at 12h. 45m. p, m.

POST OFFICES IN CONNECTION WITH THE WHITEHAVEN POST OFFICE.

Those marked thus † are empowered to grant and pay Money Orders.

OFFICES.	ARRIVAL.	DESPATCH.	RECEIVER.
Sandwith	10 30 a.m.	4 55 p.m.	J. Fisher
† St. Bees	7 15 .	8 58 a.m.	W. Geldart
Ditto	11 25 ..	4 10 p.m.	Ditto
Parton	10 30 ..	4 50 ..	E. Lightfoot
Distington	12 10 ..	3 20 ..	E. Lawrence
Hensingham	9 40 ..	5 26 ..	J. Sumpton
Cleator Lane End	10 1 ..	5 5 ..	C. McGinn
Cleator	10 51 ..	4 5 ..	J. Harkness
† Cleator Moor	11 30 ..	3 20 ..	Jno. Atkinson
† Egremont	10 12 ..	4 54 ..	G. Selkirk
Beckermont	10 34 ..	4 32 ..	J. Gilliot
Calderbridge	10 45 ..	4 21 ..	M. Moore
Gosforth	11 0 ..	4 6 ..	P. Leech
Holm Rook	11 22 ..	3 44 ..	J. Birkett
Eskdale	12 21 p.m.	9 30 a.m	W. Russell
Wasdale	1 41 ..	5 10 p.m.	M. Pharoah
† Ravanglass	11 41 ..	3 25 ..	H. Jackson
Waberthwaite	12 16 ..	2 50 ..	J. Woodhall
† Bootle			

MERSEY DOCKS AND HARBOUR.

Tabular Statement, showing the Area of Water, Quay Space, Width of Entrance, and Depth of Sill for each Dock, also the length of Graving Docks. &c.

The Old Dock contains an area of 3 acres 1890 yds., and 557 lineal yds. quay space
Its Passage do 675½ do., 90 do.

The level of the Old Dock Sill is the Datum to which the Depth of Sills refer, and is preserved on a Tide Gauge on the west side of the Centre Pier of the entrances to the Canning Half-tide Dock.

LIVERPOOL DOCKS.	Width of Entrance.		Sill under Old Dock Datum.		Coping at Hollow Quoins above Sill		Water Area.	Quay Space.
	Ft.	In.	Ft.	In.	Ft.	In.	Acr. Yd.	Mile. Yd.
North Carrier's Dock .. West Passage	40	0	6	0	33	0	2 3423	641
South ditto ..... West Passage	40	0	6	0	33	0	1 4515	615
Canada Half-tide Dock	..	..	..	..	..	..	3 4380	468
West Entrance	60	0	7	9	35	9		
Northern West Lock Entrance.....	32	0	6	0	34	0		
Southern West Lock Entrance.....	20	0	6	0	34	0		
North Passage	20	0	3	0	30	0		
South Passage	80	0	7	9	35	9		
Canada Dock	..	..	..	..	..	..	17 4043	1272
South Passages..... East	50	0	6	6	35	6		
West	80	0	6	6	35	6		
Canada Lock	100	0	7	9	35	9	1 3479	487
Huskisson Dock	..	..	.	..	..	..	14 3451	1039
Huskisson Branch Dock....	..	.	..	..	..	..	7 592	910
Huskisson East Lock	80	0	6	6	44	6	0 4682	342
Huskisson West Lock	45	0	6	0	32	0	0 3650	330
Sandon Dock..... West Entrance	70	0	6	6	37	5	10 100	867
Wellington Half-tide Dock, East Entr.	70	0	6	9	37	6	3 813	400
West Entrance	50	0	6	6	34	6		
Wellington Dock..... West Passage	70	0	6	6	37	6	7 4120	820
Bramley-Moore Dock .. North Passage	60	0	6	0	32	0	9 3106	935
South Passage	60	0	6	0	32	0		
Nelson Dock .. .. South Passage	60	0	6	6	32	6	7 4786	803
Stanley Dock ..... West Passage	51	0	5	8	34	8	7 120	753
Collingwood Dock ..... West Possage	60	0	6	9	32	9	5 244	553
Salisbury Dock	..	.	..	..	..	..	3 2146	406
West Entrances ..... North	60	0	6	11	32	11		
South	50	0	6	11	32	11		
Clarence Graving Dock Basin .... North Passage	45	0	4	9	30	9	1 1056	291
.. . South Passage	45	0	4	6	31	0		
Clarence Half-tide Dock .. West Entr.	50	0	5	6	34	0	4 1794	635
Clarence Dock.... ..... West Passage	47	0	3	2	29	2	6 273	914
Trafalgar Lock . Nth. & Sth Passages	45	0	6	7	30	5	0 2937	256
Trafalgar Dock ..... South Passage	45	0	4	11	31	4	5 4546	764
Victoria Dock..... . South Passage	40	0	4	11	31	3	5 3559	755
Waterloo Dock	..	..	..	..	..	..	5 3056	737
Waterloo Lock ..... . North Passage	45	0	6	5	33	0	0 2937	256
South Entrance	45	0	6	8	33	3		
Prince's Dock & Locks, North Entrance	45	0	5	11	34	1	11 3889	1613
South Entrance	44	11	5	11	34	1		
George's Dock & Passage, North Entr.	41	11	4	6	29	0	5 2593	1001
South Passage	40	1	4	6	28	11		
Manchester Dock.. ... West Entrance	32	10	*Note*†		23	0	1 595	339
Manchester Lock..... West Entrance	33	8	3	9	28	0	0 315	57
Canning Dock.... ..... West Passage	45	0	6	1	32	3	4 376	585
Canning Half-tide Basin.....	..	..	.	..	..	..	2 2688	429
Two West Entrances ..... each	45	0	6	3	34	6		
Albert Dock .... North Passage	45	0	6	4	32	4	7 3542	885
East Passage	45	0	6	0	32	0		
Salthouse Dock ..... North Passage	45	0	6	0	32	0	6 2019	784
Wapping Basin ..... West Passage	40	0	6	0	31	0	1 3151	454
North and South Passages .. each	50	0	6	0	32	0		

† The Sill of the Manchester Dock is 3 inches *above* Old Dock Datum.

LIVERPOOL DOCKS.	Width of Entrance.		Sill under Old Dock Datum.		Coping at Hollow Quoins above Sill		Water Area		Quay Space	
	Ft.	In.	Ft.	In.	Ft.	In.	Acr.	Yd.	Mile.	Yd.
Wapping Dock.. ..... West Passage	50	0	6	0	32	0	5	499		815
South Passage	50	0	6	0	32	0				
King's Dock .....South Passage	42	0	5	0	31	1	7	3896		875
Basin to Queen's Dock	..	..	..	.	..	..	3	3542		445
West Entrances ....North	70	0	6	9	37	9				
South	50	0	6	9	37	9				
Queen's Dock .....West Passage	50	0	6	0	32	0	10	1564		1214
South Passage	60	0	6	6	35	3				
Coburg Dock .....West Entrance	70	1	6	0	32	3	8	26		1053
Brunswick Dock .... .North Passage	60	0	6	6	33	6	12	3010		1086
Brunswick Half-tide Dock, East Pass.	42	0	5	6	31	6	1	3388		491
West Entrance	45	0	6	0	32	6				
Toxteth Dock.. ..... .West Entrance	40	0	5	0	31	0	1	469		393
Harrington Dock .....West Entrance	29	9	1	2	24	3	0	3740		315
Total Water Area and Quay Space of the Liverpool Docks.....							228	630	16	923

LIVERPOOL BASINS.			Height of Piers above Old Dock Sill							
Canada Basin.....	250	0	32	0	..	..	6	4528		546
Sandon Basin.....	200	0	31	0	..	..	6	904		702
Prince's Basin	156	0	27	10	..	..	4	1549		509
Seacombe Basin	52	0	..	..	.	..	0	1805		188
George's Basin	147	0	25	0	..	.	3	1852		455
George's Ferry Basin	70	0	.	..	..	..	0	1344		160
Manchester Basin.....	36	0	..	..	..	..	0	2568		288
South Ferry Basin	60	0	..	..	..	.	0	2927		205
Harrington Basin.....	40	0	..	..	..	..	0	3917		308
Total Water Area and Quay Space of the Liverpool Basins....							23	2034	1	1600
Ditto ditto ditto Docks....							228	630	16	923
Total..							251	2664	18	763

BIRKENHEAD DOCKS.										
Wallasey Pool . . . . Western Float	..	..	..	..	..	..	52	319	2	210
Ditto.....Eastern ditto	..	..	..	.	..	..	59	3786	1	1506
Ditto ....Passage	100	0	7	6	33	6				
Ditto, Basin near Canada Works, West	50	0	..	.	..	..	1	2554		543
Ditto, ditto.... ... .East	50	0	..	..	..	..	1	84		390
Ditto, Railway Company's Basin.....	..	..	..	..	..	..	0	606		113
Egerton Dock..... West Passage	70	0	7	0	28	6	3	4011		754
Morpeth Dock.. ..... West Passage	70	0	5	3	30	0	3	1189		790
East Entrance	50	0	5	0	30	0				
Total Water Area and Quay Space of the Birkenhead Docks..							121	2869	5	786
Ditto ditto Liverpool Docks and Basins..							251	2664	18	763
Total							373	693	23	1549

LIVERPOOL GRAVING DOCKS.	Width of Entrance		Sill under Old Dock Datum.		Coping at Hollow Quoins above Sill		Length at Bottom.	Total Length at Bottom.
	Ft.	In.	Ft.	In.	Ft.	In.	Lineal Yd	Lineal Yd
Canada Lock and Graving Dock	100	0	7	9	35	9	.. ..	167
Huskisson Lock and Graving Dock .	80	0	6	6	44	6	.. .	132
Sandon Graving Docks, No. 1—East .	60	0	3	6	29	6	180	
No. 2— ..	70	0	3	6	29	6	180	
No. 3— ..	60	0	3	6	29	6	180	
No. 4— ..	70	0	3	6	29	6	180	
No. 5— ..	45	0	3	6	29	6	180	

GRAVING DOCKS, Continued.	Width of Entrance.	Sill under Old Dock Datum.	Coping at Hollow Quoins above Sill	Length at Bottom.	Total Length a Bottom.
	Ft. In.	Ft. In.	Ft. In.	Lineal Yd	Lineal Y
Landon Graving Docks, No. 6—West	45 0	3 6	29 6	180	
Clarence Graving Docks—					1080
No. 1—Outer Gates	45 0	3 0	29 6	135	
No. 1—Inner Gates	45 0	0 6	18 6	97	
No. 2—Outer Gates	45 0	3 0	29 6	138	
No. 2—Inner Gates	32 10	0 6	18 6	96	
					466
Canning Graving Docks ....No. 1....	35 9	†	21 6½	147	
No. 2....	35 9	0 0½	23 4	160	
					307
Queen's Graving Docks ....No. 1....	42 0	1 8¼	29 4	146	
No. 2....	70 1	3 6	30 11	145	
					291
Brunswick Graving Docks ..No. 1....	42 0	26	29 0	133	
No. 2....	42 0	26	29 0	133	
					266
Total measure at the bottom.....					2709

† Sill 1 foot 8½ inches ABOVE Old Dock Datum.

LIVERPOOL CORPORATION DOCKS.	Width of Entrance.	Level of Sill. Above Datum.	Level of Sill. Below Datum.	Level of Coping above Sill.	Water Area.
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Acre. Y
River Craft Dock, Lock, & Eagle Basin	.. ..	.. ..	.. ..	.. ..	1 3416
Outer Gates	30 0	0 3	.. ..	25 1	
Inner Gates.....	30 0	1 3	.. ..	24 7	
Duke of Bridgewater's Dock—					
Outer Gates.....	40 0	.. ..	4 6	30 0	2 1336
Middle Gates	28 10	0 6	.. ..	22 3	
Inner Gates....	40 0	.. ..	6 0	31 0	

A Tide-Guage Table for the Entrance of the Mersey,

Adapted to shew the *Height of Water* above low-water level of ordinary Spring Tides, at any required period.

When it is High Water at or near either of the following times.	H. W.	Last ½ h. flood, or first ½ h. ebb.	5 hours' flood, or 1 hour's ebb.	¾ flood, or ¼ ebb.	4 hours' flood, or 2 hours' ebb.	3½ hours' flood, or 2½ hs.' ebb	Half-Tide.	2½ hours' flood, or 3½ hs ' ebb.	2 hours' flood, or 4 hours' ebb.	¼ flood, or 3¼ ebb.	1 hours' flood, or 5 hours' ebb	1st ½ h. flood, or last ½ h. ebb	L. W.
hour.	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*	*ft*
12 o'clo	30	29	27	25	22	19	16	13	10	8	5	3	2
11 or 1	29	28	27	25	22	19	16	13	10	8	6	4	3
10 or 2	27	26	25	24	21	19	16	13	11	9	7	6	5
9 or 3	26	25	24	23	21	18	16	13	11	9	8	7	6
8 or 6	25	24	23	22	20	18	16	14	12	10	9	8	7
7 or 5	24	23	22	21	20	18	16	14	12	11	10	9	8
6	23	22	21	20	19	18	16	14	13	12	11	10	9

Graving Dock Rates

FOR	£ s. Vessels under 50 tons.	£ s. 50 and under 100.	£ s. For every progressive 50 tons.	£
2 Tides, the tide in & next tide out	1 16	2 2	0	
3 ——, includ. going in & coming out	2 2	2 9	0	
4 ——	2 8	2 16	0	
5 ——	2 14	3 3	0	
6 ——	3 0	3 10	0	1
7 ——	3 6	3 17	0	1
8 ——	3 12	4 4	0	1
9 ——	3 18			
10 ——	4 4			
11 ——	4 10			
12 ——	4 16			
2 Neaps	12 0	16 0	2	
3 ——	18 0	24 0	3	
4 ——	24 0	32 0	4	
5 ——	30 0	40 0	5	
6 ——	36 0	48 0	6	
7 ——	42 0	56 0	7	
8 ——	48 0	64 0	8	

Latitude and Longitude of Liverpool

Lat. of the Observatory .. 53° 24′ 47·8″ N
Longitude in Time .... 12m. 0·11s. befor
Greenwich Time.



Isle of Man Fairs

JANUARY.—5. St. Mark's, Malew.
FEBRUARY.—2. Greeba—12. Kirk Bride.—27. Baldwin.
MARCH.—17. St. John's.—25. Ramsey. 28. Peel.
APRIL.—5. Jurby.
MAY.—1. St. John's.—3 Sulby Claddagh.—10. Laxey.—12. St. Mark's.—15 Ballaugh.—26. Kirk Santon.
JUNE.—4. Sulby.—16, Kirk Michael.
JULY.—5. St. John's.—23. Sulby.
AUGUST.—5. Laxey.—12. Ballasalla.—26. Ballaugh.
SEPTEMBER.—29. Ballasalla.
OCTOBER.—10. Michael.—28. Arbory.
NOVEMBER.—1. St. John's.—8. Ramsey.—12. Douglas.—18. St. John's.
DECEMBER.—6. Colby, Kirk Arbory.—11. Kirk Andreas.

Those falling on Saturday, Sunday, or Monday, to be held on the following Tuesday—except the Tynwald Fair, which must be held on the 5th July, unless that day fall on a Sunday.

Cumberland—Abbey-Holme, Tuesday before Whitsunday, Oct. 29.—Alston Moor, last Thursday in May, Friday before 27th Sept., 1st Thur. in Nov.—Arclecdon Ap. 24, 1st Friday in June, 17 Sep.—Bootle, April 5, 26, August, 3, Sept. 24—Brampton, April 22, 2nd Wed. after Whit. 2nd Wed. after 15th Sept.—Carlisle, Sat. next Whit., Aug. 26, Sep. 16, Sat. nearest 11th Nov.—Cockermouth, Feb. 18. Mon. before Easter. 1st and 3rd Wed. in May, Oct. 10.—Egremont, Feb. 18, 3rd Frid. in May, Sept. 13.—Ennerdale, 2nd Tues. in Sept.—Eskdale, 2nd Mon. in Sep. Garrigill, 3rd Fri. in May. 1st Fri. in Sep.—Gosforth. April 25th, Oct. 18.—Hesket Newmarket, every alternate Fri. from May till Whit., last Thur. in Aug., 2nd Thur. in Oct.—Ireby, Feb. 21. Oct. 18—Keswick, 3rd Thursday after 1st May, Oct. 11, Sat. after 29th Oct.—Kirkoswald Thur. before Whit. Sun., Aug. 5.—Longtown, Thur. before Whit. Sun., Thur. before Sept. 30.—Nether Wasdale, 1st Mon. in sep.—Newlands, 1st Fri. in Sep.--Penrith, March 1, April 24, 25, 3rd Tues. in Oct., Tues. after Nov. 11.—Ravenglass, May 6, June 8, Aug. 5.—Rosely Hill, Whit Mon., and every alter. Mon. till Michael.—Skinburnness, June 24—Threldkeld, 1st Thur. in Sept.—Uldale, August 22.—Ulpha, Mon. before Easter. July 5.—Whitehaven, Aug. 12.—Wigton, Feb. 20, April 5.—Workington, Wed. before Holy Thursday, Oct. 18.

Cheshire—Altringham, Ap. 22, Aug. 5, Nov. 22.—Budworth, Feb. 13, Ap. 5, Oc. 2,—Congletown, May 12, July 5. Nov. 22.—Chester, Feb. 23, April 27, July 5, Oct. 2, Nov. 24.—Knutsford, Whit. Tues. July 10, Nov. 8.—Macclesfield, May 6, June 22, July 11, Oct. 4, Nov. 11.—Malpas, Ap. 5, July 25. Dec. 8.—Middlewhich, Holy Th., Aug. 6.—Nantwich, Feb. 4, Mar. 15, Sep. 4, Dec. 11.—Northwich, August 2, Dec. 6.—Over, May 16, Sep. 25.—Sandbach, East. Tues., Tues. after Sept. 10.—Stockport, March 4, 25, May 1, Oct. 23.—Tarporley, May 1, last Monday in Aug., Dec. 11 .—Winsford, May 8, Nov. 25.

Lancashire—Blackburn, Easter-Mon., May 12, Oct. 17, every fortnight on Wed. from Feb. till Oc.—Bolton-le-moors 1st Mon. after Jan. 5, and every Mon. fortnight till May 12, July 30, 31, Oct. 13, 14.—Burnley, March 6, East. Eve., May 6, 13, July, 10, Oct. 11.—Broughton-in-F., Aug. 1.—Bury, March 5, May 3, 2nd Thursday after Whit. S., Sept. 18.—Cartmell, March 22, Whit. Mon., Oct. 24, Nov. 5.—Chorley, March 26, May 5, Aug. 20,—Clithero, March 24, 25, August 1, 2, the 5th Thur. and Fri. after St. Michael's day.—Conistone, 3rd Saturday in Sept.—Darwen Holy Thurs. 1st Thurs. in Oct.—Dalton, April 28, June 6, Oct. 23.—Great Harwood, Mar. 3, Aug. 21.—Haslingden, May 8, July 1, Oct. 10.—Hawkshead Mon. before Holy Thurs., Whit Mon, Oct. 2.—Inglewhile, Oct. 5.—Kirkham, June 24.—Lancaster May 1, July 5, Aug. 11, Oc. 10,—Liverpool, July 25, Nov. 11; Horse fair every alternate Wednesday.—Longridge, May 13, Nov. 6.—Manchester, Whit Mon. Oct. 1, Nov. 6.—Middleton Thurs. after March 11, Thurs. after April 15, 2d Thur. after Sept. 29.—Newburg, June 21.—Newbury, June 21.—Newchurch, April 29, Sept. 30.—Newton, May 17, July 15, and every Mon. fortnight, Aug. 12.—Oldham, May 2.—Ormskirk, Whit Mon., Sep. 8.—Poulton, Feb. 6, Ap. 13, Nov. 3.—Prescot, June 12, Aug. 24, 25, Nov. 1.—Preston, 1st Satur. after Jan. 6, March 27, Aug. 25, last 10 days, Nov. 7.—Rufford, May 19. Radcliffe Bridge, April 29, 30, Sep. 21, 22,—Rochdale, May 14, Whit Tues., Nov. 7,—Ulverstone, March 22, October 27.—Warrington, July 18, Nov. 30, each lasts 10 days; every Wed. fortnigh.—Wigan, Holy Thursday, June 27, Oct. 21.

Irish Fairs—Antrim

Ahoghill, June 4, Aug, 26, Dec. 5, Antrim, Jan 1, May 12, Aug. 1, Nov. 12. Armoy, Jan. 25, Feb. 25, Mar. 29, May 25, Aug. 16. Nov. 12, Dec. 25. Ballinagabob, July 26, Ballindery, secoud Monday in Feb., May, Aug., and Nov. Ballintoy, June 3, Sept. 4, Oct. 14. Ballicary, 2nd Mon. in Jan., 3rd Mon. in April, August, and Nov. Ballycastle, Easter Tues., last Tues. in May, Aug. Oct., and Nov., July 26. Ballyclare, last Tues. in Jan., 2nd, Tues. in May, July, and Nov. *o. s.* Ballymena, July 26, Oct. 21. Ballamoney, May 5, July 10, Oct. 6. Ballybernice, 1st Tues. aft. 12th Jan. and Feb. Ballynure, May 15, Sep. 4, 2nd Tues. in Oct. *o. s.* Belfast, 1st Wed. in each month, Aug. 12, Nov. 1, Broughshane, June 17, Sept. 1,

Bushmills, March 28, June 28, August 24, Oct. 21, Dec 12. Cairnlough, Feb. 10, Easter Mon. June 12, Aug. 10, Oct. 12, Dec. 12. Carnmoney, 1st Tues. May and Nov. *o. s.* Carrickfurgus, May 12, Nov. 1. Clough, May 5, July 5, Sep. 5, Nov. 22, Frid. before Christmas. Connor, Feb. 1, May 1, Aug. 2, Craigbilly, June 26, Aug. 21. Grumlin, 1st Mon. in month. Cushendale, Feb. 14, March 17, May 14, June 29, Aug. 14, Sep. 29, Nov. 14, Dec. 22. Cashendon, first Wednesday of Feb., April, June, Aug., Oct., and Dec. Dervock, Jan. 12, Feb. 23, May 16, June 22, Aug. 12, Oct. 27. Drinbar, May 21, Drumadoon, June 9, Nov. 26. Dunlice, Nov. 12. Giant's Canseway, August 13. Glenarm, Jan. 26, May 26, Aug. 30, Oct. 29. Glenavy, 3rd Mon. Feb., May, Aug., and Nov. Kells, Jan. 8, March 1, June 10, Sep. 12. Larne, July 31, Dec. 1. Lisburn, July 21, Oct. 5. Loughgill, 19th of Feb. June, Aug., and Nov, Mosside, Feq. 13, May 21, Nov. 21. Mounthill, July 1, Oct. 1. Newtoncrumlin, Feb. 5, May 11, Aug. 2, Nov. 5. Oldstone, June 13, Oct. 22. Parkgate, Feb. 7, May 7, second Monday in June, Aug. 7, Nov. 4. Portglenone, 1st Tues. in each month, and 2nd Tues. in May, *o. s.* Randalstown, July 16, Nov. 1. Rasharkan, Nov. 16. Roughfort, 3rd Tues. in May and Nov. *o. s.* Straid, Sep. 4, Oct. 30. Stranocum, Feb. 10, March 10, April 20, June 16, July 14, Aug. 8, Sep. 28, Nov. 6, Dec. 29. Tallaght, July 7, Nov. 9. Templepatrick, May 11, July 10, last Tuesday in Oct. Troome, Easter Monday, Dec. 4. Tullamore, Nov. 17.

Down

Annadoyne, May 14, Nov. 8. Ardmillan, 1st of Jan., April, July, Oct. Balloo, first Wednesday in Jan., Ap., July, & October, Ballynahinch, 3rd Thurs. in each month, Ballywalter, June 22, Nov. 8. Banbridge, Jan. 12, 1st Monday in Feb. March, April. May, July, Sep., October, November, and Dec., June 9, Aug., 26. Bangor, Jan. 12, May 1, Aug. 1, Nov. 22. Carrodore, 7th of Feb., May, Aug., & Nov. Castlereagh, July 5, Oct. 26. Nov. 20. Castlewellan, 2nd Mon. in Jan., Mar., Ap., July, Aug., Oct.; 1st Feb., May, June, Sep.; Nov. 13, and Tuesday before Christmas. Clough, May 27, July 5, Nov. 22, 3rd Friday in October, and Friday before Christmas. Comber, Jan. 5, April 5, June 28, Oct. 19. Crossgar, second Wed. in each month. Donaghadee, last Wednes. in May, *o. s.*, Aug. 16, Oct, 10, last Wednesday in Nov. *o. s.* Donaghmore, 22nd of June and Oct. Downpatrick, 1st Satur. in each month. Dromara, 1st Friday in Feb., May, Aug., & Nov., and 1st Friday after 15th March, June, Sep., & Nov. Dromore, 1st, Sat. in March & Aug., May 12, Oct. 10, and Sat. but one before Christmes. Dundrum, Jan. 5, Thur. before Candlemas day, *o.s.*, May 12, Thursday before Aug. 12, Oc. 10, Dec. 10. Gilford, 2nd Tues. each month, and 21st of June and Nov. Greencastle, 12th Jan. and Aug. Greyabbey, March 28, June 22, Oct. 29, Dec. 4. Hillsborough, 3rd Wed. in each month. Hiltown, 2nd Tuesday in each month. Hollywood, 1st Monday in Feb., May, Aug., and Nov. Kikeel, 1st Wed. in each month. Killileagh, April 10, June 3 & 15, October 11, Dec. 11. Killinchy, 1st Wednes. in Feb., May, Aug, and Nov. Killough, Feb. 15, June 5, Aug. 15, Nov. 15. Kilmore, Feb. 4, March 14, May 1, June 3, Aug. 5, Sep. 29, Nov. 5, Dec. 16. Kircubbin, 1st Mon. in each month, and 28th of April, May, Aug. and Nov. Loughbrickland, Nov. 12, and 3rd Tues. of remaining months

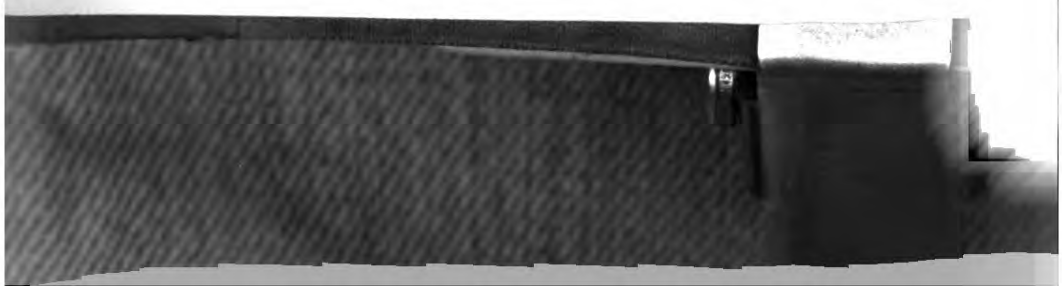
Dublin

Ballbriggin, 29th April, and September, Carrickmines, Dec. 6, April 14, June 24, Oct. 14. Donnybrook, Aug. 26. Fieldstown, Whit Monday. Garyistown, May 15, Aug. 15, Nov. 1. Kilsallaghan, Ascension day, Sep. 8. Lusk, Easter Monday, May 4. June 24, July 13, Nov. 25. Naul, March 10, April 26, May 21, Sep, 28, Oc. 2. Palmerstown, August 21. Rathfarnham, July 10. Rush, May 1, Sep. 29. Saggard, June 15, Oct. 10, Nov. 8. Skerries, April 22, Aug. 10. St. Margarets, July 30, and 31. Swords, March 17, May 9.

Fish Table

The following Table shows the months in which the undermentioned Fish is IN or OUT of Season.

KINDS OF FISH.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
Brit	in	in	in	in	in	in	in	in	o	o	in	in
Bret	in	in	in	in	in	o	o	o	o	in	in	in
Cod	in	in	in	in	in	in	o	o	o	in	in	in
Cole Fish	in	in	in	in	in	in	o	o	o	in	in	in
Cockles	in	in	in	in	o	o	o	o	in	in	in	in
Crabs	in	in	in	in	in	in	in	o	o	in	in	in
Dabs	in	in	in	in	in	in	in	in	o	o	o	o
Flounders	o	in	in	in	in	in	in	in	in	o	o	o
Haddock	in	in	o	o	o	o	o	o	o	in	in	in
Herrings	o	o	o	in	in	in	in	in	in	o	o	o
Lobsters	in	in	in	in	in	in	o	o	in	in	in	in
Ling	in	in	in	in	in	in	in	o	o	o	in	in
Mackerel	o	o	o	o	in	in	in	in	in	o	o	o
Oysters	in	in	in	in	o	o	o	o	in	in	in	in
Plaice	in	in	in	in	in	in	in	in	in	in	o	o
Salmon	in	in	in	in	in	in	in	in	in	o	o	in
Soles	o	o	o	in	in	in	in	in	in	o	o	o
Shrimps	in	in	in	in	in	o	o	o	in	in	in	o
Sprats	in	in	o	o	o	o	o	o	o	o	o	in
Skate	in	in	in	in	in	in	in	o	o	o	in	in
Turbot	o	o	in	in	in	in	in	in	o	o	o	o
Whiting	in	in	in	o	o	o	o	o	o	o	in	in
Cong. Eel	o	o	in	in	in	in	in	in	in	in	o	o



MISCELLANEOUS INFORMATION.

Eclipses, 1864.

In the course of this year there will be two Eclipses of the Sun, both invisible in these parts of the earth—they will occur as follows, Greenwich time :—

First. A Total Eclipse of the Sun on the 5th of May, beginning on the Earth generally at 9h. 30m. in the evening, and ending at 3h. 3m. in the morning of the 6th. It will be visible in the eastern parts of Asia, and the western parts of North America, the North Pacific and the northern parts of Australia.

Second, An Annular Eclipse of the Sun commencing on the Earth at 0h. 31m. on the evening of the 30th October, and ending at 6h. 29m. It will be visible in the whole of South America, the south-western parts of Africa, South Atlantic and South Pacific.

Quarters of the Year.

Spring Quarter	Commences on the 20th March, at 7h. 52m. morning	—⊙ enters ♈
Summer Quarter ..	21st June. at 4h. 34m. morning	—⊙ enters ♋
Autumnal Quarter ..	22nd September, at 6h. 58m. evening	—⊙ enters ♎
Winter Quarter —	21st December, 0h. 45m. afternoon	—⊙ enters ♑

Chronological Notes.

Lunar Cycle or Golden Number	3	Septuagesima Sunday	January 24
Epact.....	22	Lent begins	February 10
Solar Cycle	25	Easter Day	March 27
Dominical Letter	C B	Ascension Day	May 5
Roman Indiction	7	Trinity Sunday..... ...	May 22
Julian Period.....	6577	Advent Sunday	November 27

The Revolutions, Distances, &c., of the Planets

Names.	Periodical Revolution.					Mean distance from Sun.	Diameter.	Time of Rotation upon their Axis.				Inclination of Axis to Ecliptic.			Hourly motion in their Orbits.
	Yrs	d	h	m	s	English miles.	Eng.miles	d	h	m	s	°	′	″	Miles.
Sun.....	.....					.....	887,076	25	7	48	0	.....			.....
Mercury..	0	87	23	15	44	36,890,000	2,950	1	0	5	28	.....			111,256
Venus ..	0	224	16	49	8	68,770,000	7,900	0	23	21	8	.....			81,398
Earth	1	0	5	48	48	95,298,260	7,912	0	23	56	4	23	28	0	75,222
Moon	0	27	7	43	5	95,268,260	2,160	27	7	43	5	1	43	0	2,335
Mars	1	321	22	18	27	145,205,000	4,500	1	0	37	20	28	42	0	56,121
Jupiter ..	11	315	14	39	2	495,917,000	88,780	0	9	55	21	3	22	0	30,358
Saturn ..	29	164	7	21	50	909,026,000	77,230	0	10	16	1	30	0	0	22,351
Uranus ..	83	294	8	39	0	1,828,071,000	35,000	.....				.....			15,846

Population of the United Kingdom according to the Census of 1861.

	Popula. Enumerated.		Increase, 1861.		Decrea. 1861.	
	1851.	1861.	Persons.	Rate per cent.	Persons.	Rate per cent.
England and Wales	17,927,609	20,061,725	2,134,116	12	—	—
Scotland	2,888,742	3,061,117	172,375	6	—	—
Ireland	6,552,385	5,764,543	—	—	787,842	12
Islands in the Brit. Seas	143,126	143,779	653	—	—	—
Total United Kingdom ..	27,511,862	29,031,164	2,307,144		787,842	

Net Increase 1,519,302, or 6 per cent.



Descriptive List of Principal Lights—Scotch Coast

Name of Light.	Situation.	No. Light	Appearance.	distance vsible	Points of Compass within which visible.	North latitude	West longitu.
INCHKEITH	Summit of Islahd, Fifeshire ..	Oe	Revolving once every minute ..	—21—	All round the Compass ..	56° 2′	3° 8′
ISLE OF MAY	Isle of May, in Fifeshire, ..	Tno	Fixed. Bear from each other N. N.E.¼E & S.S.W.¼W., 250 yards	21&15	All round Compass.The low light only towards the Carr	56 11	2 33
BELL ROCK	A Sunk reef, 11¾ miles S. by E. ½E. off Arbroath, Forfarshire	One	Revolving, shewing alternately a bright & red light every 2 min.	—15—	All round the Compass ..	56 26	2 23
GIRDLENESS	Gridleness, Kincardineshire .	Two	Fixed Lights, one above the other	20&16	NNEtoWSW¼W. by E'ward	57 8	2 3
BUCHANNESS	Buchanness, Aberdeenshire..	One	Flashing once every 5 seconds ..	—16—	N.b E to SW.bW. by E'ward	57 28	1 46
KINNAIRDHEAD..	Kinnairdhead, Aberdeenshire	One	Fixed	—15—	WNW.toSSE¾E.N'ly & E'ly	57 42	2 1
TARBETNESS	Tarbetness, Cromartyshire ..	One	Visible 2½ min., then eclipsed ½ a min. To. W. of the Ness Fixed	—18—	All round the Compass ..	57 51	3 48
DUNNETHEAD	On the Head, Caithnesshire .	One	Fixed	—23—	From SE½EtoW. by N'ward	58 40	3 22
PENTLAND SKERRIES ..	On the Island..	Two	Fixed N.N.E. & S.S.W., 100 feet	18 &16	All round the Compass ..	58 41	2 55
START POINT	East point of Sanda Island ..	One	Fixed	—15—	All round the Compass ..	59 17	2 22
SUMBURGHHEAD	On S.W. point of Shetlands..	One	Fixed	—21—	NE by E¼EtoNWbyN¼NbyS	59 51	1 16
NORTH RONALDSHAY ..	On North point	One	Flashing once every 10 seconds	—18—	All round the Compass ..	59 23	2 24
CAPE WRATH	On the Cape, N.W. point of Scotland..	One	Revolving, shewing altertately a bright & red light every 2 min.	—23—	From S.½E. to S.W. b W. Northerly	58 37	5 0
ISLAND GLASS	N.E.point of Island, HarrisIsle	One	Fixed	—17—	W. by S. to E.NE.½E. by S.	57 52	6 33
BARRAHEAD..	Highest point on Bernera Isle Southern point of Hebredies	One	Intermittent, continuing in view 2½ min., then ecliped ½ a min.	—33—	From N. by E. to E. N. E. Westerly and Southerly	56 48	7 38
ARDNAMURCHAN	Ardnamurchan point, Argyle-shire..	One	Fixed	—18—	From N. E. by E. ¾E. to S. W. by S. N'ly and W'ly	56 44	6 13
LISMORE	Mousdale Island	One	Fixed, dark 2¾ point over land ..	—15—	From E. to N.E. by E. ..	56 27	5 36
CRINAN CANAL	East side	One	Fixed, red light	— 4—	All round the Compass ..	56 5	5 33
RHINS OF ISLAY	Oversay Island, off S.W. point of Islay, Argyleshire	One	Flashing once every 5 second; disappears ½ a mile off Cul point	—17—	From NNE.to SE. Westerly	55 41	6 29
MULL OF CANTYRE.. ..	South western headland of Cantyre	One	Fixed	—22—	Nrom NNE.½E.to S. by W. ¼ W. Westerly..	55 19	5 49
SANDA ISLAND	Ship Rock	One	Fixed, red light	—15—	NW½WtoSEbyE½EbySW'ly	54 16	5 35
DEVAR ISLAND	Eastern part	One	Revolves every ½ minute	—17—	N. ¼ W. to E. by S. by N..	55 26	5 32
PLADDA	Pladda Isle, off south east of Arran, county of Bute ..	Two	Fixed, vertical, 25 feet apart ..	14 &17	From N.W. byW.Southerly to N. E. by E...	55 26	5 7
CORSEWALL..	W, side of entrance to Loch Ryan, in Wigtonshire ..	One	Revolving, shewing alternately a brigt and red light every 2 min.	—15—	From N.E. by E. Northerly to S.W	55 0	5 9
MULL OF GALLOWAY ..	Southern extremity of main-land of Scotland, Wfigtonsh	One	Intermittent, continuing in view 2½ min., then eclipsed ½ a min.	—23—	From N.E. to N.W. ¼ W ..	54 38	4 51

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
POINT OF AYR	A quarter of a mile S.W. of the Point	54 25	4 22	One	R	—15—	Shewing alternately a Bright and Red Light every 2 min. Visible from S. by W.N.E'ly, to W. by N.
Peel Harbour	East side of entrance	54 13	4 42	One	F	— 8—	
CALF OF MAN	West side of Calf Island	54 3	4 50	Two	R	24&22	Revolving every 2 min. When in one they lead [on the Chicken Rocks.
Port St. Mary	Pier Head	54 4	4 44	One	F	— 9—	
Castletown Harbour	New Pier Head	54 5	4 39	Two	F	— 8—	To be kept on the port hand on entering.
Derbyhaven	Entrance of the Harbour	54 5	4 36	One	F	— 2—	Also a light on Fort Island during herring fishing.
DOUGLAS	Douglas Head	54 9	4 28	One	F	—14--	Not visible from Langness Point, but with three miles offing it will be seen N.E.¼E.; and the Calf Light, at the same time N.N. by W.¼W.
Douglas Harbour	North Pier Head	54 10	4 28	One	F	— 6—	
Ramsey Harbour	South side of entance	54 20	4 23	One	F	—10—	Red Light.
Bahama Bank Light Vessel	A mile off the S.E. tail of the Shoal. Moored in 11 fa thoms.	54 20	4 12	Two	F	—10—	A Gong is sounded during foggy weather. 'Bahama Bank' is painted on her sides. King William Bank Buoy, E. by N.½N. nine miles.
Principal Lights—West Coast of England							
Lee Scar	On the Rocks	54 52	3 25	One	F	— 6—	On Piles. Base dries at 6 feet at low water.
Solway Light Vessel	Robin Rigg Channel	54 48	3 32	One	F	— 6—	Red light. Moored in 4½ fms. A Black Ball by day. Tolls a bell in foggy weather.
ST. BEES	St. Bees Head	54 31	3 38	One	F	—25—	
WALNEY.	S. Point of Walney Island	54 3	3 11	Two	1 R 1 F	—13—	Every minute. The Fixed Light is Red. N.W. by W.¾W. and S.E. by E.¾E. 340 yards.
River Wyre	N.E. elbow of N. Wharf Bank	53 57	3 2	One	F	—10—	On Piles. A Bell is tolled in foggy weather.
Fleetwood	High Light in the Town, Low Light on Esplanade	53 56	3 1	Two	F	13 & 9	N. & S. 850 feet. Shown while 9 feet water in the Channel.
River Ribble	On Stanner Point, N. side of entrance	53 45	3 1	Two	F	12 & 9	The upper Light Bright—the lower Red. The Lighthouse stands about 70 feet high, and bears by compass S.E. by E.¼E. from Buoy Nelson, 7 miles.
GREAT ORMSHEAD	North Point, Steep Cliffe	53 20	3 52	One	F	--24—	White about the bearings. N.W. by W.¾W. round by the N. to E., and red from E. to E.¾S.
Formby Light Vessel	In the New Channel	53 32	3 11	Two	F	— 8—	Red light. Painted Red; carries Red Ball. In 25 feet at low water. Crosby Lightship S. E. ¼ S. 2⅛ miles. N.W. Mark, E. by N.¼N., 3⅞ miles.
Crosby Light Vessel	N.E. elbow of Great Burbo Bank	53 31	3 7	One	F	— 8—	Yellow Light. Painted Red; carries Red Ball.



Principal Lights—West Coast of England, continued

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather.	Remarks.
Black Rock	Rock Point, West side of the entrance of the Mersey	53 27	3 3	One	R	—14—	Making a revolution every three minutes, showing two Bright Lights and one Red Light in due succession. A Bell is tolled in foggy weather.
Leasowe	On the shore, between the Mersey and the Dee Rivers	53 25	3 7	One	F	—15—	Bidston Light open E. of Leasowe, and afterward to the W., lead up the Horse Channel.
BIDSTON	Bidston Hill	53 24	3 4	One	F	—23—	Obscured when inward bound, bearing S.bW.½W.
Hoylake	New Hoylake Church	53 24	3 11	Two	F	13&11	The Upper Light ex. from N.N.W. round to the E'ward, the Lower from N. round to E'ward.
Liverpool N.W. Light Ship	W. extreme of 3 and 4 fath. Tongue in 5½ fathoms	53 27	3 17	One	R	—10—	Moored in 6½ fathoms; exhibits a Black Ball during the day.
AIR	Air Point, at low water mark	53 22	3 19	One	F	— 9—	On Piles. A Bell is sounded in foggy weather.
LYNUS	Point Lynus	53 25	4 17	One	Fl.	—16—	Flashing once every ten seconds.
SKERRIES	Highest Island	53 25	4 36	One	F	—16—	
STACK	South Stack Rock, off N.W. Point of Holyhead I	53 18	4 42	One	R	—20—	Revolving every 2 min. During foggy weather a smaller Bright Light is occasionally shown, 40 feet above the sea, and 30 yards N. of main Lighthouse.
BARDSEY	Bardsey Island	52 45	4 48	One	F	—17—	[sounded in foggy weather.
Cardigan Bay Li't-vessel	Cardigan Bay	52 22	4 54	One	R	— 9—	Red Light. Revolving every 30 sec. A Gong is
SOUTH BISHOP	South Bishop Rock	51 51	5 25	One	R	—18 –	Revolving every twenty seconds.
SMALLS	Smalls Island	51 43	5 40	One	F	—15—	Erected upon pillars 40 feet high.
ST. ANN'S	St. Ann's Point, Milford Haven	51 41	5 10	Two	F	20&18	High Light N. by W.¼W., 609 feet from Low Light. When in one they lead clear of the Crow and Toes Rocks.
CALDY	Caldy Island, Southern part	51 38	4 41	One	F	—20—	
MUMBLES	Mumbles Head	51 34	3 58	One	F	—15—	
NASH	Nash Point	51 24	3 33	Two	F	19&17	High Light, S.E. by E.¼E. and N.W. by W.¼W., 1000 feet from Low Light. The Lights in one lead a cable's length Southward of the Nash Sand.
USK	W. side of entrance of River	51 32	3 0	Two	F	—11—	Red. A Red Light is also shown up the river.
FLATHOLM	Flatholm Island, South point	51 23	3 7	One	F	—18—	
LUNDY	On the ridge of Lundy Island	51 10	4 40	Two	1 R 1 F	—31—	The Low Light (fixed) is only visible from the Westward, between N.N.W. and W.S.W. The Revolving Light flashes every two minutes.
TREVOSE HEAD	On north-western part.	50 33	5 1	Two	F	20&17	[one The Lower Light is 50 feet in advance of the high

Name of Light.	Situation.	Latitude North. ° ′	Longitude West. ° ′	No. of Lights.	Fixed or Revolving.	Miles visible in clear weather	Remarks.
FASTNET	Summit of Rock	51 23	9 36	One	R	—18—	Attaining its greatest brilliancy every 2 minutes.
KINSALE	South Point of Old Head..	51 36	8 32	One	F	—21—	Red Light is shown in a line to the Horse Rock in Courtmacsherry Bay, Bright to seaward.
CORK HARBOUR or Queenstown	Roche Point, E. side of entrance ..	51 48	8 15	One	F	— 4—	Red towards the sea to the Harbour Bright.
	East elbow of Spit Bank, in 9 feet..	51 51	8 16	One	F	— 8—	Red. From N.N.E-½E. to S.E. by E.½E. round by E.
BALLYCOTTIN ..	Outer Island, West side of Bay ..	51 49	7 59	One	Fl.	—18—	Every 10 secs. From E.¼N. round S. to W. ¼ N.
MINEHEAD	South side of Head	52 0	7 35	One	Int.	—21—	Bright 50 sec., obscured 10 sec. From E.N.E.¼N. [to W.¾S.
HOOK TOWER	East side entrance Waterford.. ..	52 7	6 56	One	F	—16—	
SALTEE'S LIGHT VESSEL	Off Conningbeg Rock, the Southernmost of the Saltee Islands .. .	52 2	6 40	Two	F	—10—	Carries a ball. Moored in 32 fathoms. During foggy weather a Gong is sounded.
TUSKAR	Tuskar Rock	52 12	6 12	One	R	—15—	Every two minutes. Two sides Bright, one Red. During foggy weather a Bell is tolled every half-minute. Red light seen 10 miles. [weather.
ARKLOW LT.-VESSL.	S. end of Arklow Bank, in 22 fath.	52 42	6 0	One	R	—10—	Carries a Ball. A Gong is sounded in foggy
WICKLOW	Wicklow Head	52 58	6 0	Two	F	21 &16	The Lights bear from one another N.W. by W. ¾ W. and S.E. by E. ¾ E., 540 feet. When in one they lead between the India and Arklow Banks.
DUBLIN BAY. KISH LIGHT VESSEL . ..	Off N. Point of Kish Bank, Moored in 10 fathoms	53 19	5 56	Three	F	—10—	The Lights are triangular, Carries a Ball. A Gong is sounded during foggy weather.
Kingstown.. ..	Centre of East Pierhead of Kingston Harbour	53 18	6 8	One	R	— 9—	Revolving every half-minute, showing a Bright and Red Light alternately. During foggy weather
	West Pierhead			One	F	— 2—	A small Red Light. [A Bell is tolled.
POOLBEG.. .	End of S. Wall, at the entrance to the River Liffey	53 20	6 9	Two	F	—12—	The Lower Light which is much fainter than the Upper, is exhibited from half-flood to half-ebb. A Ball is hoisted at the same period during day-time.
BAILEY .. .	End of N. Wall or N. Quay, Dublin	53 21	6 14	One	F	—10—	
CARLINGFORD.. ..	S.E. Point of Howth Peninsula ..	53 22	6 3	One	F	—15—	During foggy weather a Bell is tolled.
	Haulbowline Rock	54 1	6 5	Two	F	—15—	The Lower from half-flood to half-ebb. A ball is hoisted during the same period by day; and in foggy weather a Bell is tolled every half-minute.
DUNDRUM BAY ..	St. John's Point	54 13	5 40	One	Int.	—12—	Red Light. Every minute, 45 secs. red, & 15 secs.
SOUTH ROCK ..	On the Rock..	54 24	5 25	One	R	—12—	Every minute and a half. [obscured.
COPELAND..	Small Copeland Island	54 42	5 32	One	F	—16—	

MARINERS' GUIDE

TO THE

Principal Ports and Harbours

IN THE

BRISTOL AND ST. GEORGE'S CHANNELS,

THE IRISH SEA,

AND THE NORTH CHANNEL;

CONTAINING A SERIES OF CLEAR AND CONCISE

SAILING DIRECTIONS

FOR THE

WEST COASTS OF ENGLAND, WALES, AND SCOTLAND, THE ISLE OF MAN,

AND THE

EAST, SOUTH-EAST, NORTH-EAST, AND NORTH-WEST COASTS OF IRELAND;

WITH

Tables of the Magnetic Bearings and Distances

OF DIFFERENT

HEADLANDS, HARBOURS, AND LIGHTS

ON THOSE COASTS.

*** The Bearings and Courses in these Directions are those by compass, and the Distances are nautical miles, of 60 to a degree.

MARINERS' GUIDE.

NOTICE.—Vessels entering the Harbours of the Isle of Man, must give a look out for the new Breakwaters now erecting, from which lights are exhibited during the night.

ISLE OF MAN.

The **ISLE OF MAN** lies in a N.E. by E. and S.W. by W. direction, and is about 30 miles in length and 11 in breadth. The Northernmost Point of Ayre is in lat. 54 deg. 27 min. N., and long. 4 deg. 20 min. W. The

Calf Island,

At the S.W., is in lat. 54 deg. 3 min. N. and lon. 4 deg. 50 min. W. On this Island are TWO Lighthouses, 187 yards distant from each other, bearing N.E. ½ E. and S. W. ½ W. The *higher* Light bears from the dangerous sunken rocks called the *Chickens* N.E. ½ E., distant about a mile and a quarter: when the Lights are in one they lead on the Chickens. These Lights are DOUBLY revolving, without color, making their revolution in 2 minutes, and becoming gradually fainter during that time, until, at a distance, they appear totally obscured. At their brightest period they may be seen seven leagues off, resembling a planet. Between the Chickens and Calf is a passage about a mile broad, through which the tide sets from the W. round the Calf Point *very strong* outside of the EYE Rock, and also through the passage between the Island and S.W. Point of Man. There has been erected in the Sound of the Calf, on the "Thusla Rock," a Large Oblong Beacon. 2½ miles to the east is PORT ST. MARY, where there is good anchorage behind the Pier, which has been lately very much improved, but a dangerous rock called Carrick, lies about ¾ of a mile S.S.E.½E. from the Village. This harbour has about 9 or 10 feet water at neap tides, and 14, 15, 18, &c. at spring tides. In running for it, keep Scarlet Head to the S. of Castletown, a good sail's breadth open, to avoid the Carrick Rock. On entering, take the quay as close as circumstances will admit. A LIGHT is exhibited throughout the year, on the larboard hand on entering the harbour. Five miles E. from the Chickens and 2¼ from Port St. Mary, is Scarlet Head, the westernmost point of

Castletown Bay.

The bottom towards the entrance is generally rocky, and there are three shoals or rocks dry at low water, the largest of which, Lheeahrio, is a quarter of a mile long and 500 feet wide, and is marked on the east end by a large Black Buoy. A RED stationary light, to be kept on the larboard hand on entering, is erected on the new pierhead, which lies 80 yards outside the old pierhead, in a S.S.E. direction therefrom. The Buoy on Lheeahrio Rock is placed in five fathoms at low water, having Langness Point, by compass bearing S. ¾ E., and the lighthouse on the pierhead, N. ¾ E. On entering the Bay, be careful to leave the Buoy on the *larboard* hand, and in working into the Bay from the Westward, you must not bring the Buoy to the Southward of E S.E.; nor open Spanish Head to the Northward of the Stack of Scarlet until Eastward of the Buoy, or until the lighthouse on the pierhead bears N. ½ E., then steer for the harbour. The anchorage is sheltered from N.W. round by N. to S.S.E., the marks for which are, Spanish Head just open to the Southward of the Stack of Scarlet; the Steeple of Castletown Chapel in line with the Eastern part of a Gap in the Mountain bearing N. by W., and King William's College N.E. by N., where there are 9 fathoms at low water, spring tides, and safe anchorage.

Langness Point,

An isthmus running out from the main land, 2 miles to the S.W., has a turret on the point to identify its situation. There are SUNKEN rocks all about it, and the tide sets like a race upon the Point from the Chickens, at the rate (spring tides) of 6 miles an hour, and runs E.N.E. from 2 to 5 or 6 miles from the land, diminishing in strength to Maughold Head. To avoid the inset between the Chickens and Langness Point, it is advisable for strangers on no account to come within 3 or 4 miles of the land. On the E. side is

Derbyhaven,

Affording anchorage for large merchant ships, and sheltered from all winds except E. to S.E. The best ANCHORAGE is on the N. side of St. Michael's Island, in 3 or 4 fathoms, the castle (or fort) on it bearing S.E. by S. Small vessels may run further up. There is a LIGHT at the entrance of the harbour, which is lighted only during the herring fishing season. The stream, or rather eddy, along the E. side of Langness runs 10 hours S., from 2 hours of flood to the last of ebb on the shore. About 3 miles to the E. of Derbyhaven is St. Ann's Head, from which to

Douglas Head,

E. is about 2 miles, upon which a LIGHTHOUSE has been erected, the light from which is STATIONARY, and appears like a star of the first magnitude at the distance

of 14 miles. The Bearings of the light are as follows :—From CLAY HEAD, W. by S. ¼ S., 4 miles; from LANGNESS POINT, E. by N., 7½ miles. The light will not be visible from Langness Point; but with an offing of 3 miles from that Point, the light will be seen bearing N.E. ¼ E., and the Calf Lights at the same time bearing N. W. by W. ¼ W. Vessels running for Douglas, between E. by N. ½ N. to W. by S. ½ S., will see the light at 5 miles' distance. Blowing fresh from the W. and bound for the bay, a vessel should keep pretty close to Douglas Head, or she will be thrown to leeward of St. Mary's Rock, by the strong and variable gusts off the high land to the S.W., where she will be exposed and in bad anchorage. On this rock a TOWER has been erected, the appearance of which in the night is like a square-rigged sloop under sail. Anchor in the bay between St. Mary's and the S. shore, 3 or 4 cables East of the pierhead, where there is a LIGHT exhibited throughout the year, to shew ships into the Harbour; to enter which keep close to the pierhead. Four miles E.N.E. from Douglas Head is

Clay Head,

Round which is Laxey Bay, where there is good anchorage in 6 fathoms depth. From Clay Head to Maughold Head the course is N.E. ½ E. 7 miles, and round the latter to

Ramsey,

N.W. N'ly. 2½ miles. To the E.S.E. of the town is Port Lewague. There is excellent anchorage and shelter from 1 to 1½ miles opposite the town, as the bottom is good stiff clay; but there is generally a heavy sea and hard riding in it with winds from S. to E.N.E., to all of which it is open. The harbour, which is a dry one, will admit vessels drawing 17 or 18 feet water at spring tides, and 11 or 12 feet at neap tides. There is a lighthouse on the quay, a stationary light, of a RED colour, is exhibited throughout the year. In the bay the stream runs nine hours N. and three hours S., beginning at 2 hours' flood. There are three banks off this bay that deserve notice. The BAHAMA BANK, or RIG, bears N.E. 2 leagues from Ramsey town, and is about 6 miles in length from S.S.E. to N.N.W., with only 6 feet depth of water at the S. end, differing in other parts from 9 to 12 feet, and is rather more than ½ a mile broad. The BAHAMA FLOATING LIGHT, exhibiting TWO BRIGHT FIXED lights, is moored a mile off the S.E. tail of the shoal, in eleven fathoms, low water, spring tides, and with the following compass bearings :—King William's Bank Buoy, E. by N. ½ N. nine miles; Point of Ayre lighthouse, N. by W. ¾ W.; Maughold Head, W. by S.; Clay Head, S. W. by W. ¼ W. WHITESTONES BANK, so called from its composition, lies S.S.E. 1½ miles from the extreme Point of Ayre, with a good passage between them; it bears N.N.E. from Maughold Head, and is ½ a mile in length N. and S. and a ¼ in breadth E. and W., with 6 feet at low water spring tides. POINT OF AYRE BANK is a ridge extending ½ a mile from the Point to the distance of 1 mile E., and thence circularly to the S. and E., always with a considerable ripple, nearly in a line with the BAHAMA BANK. KING WILLIAM'S BANK is 8 miles in length from S.E. to N.W., and ½ a mile broad: the N. W. end is E. 6½ miles from the Point of Ayre, and N.E. 11 miles from Maughold Head, from which the S.E. end bears E. N.E. ½ E. 13½ miles, and from the Point of Ayre, E. S.E. 12 miles distant. The leas depth of water on it is 18 feet. The

Point of Ayre Lighthouse

Bears N.N.E. ½ E. from Maughold Head, distant 8 miles, and the lantern is 106 feet above the sea. It is REVOLVING, showing alternately a BRIGHT and RED coloured light, becoming from a star-like appearance gradually stronger, until the attainment of the utmost brilliancy every TWO MINUTES. The light of the common colour is to be seen 4 or 5 leagues off; but the RED one is not distinct at so great a distance. Maughold Head prevents the light being seen by a navigator S. of it, as does Rue Point when he is W. of it. N. by W. ½ W. 1½ miles from the Point of Ayre is STRUNAKILI BANK, bearing from Jurby Point E. by N. 5 miles; it is 1½ miles long E.S.E. and W.N.W., and nearly ½ a mile broad. There are 3 fathoms on the shoalest end, but the sea breaks and the tide sets strong upon it; keeping WITHIN 1¼ miles of the land will clear the whole.—From the Point of Ayre to Jurby is 7 miles to the W., and hence to the Peel Light, S W. ½ W. 11 miles; 4 miles from Jurby W. ½ N. and about 3 miles from the land abreast, is a BLIND ROCK, and from

Peel Light,

N.E. by E., 9 miles. This light is stationary, is exhibited throughout the night, and is visible at a distance of eight miles in clear weather. The harbour at Peel is a dry one. Between Jurby and Peel, off Ballabui, lies a shoal 1½ miles from the land, and 3½ miles N.E. ½ E. from the light. A vessel may ride in the bay with the Castle bearing from S.S.W. to S.W. in 6 or 7 fathoms' depth of water. On entering the Harbour, keep the point of the Jetty close on board on the starboard hand and run in, keeping the light on the pierhead on the larboard hand. The Mull of Galloway light adds to the convenience of this Harbour, being visible from the Castle, and only distant N. by E. 26 miles. The Peel Light

is about 300 yards S.S.W. from the N.E. point of the Castle. The streams of flood that come to the E. from along the S. coast, and along the N. coast of Ireland, meet about a mile W. of Contrary Head, so called from this circumstance, and there divide into two branches, one of which runs N.E. to the Point of Ayre, and on to Maughold Head, the other S.W. to the Calf; one proceeding round the Calf at 6, the other round the Point of Ayre at 4 miles an hour, meeting off Maughold Head. From Contrary Head to abreast the Calf Lights the course is S.W. 10 miles; and 4½ miles from the W. end of that Isle is

Port Erin,

a sheltered little creek, surrounded by very high land, easy of access, and affording shelter against all E. winds. At the entrance, between the headlands, there is a depth of about 15 fathoms water; here the tide runs very strong at the rate of 6 miles an hour. In the Sound of the Calf the stream runs W. 2 hours before high water on the shore, and continues 6, i.e., two hours before it ebbs on shore. Keep the Calf Lights well open when passing Langness Point.

TIDES.—On the full and change days, it is high water on the shore at Peel at 10h. 48m.; in the Calf Sound, 10h. 57m.; at Douglas, 10h. 48m.; at Ramsey, 10h.; and at the Point of Ayre, 10h. In the Isle of Man, spring tides rise 18 or 20 feet perpendicular; neap tides 9 or 10.

Magnetic Bearings & Distances,

FROM THE HEADLANDS OR HARBOURS IN THIS ISLAND, TO OTHER HEADLANDS OR HARBOURS IN THE CHANNEL.

FROM DOUGLAS HEAD TO		MILES.
St. Bees Light	E. by N.	42
Ravenglass	E. by S.	40
Lancaster Channel	S.E. ¾ E.	54
Liverpool Floating Light,	S. by E. ½ E.	59
Chester Bar	S. by E.	60
Great Ormshead	S. ¼ W.	54
Skerries Light	S.W. by S.	46
Langness Point	S.W by W.	8
FROM THE POINT OF AYRE TO		
Maughold Head	S.S.W. ½ W.	8
St. Bees Light	E.S.E. ¼ E.	26
Whitehaven	E.S.E. ¾ E.	28
Maryport	E. ¼ N.	37
Ross Light, Kirkcudbright	N.E. ½ E.	24
Burrow Head	N.N.E.	16
Mull of Galloway	N.W. by N. ¾ N.	21
Copeland Light, Belfast	N.W. ½ N.	44
Liverpool Floating Light	S. ½ E.	70
FROM MAUGHOLD HEAD TO		
Skerries Light	S.W. ½ S.	56
Great Ormshead	S. by W.	60
Liverpool Floating Light	S. ¾ E.	63
Lancaster Channel	S.E. ½ S.	50
St Bees Head	E.	27
Ravanglass	E.S.E.	32
Whitehaven	E. ½ N.	31
FROM THE CALF OF MAN TO		
Langness	E.S.E. ½ S.	7
Mull of Galloway	N.N.E.	38
Copeland Light	N. ¼ W.	48
South Rock Light	N. by W. ½ W.	31
Strangford Lough	N.N.W. ½ W.	31
Carlingford Lough	W.N.W.	45
Drogheda	W. ¾ N.	55
Howth Head	W.S.W. ¾ W.	60
Kish L'ship, Dublin Bay	W.S.W. ¾ W.	60
Holyhead	S.S.W.	41
Great Ormshead	S. by E.	54
Liverpool Floating Light	S.S.E. ⅝ E.	65
Skerries Light	S. by W. ¼ W.	38
Point Lynas	S. ¼ E.	42
FROM PEEL TO		
Mull of Galloway Light	N. by E.	26
Copeland Light	N.N.W. ¼ N.	49
Strangford Lough	N.W. ½ W.	29
Maidens Light	N. by W. ¼ W.	57

Free Harbours

No tolls are exigible on vessels entering any of the Harbours in the Isle of Man.

Abstract of the Bye-Laws for regulating the Harbours.

1. Any vessel, through mismanagement, injuring the quays, &c., such injury to be repaired, under penalty of double the value of the damage.

2. No chain cables to be used for mooring vessels, under penalty of £2.

3. No ballast to be discharged without a port sail, under penalty of £2.

4. Vessels heaving ballast or stones into the harbours, penalty £2 per ton.

5. That no person heave stones, dung, &c., into the harbours, under the penalty of £2; and if not removed when ordered, a further penalty of £2.

6. Masters of vessels not obeying Harbour Masters in mooring vessels, penalty £2: all expenses incurred by the Harbour Master in mooring vessels to be paid by master or owners of said vessel. Any person obstructing Harbour Master in executing his duty, penalty £5.

7. No person to make a fire on the quays without permission, penalty £3.

8. No clog fenders to be used, under penalty of £1, unless hung lengthways.

9. Any person throwing off ends or cutting hawsers, besides paying the damage to the owners, to forfeit £5.

10. That all gunpowder be landed immediately after arrival, under penalty of £10 for every 24 hours it remains on board; and no fire or light to be kept on board while such gunpowder remains in the vessel, further penalty £20.

11. Any dock made for repairing vessels in harbour to be filled up in 24 hours after removal of the vessel, under penalty of £5 for every 24 hours it lies open.

12. No vessel to unload ballast at night under penalty of £10.

13. That no timber, iron, &c. (unless for repairing vessels) be left on the quays longer than two days, on penalty, for every day longer than the said two days, after notice given by the Pier Master, of £1.

14. That no vessel be allowed to take ballast from another, penalty £1, unless by leave of the Harbour Commissioners.

15. Ballast not to lie on the quay longer than 24 hours, under penalty of 5s. per day.

16. All vessels unloading merchandize to have preference of berth in turn.

17. Vessels taking in goods to have any unoccupied berth, but to give it up on the arrival of a loaded vessel.

18. & 19. One person at least to be on board every vessel when afloat, in harbour or bay, under penalty of £2.

20. & 21. No person to act as pilot without commission, under penalty of £10. No vessel compelled to take a pilot.

22. Proprietors of lime-kilns to screen their lights, if liable to be mistaken for harbour lights, under penalty of £5.

23. Persons firing on pier, &c., (except on days of public rejoicing,) penalty 10s.

24. Boats plying for passengers without licence, penalty £2; and owners to be accountable for breach of harbour laws by any of the crew.

25. No person to erect stalls on the quays to cure fish, or deface the quays, &c. under penalty of £2 for every offence.

26. No person to enforce higher rates for pilotage than as follows, which include attendance of boat and four men:

Vessels of 40 Tons	£0	5	0
Vessels above 40 and under 60	0	7	0
Vessels above 60 and under 100	0	13	0
Vessels 100 Tons and larger	1	0	0

27. Vessels must allow ropes or warps of other vessels to be made fast to them, under penalty of £2.

28. All vessels in harbour must keep in their jib and mizen booms, under penalty of £2.

29. No lumber to remain on the quays or steps, under penalty of £1.

30. No conveyance having wheels shod with iron, allowed on Douglas pier, under penalty of £2.

WEST COAST OF ENGLAND.

RIVER RIBBLE TO SOUTHERNESS LIGHT.

The River Ribble.— PORT OF PRESTON.—The entrance to the River Ribble and Port of Preston is indicated by a large buoy at sea called *Nelson*, which should be observed by vessels bound for the river. It is a large Black Buoy with a Cage-Ball at the top, stands 26 feet out of the water, and may be seen in clear weather 10 miles. *Nelson of Preston* is painted upon it. Having observed the Nelson Buoy, the entrance to the River may be made by the North Channel or the Gut. The entrance to the North Channel is northward, and to the Gut southward of Nelson Buoy. The North Channel is buoyed by 10 buoys, numbered 1 to 10, and marked with the letter N.; the Gut by 5 buoys with cages on the top. The buoys are placed in the deepest parts of the Channels. The Gut joins the North Channel at No. 8 buoy, nearly opposite Lytham Lighthouse. The outer buoys of both Channels are placed in 3 fathoms water, their bearings and distances are marked upon Nelson Buoy, and from them the other buoys can be seen, From No. 10 buoy to the commencement of the stone embankments, about three miles east of the town of Lytham, the Channel is marked by perches placed upon the north side, and from thence to Preston by perches placed on the stone embankments on both sides of the Channel. Between buoys four and six in the North Channel vessels drawing 14 feet of water may lie at anchor afloat at low water. The Lytham Lighthouse which stood onthe shore, in latitude 53° 44′ 33″, and west longitude 3° 1′ 29″, has been blown down, and it is probable a Beacon or land mark maybe erected on its site. On the north shore of the Ribble, and 3 miles east of the lighthouse, is the town of Lytham, before which there is a small tide light. Here also is a dock, where vessels can lie in safety, and to which a branch of the Lancashire and Yorkshire Railway extends, connecting it with the main line. Vessels drawing 12 to 14 feet can go up to Preston Quays at spring tides. The quays are connected by a branch with the Railways leading to Manchester, Bolton, Blackburn, Bury, Accrington, and the various other manufacturing towns of Lancashire and Yorkshire, and the Wigan and Burnley coal fields. Mr. W. Allsupp's two Steam Tug Boats ply upon the River for the purpose of towing vessels to and from Preston, and at present, when required, tows vessels at the following rates per reg. ton:—No. 1 buoy to Preston and back 1s. 4d.; No. 1 buoy to Preston, or Preston to No. 1 buoy, 1s.; No. 1 buoy to Lytham, or Lytham to No. 1 buoy, 6d.; Lytham to Preston and back, 8d.; Lytham to Preston, or Preston to Lytham, 6d. Masters of vessels requiring a pilot or

tug-boat, and not meeting with one outside the channels, should signal in sight of the lighthouse. A pilot will also, if required, go to any port to conduct vessels into the river on a letter being addressed to Captain Ashburn, Harbour Master Lytham, Lancashire.--By applying to the Admiralty agent, J. D. Potter, 31, Poultry, London, a Chart of the Entrance to the Ribble, published in 1860, can be had for 1s. 6d.

Morecambe Bay.—In sailing towards this bay, from the southward, which is about 8 leagues from Formby Point, keep full 4 miles from the shore, on account of the flat shoal water, known by the name of "Shell Wharf," this begins nearly abreast of the "Red Banks," and extends to the south side of Lune Deep. The western edge of these grounds is steep-to, and there are on some parts of the Shell Wharf, not more than 6 and 9 feet at low water. The entrance to Morecambe Bay is known by the name of Lune Channel, and is 2½ miles wide at the west end. On the southern side is the Point of Rossall, and on the northern side is the Island of Walney; on the former is a conspicuous beacon or landmark, and on the latter a lighthouse, which bear from each other nearly north and south, distant 8 miles. The Point of Rossall is low land, and the beacon, when seen at the distance of about 5 miles, has the appearance of a vessel under sail. Morecambe Bay is encumbered with numerous large sandbanks, many of which dry at low water, and some at half-ebb. The general direction for the mariner, if bound to Lancaster, will be to attend particularly to his soundings, taking care to get into the deep water of the Lune Channel, and to remain there until he obtains a pilot. When in 24 and 25 fathoms, you will perceive the ends of the rock weeds floating, and the water of a darker blue than when you are over any of the banks.

The **River Wyre.**—The following are the directions for entering the Port of Fleetwood:—On coming from sea, keep the westernmost part of Walney Island to the eastward of Blackcombe until Rossall Landmark bears S.E.: here you are entering the deep water of Lune, where you will have 28 fathoms at low water. The shoals to be avoided on approaching Wyre are, Shell Wharf, North Wharf, and King's Scar Ridge. A large red buoy is laid down nearly on the point of the Ridge, to which a good berth should be given; it also marks the southern side of the Lune deep. A black perch is placed on North Wharf, about three-quarters of a mile S.E. by S. from the King's Scar Buoy. On the north side of Lune deep a black buoy, with globe on the top, and marked "Danger Patch," is placed a few fathoms westward of a shoal patch bearing that name. Between these buoys is the Lune deep or channel, the course up which is E. ½ N. Rossall Landmark is a large wooden structure (of a conical shape) built on the shore of Rossall point, and denotes the southern limit of Morecambe Bay. Walney Island, on which is a revolving light, is the northern limit. Shell Wharf extends to the westward of Rossall Landmark and North Wharf upwards of three miles If in hazy weather you fall in with low land, and not knowing whether it is Walney or Rossall land, your lead, which should never be neglected, will at once inform you; for 4 or 5 miles off Walney, you will have 8 or 10 fathoms, but at the same distance off Rossall only 4 or 5 fathoms. After passing the Danger Patch and King's Scar Buoys, you will observe the Fairway Buoy to Fleetwood channel. It is a vertically striped black and white buoy, and lies half-a-mile N.N.W. from the Screw Pile or Fleetwood Lighthouse. Enter the channel between the Fairway Buoy and the lighthouse, giving the lighthouse a good berth on the starboard hand, and running up for the No. 2 black buoy on the Little Ford, leaving that buoy on the port hand. You will now have come up with the red buoy guarding the north end of the Big Ford; leave that on the starboard hand; then leaving all the black buoys, which mark the eastern side of the channel, on the port hand, and the red buoys and perches (the latter having red globes on the top) on the starboard hand, round close-to the Steep Breast, on the edge of which stands the Lower Shore Lighthouse, and where the tides run very strong: you then enter the Harbour. There are large red buoys for mooring ships to. Sail between the buoys and the shore, letting go your anchor when you reach the upper part of the Canshe Hole; but be careful not to foul the moorings of the buoys, as they run in various directions across the harbour. Strangers visiting this port should always hoist signal for a pilot, several of whom are constantly on the look-out. There are two pilot cutters (numbered 1 and 2) with pilots for any of the ports in the bay, and are generally cruising off the bay. The Screw Pile or Fleetwood Light is a Fixed Bright Light, seen 8 or 10 miles in clear weather. There are also two Fixed Shore Lights, lighted from half-flood to half-ebb. By day, a black ball hoisted on a pole at the Screw Pile Light and Lower Shore Lighthouses, denotes the same interval of tide. A bell, tolling three strokes per minute in foggy weather, is sounded from the Screw Pile Lighthouse, and may be heard at the distance of two

miles. There is good anchorage off North Wharf, anywhere between the King's Scar Buoy and the Lighthouse, in such water as the state of the tides and a vessel may require. A green buoy is placed near a wreck on the Bernard Sand, about half-a-mile N.E. of the Screw Pile Lighthouse; but your vessel should never be that far to the eastward, as the Flood tides run across there, and will set you ashore. There is now at low water Spring Tides, 6 feet of water from sea into the Harbour, by the buoyed channels, keeping the best of the deep. The powerful steam tug "Wyre" belonging to the Port, tows vessels in and out of the Harbour at moderate rates.—A LIGHT VESSEL will shortly be moored at sea, off the entrance to Morecambe Bay, of which due notice will be given.

The **River Lune.**—SUNDERLAND, GLASSON, and LANCASTER.—Sunderland harbour is at the mouth of the River Lune, and is dry. Large vessels may go in after half-flood, and lie on clean ground below the houses, and with neap tides, ships of 12 feet water may ride afloat in the pool, off the westernmost houses in the village. It is not safe riding in the pool with spring tides, because of the rapidity of the stream, which runs there about 4½ miles an hour when strongest. The channel leading into Sunderland is buoyed, and there is a Lighthouse on the south side, over against the point of Sunderland. Bernard's Wharf, the westernmost bank, begins to dry at half-ebb. At the easternmost buoy there is a patch of sand that dries with spring tides only. To come up with the outer or westernmost buoy of the channel of Lune River, take half-flood, and stand no nearer the North Wharf Bank than 8 fathoms water; or keep Lancaster Church Steeple a small sail's breadth open to the southward of the Bluff End of Highfieldor Lawson's Wood,—a long hill under the same high land, which terminates in a remarkable Bluff Point, a little to the northward of the Church Steeple. This mark will bring you up to the Outermost Buoy, clear of North Wharf and Bernard's Wharf; or, when this mark can not be seen, keep the westernmost part of Walney Island to the eastward of Blackcombe, until the Landmark bears about S.E. In this situation you are entering the deep water of the Lune, where you will have 28 fathoms at low water, and the Outermost Buoy bearing about east from you; and should you be forced in by strong gales, or night coming on with a flood-tide, that you cannot keep an offing, you may by observing these directions bring your vessel to an anchor to the southward of the buoy.—If in dark hazy weather you should fall in with low land, bearing E.N.E., &c., and not know whether it is Walney or Rossall land, your lead will at once inform you; for at the distance of 4 or 5 miles from Walney, in that direction you will have 8 or 10 fathoms water, but at that bearing and distance from Rossall, only 4 or 5 fathoms.—*To avoid the Shoals on the north side of the Bay:*—Near low water come no further in, with a vessel of considerable draft of water, than where Walney Lighthouse is open to the eastward of the highest part of Blackcombe, when the Landmark bears S.E., as you are here to the westward of the Stony Patches on the north side of the Lune, where you may safely stand off and on for a pilot.—*To avoid the Shoals on the south side of the Bay:*—Shell Wharf extends W. by N. to W. by S. from the Landmark, therefore you must take care about low water to keep the Landmark to the southward of E.S.E., and when you steer for the buoy at the proper time of the tide, and having fallen into the deep water of the Lune, by observing the foregoing directions, you must allow for North Scar and North Wharf, a high bank, which runs out 2 miles northward of the Landmark, and covers about half-flood. About high water, you may venture in the day time to stand over any part of the bay from Pile of Foudry to the Outermost Buoy in the Lune; but in the night or thick weather, keep further out to the westward, taking care to keep the lead constantly going, and watch every opportunity to take the bearings of the marks before mentioned, until you obtain a pilot.—The *First*, or Outermost Buoy, lies in 6½ fathoms at low water, neap tides, pass on the south side of the Buoy, with Pile Castle bearing N.N.W. ½ N.; Lighthouse on Walney, N.W. by N. ½ N.; North End of North Wharf, W. by S.; Landmark on Rossall Point, S.W.; Foot of Wyre Lighthouse, S.W. by W.; Lancaster Church Steeple, a little open with Highfield, E. by N.; Second Buoy, E.S.E. The First Buoy must be passed on the south side. If too early of the tide, or too late in the evening to proceed up the river, you have good anchorage one cable's length to the westward of the Second Buoy, under Bernard's Wharf, where you will have 3 fathoms at low water, and little current; but you must not proceed up the river with a vessel of considerable water draft until after half-flood. The *Second* Buoy lies in 3 fathoms, with Outermost Buoy bearing W. N. W.; Third Buoy, E. S. E. The *Third* Buoy lies in 3 feet, with Second Buoy bearing W. N. W.; Fourth Buoy, S.E. by S. The *Fourth* Buoy lies in 3 feet, with Third Buoy bearing N. W. by N.; Fifth Buoy, E. ¾ S. The *Fifth*, or Innermost Buoy, lies in 3 feet, with Fourth

Buoy bearing West ¾ N.; Lighthouse on Abbey Scar, East. Keep the Upper and Lower Lighthouses in a line, and guard against the flood-tide setting strong to the southward, up Cocker. Soon after you have passed the Lower Lighthouse, keep Basil Barn a little open to the southward of Overton Chapel, which will take you clear of Thornbush Fishery and Town's Skear, to Sunderland, where you may obtain a pilot. The deepest water is on the south side of all the Buoys, and the River Buoys are placed on the north side of the channel.—GLASSON is about 5 miles before you reach Lancaster. Upon the pier is a harbour light, shown at tide time. The tide flows at the dock gates the same time as at Liverpool; adding two inches to every foot of water at Liverpool, will give the height at Glasson. Every vessel going into the dock must clew up her sails, and (if the wind be any way to the northward) let go an anchor before coming into the Dock Gut, to prevent her anchor bills running through her bows and destroying the works. If the wind be from the westward, and a flowing tide, she may safely touch on the west side, and be veered alongside the pier-head, by a line from the westward; but on no pretence whatever is any vessel to attempt going in under ever so easy sail, as several serious losses have already been sustained thereby; and no steam-vessel is to use her paddle wheels either in going in or out of dock, but to let off steam before doing so. Masters of vessels offending in these particulars are liable to a penalty of £5, besides having to repair the damage.—From Glasson to LANCASTER the Channel is irregular, variable, and shallow; the shallowest part of it having no more than 7 feet water at high water with neap tides, and 12 or 14 at high water with spring tides. Pilots, legally appointed to conduct vessels to and from the quays at Lancaster, may be obtained at Snatchems, near Sunderland.

Morecambe Harbour.—This harbour is situate at the terminus of the North Western Railway, and is connected with the Midland, and Lancaster and Carlisle Railways. A new stone pier has recently been constructed, and superior accommodation provided for the transhipment of passengers and merchandise between the railway trains and steamboats. The dues levied on vessels in respect of lights and buoys are 2d. per ton on vessels from ports in the United Kingdom, and 3d. per ton on vessels from ports beyond, but when such dues have been paid three times in one year by any vessel, they are then reduced to 1d. per ton on the same vessel for the remainder of the year. There are no other dues or port charges on vessels.—The sailing directions for Fleetwood or Lancaster must be adhered to until the Screw Pile Light at the foot of Wyre bears south, then, if flood tide, haul up N.E. by N., and if ebb, N.E., which course leads to the New Screw Pile Light at the entrance of the Channel to Morecambe Harbour. This Lighthouse is upon the same plan, and is similar in appearance to the Foot of Wyre Lighthouse, but exhibits a *Red Light*, visible at a distance of 6 miles, and with the following compass bearings:—Walney Light, N.W. ¾ W., 6¼ miles; Wyre Light, S.W. ½ S., 4⅝ miles; Morecambe Harbour Pier Head Light, E. ½ N., 5⅛ miles. The Light is masked to the extent of one-fourth of the circle facing Heysham Lake and Lune Estuary. A Ball by day, and a small *Green Light* by night, on the west side of the house, indicate when not less than 8 feet water in the Channel up to the Harbour. A Bell is tolled during foggy weather or snow.—Seven Buoys define the Channel leading to Morecambe Harbour, namely:—No. 1 *Red* Buoy, on the Western Point of Clark's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W.; Morecambe Harbour Pier Head Light, N.E. ½ E.; Walney Light, N.W. ½ N.; No. 2 Red Buoy, E. ½ N.; No. 2 Black Buoy, E. by N. ¼ N. No. 1 *Black* Buoy, on the Western Point of Yeoman's Wharf Spit, with the following compass bearings:—Screw Pile Light at Wyre Foot, S.W. ½ S.; Morecambe Harbour Pier Head Light, E. ¼ S.; Walney Light, N.W. ¼ N.; No. 2 Red Buoy, E. by S. ¼ S.; No. 2 Black Buoy, E. ¼ S. These two buoys define the mouth of the channel; they are about a sea mile apart, and have a depth of about 9 feet between them at dead low water. No. 2 *Red* Buoy, on the north side of Clark's Wharf, the compass bearings being—No. 2 Black Buoy, N.E. ¼ N.: No. 3 Red Perch Buoy, E.N.E. No. 2 *Black* Buoy, on the south side of Yeoman's Wharf, the compass bearings being—No. 3 Red Perch Buoy, E. ½ N. No. 3 *Red* Perch Buoy is placed on the western point of Low Scare, and may be passed on either hand. It is larger than the others, and has a circular cage on the top; it rolls very heavily during the strong current of flood or ebb tide. Vessels approaching the Harbour at low water may anchor either above or below this buoy, where there is excellent holding ground in a depth of not less than 5 fathoms at dead low water, spring tides, and remain there until a Black Ball by day is exhibited at the end of the Pier, and at night until half-flood, when there will be a depth of 8 feet in a clear course between the No. 3 Black Buoy, and No. 4 Red Buoy up to the harbour. The compass bearings from this buoy are—No. 4 Red and No. 4 Black Buoys, E. ¼ S. No. 4 *Red* Buoy is on the

end of the Old Scare, and No. 4 *Black* Buoy is on the end of Stone Scare. A Lighthouse is erected on the New Pier, which exhibits a *White Light* from sunset to sunrise; in the daytime a Black Ball is hoisted when there are 8 feet water between the No. 4 Red and No. 3 Black Buoys.—*Vessels running in at low water must keep the lighthouse on the port hand; the best water being near the No. 1 Red Buoy.*

Pile of Foudry.—Pile of Foudry is a harbour near the south end of Walney Island, where large merchant ships may ride in good shelter near the west or south-west side of Roe Island, in from 3 to 5 fathoms water. Small vessels commonly lie aground in the bight, on the east side of Pile of Foudry Island, about a cable's length from high water mark, when the house bears S. by W. In the anchorage near Roe Island the streams of flood meet; one from the north, the other from the south, and make it troublesome to keep the anchor clear. The stream here runs about 3 miles an hour when strongest. On the south end of Walney Island is a stone lighthouse, exhibiting a revolving light 70 feet above high water, flashing every minute, visible in clear weather 3 or 4 leagues: there is also a small fixed light of a red colour. On the north side of this channel is Walney Island, which is low land, and on the south side are several sandbanks or stony ledges; the most dangerous of these is the Stony Patch, which lies to the westward of all the others, distant from the lighthouse on Haw's Point about four miles; to clear it to the westward, bring the Old Castle on Pile Island just open to the eastward of the lighthouse. The lead should be kept constantly going, and if coming from the southward, bring Blackcombe Hill on with the north end of Walney Island, and keep them so until Walney Lighthouse comes E.N.E., and the ruin upon Foula Island touches Haw's Point. The Helpsford Sand is on the S.E. side of Walney, within a mile of the shore, to clear which, you must bring the dwelling-house near the lighthouse a sail's breadth open of the southernmost sandhills, or the lighthouse just clear of the eastern chimney of the same house, bearing N.E. by E.; then, as you advance, bring the ruin of the house on Foula, before mentioned, on with Haw's Point, and these marks will lead you in. Upon the bar is 15 feet water at 2 hours' flood, and the rise of tide is sometimes 29½ feet. The strength of the flood tide is 2½ knots an hour, and the ebb nearly the same. In leading to the anchorage with a flood tide, and the wind scant, you may stand along the southern part of Walney about a mile from the shore, and have regular soundings. In dark weather, should you fall in with land bearing E.N.E., and uncertain whether it is Walney Island or the land adjacent to Rossall Point, then you must be guided by your lead, for at the distance of 5 miles from the former are 7 and 8 fathoms, but at the same distance from Rossall there are only 4 or 5 fathoms; allowance must be made for the rise and fall of the tides, making high water full and change at 11 o'clock. In running for the Pile of Foudry anchorage at half-flood, give Haw's Point a berth of half a cable's length, and keep off Pile Castle Point a similar distance, then, should your vessel draw 10 feet water, anchor in the bight below the house on Pile Island, or near to Roe Island, in 5 fathoms, with the lighthouse open to the starboard of Pile Castle. The breadth of the anchorage above Roe Island is nearly 2 cables. Here the ground holds well; as the tide ebbs you become quite landlocked and may shorten your cable, to enable you to swing clear of either side at low water in 3 fathoms.—Vessels bound from Pile to Barrow should leave Roe Island Pier Lighthouse on the starboard hand, when they will fall in with the Fairway Buoy for Barrow, painted black and white. Further on they will find *Six Red Buoys.* Nearly in a line by keeping them on the starboard hand will lead vessels up to Barrow Pier, where they will have 18 feet water spring tides, and 10 feet neaps. A strong flashing light from the Iron Works lately erected at Hindpool, 1½ miles north of Barrow, may be seen bearing from Walney Island Light N. ¼ W.; Hilp's Ford N. N. E. ¼ N.; Cockspeck Scar, E., and may be seen 15 miles seaward.

Ravenglass is a dry harbour, where three rivulets, the Esk, Mite, and Orte, unite about 12 miles to the southward of St. Bee's Head. There is a buoy placed a little within the mouth of the channel, in the middle, near the Fish Wear, which marks the entry. At this buoy, and in most parts of the channel, the depth is 3 fathoms at high water, with neap tides. The best part for vessels to lie aground on is, half a cable's length from the west end of the town of Ravenglass, on the south side of a perch which stands on the point of a sand there. At this anchorage, in the mouth of the river Esk, and also at the meeting of the other rivers, there are 3 fathoms at high water with spring tides, and 10 feet with neaps. To sail into Ravenglass Harbour, take 4 hours of flood, keep above a mile from the coast to avoid Selker and Drig Rocks (till Ravenglass town bears E.N.E.); steer in that course till you see the buoy bearing east, and then steer right for it, keeping within a ship's length of it on either hand; when you are just past the buoy, steer E.N.E., or keep Ravenglass a sail's breadth open to the north of your stern, till you are

about half a mile from the east end of the sandy hillocks; hook the small bay, which begins there; keep near a cable's length from the point at the end of the small bay, and anchor half a cable's length from the west end of the town, or off the perch, in the meeting of the three rivers. When the buoy in the entrance bears E., it is also in a line with the south shoulder of Newton Knot Hill, which is a small hill half a mile south of Ravenglass. The tide flows here, full and change, at 11 o'clock; and off the Bar runs as follows: the last half-flood and the first half-ebb set Northward, at the rate of 2 miles per hour, spring-tides; and the last half-ebb and first half-flood Southward at the same rate. There is a foot of water more on the Bar than shown by this Tide Table.

St. Bees Head.—To the Northward of Ravenglass Harbour, distant 13 miles, is St. Bees Head. On its summit is a LIGHT-HOUSE, the light from which is *stationary*, appearing like a bright star at the distance of 6 or 7 leagues in clear weather. From the entrance of Formby Channel to this Head, the course and distance are N. by E. 20 leagues. In sailing along from Walney Island to St. Bees Head, keep 2 or 3 miles from the shore, and you will clear every danger. Vessels in moderate weather, may stop a tide any where along the coast, for the stream seldom runs more than a mile an hour.

Whitehaven.—About 3 miles E.N.E. from St. Bees Head is the town of Whitehaven: the harbour is dry, and divided into basins by strong quays, which break off the sea. Within the second basin is the best place for vessels drawing above 10 feet water. Here you will find 18 to 22 feet water spring-tides, and 12 to 14 neap. The HARBOUR LIGHTS are upon the outer and inner Pierheads. The inner Light is *stationary*, of a RED colour, and is lighted while there are 9 ft. water between the Pierheads. The outer Light *revolves*, is lighted all night, and is seen at a distance of 3 or 4 leagues in clear weather. The light appears in its brightest state once every 2 min., and gradually becomes less luminous, till eclipsed. In the day a *Flag* is hoisted on a pole at the top of the old Lighthouse, while there are 9 feet water in the harbour, on entering which, keep both lights on the starboard hand.—A Blue Light is shown from a lighthouse on the end of the north pier, which has been extended 352 yards.

Harrington Harbour is 4 miles Northward of Whitehaven. A *Lantern* is hoisted upon a pole on the starboard side of the entrance, while there are 8 feet of water in the harbour, and in the day a Red Ball, at the inner end of the pier, during the same interval of tide.

Workington is 2 or 3 miles north-eastward of Port Harrington. A red ball is hoisted upon a pole on St. John's pier when there are 8 feet water in the harbour; and at night a light is exhibited on the pier-head, which answers a like purpose, and can be seen in clear weather at about 3 leagues from any point seaward. The channel into this port is along the south shore, its entrance bearing from St. John's pier nearly E. by S. by compass. It is formed by red buoys on the south side, and black buoys and perches on the north side, the deepest water being midway between. The outer perch has a cask upon it, painted black, which must be kept on the port side in entering. Steer in between the perches and red buoys, giving St. John's pier-head a berth of about 100 feet on the starboard side. After passing St. John's pier a perch with a white board upon it is the leading mark for the channel by day; and, by night, the southernmost of the blast furnaces on the north side kept right a-head, until an inner light which is on a wooden pier bears about S. E. ½ S.; then steer S.E. ½ E. for the entrance to the harbour, keeping the light upon the wooden pier on the starboard side, and passing a perch with a small black cask upon it by about 10 feet on the larboard side, when the harbour boat will be in attendance.

Maryport, situate about 5 miles N.E. of Workington, is easy of access, free from sand banks, and has a capacious dock, in which vessels are kept constantly afloat, as well as its original tidal harbour and basin. Depth of water in ordinary spring tides, 21 ft. 6 in., neap tides, 13 ft. 6 in.; or by adding 3 ft. to the water shewn in Holden's Liverpool, and the Manx tide tables, a near approximation for each tide will be obtained. A fixed bright light is exhibited on the outer pierhead all night, and another on the inner stone pier whilst there are 8 feet in the harbour; both lights are on the starboard side in entering, and are visible at sea from E.N.E to W.S.W., the former at a distance of 15 miles, and the latter 10 miles. A Red Ball near the inner lighthouse denotes 8 feet in the day time. The jetty on the south side is distinguished by a Red light, and the north tongue by a Green one. Steam tugs are in readiness every tide, and when required by vessels at night, two lights must be shown one above the other; or by day a union jack at the main. There is good anchorage in stiff clay, about 1½ miles off shore, the outer lighthouse bearing S.E.

Solway Frith.—The entrance to Solway Frith may be considered to commence abreast of Workington, on the English, and at Abbey Head on the Scottish shore, the distance between which is 5 leagues. On the eastern side of the

Frith of Solway, about 10 miles north-eastward from Maryport, is

Port Silloth.—This place is daily increasing in importance, being connected by railway with Carlisle, Newcastle, and Edinburgh, the rails of which are laid on the quays. It contains a wet dock, with entrance gates 60 feet wide, and a jetty from the dock entrance 1000 feet outwards to low water mark. The dock is fitted up with Hydraulic Machinery, by which vessels are discharged and loaded with the greatest possible dispatch. The dock sill is 3 feet 6 inches above low water mark; and, by adding 5 feet to any tide in this tide table, the depth over the sill will be given for high water. A Yellow Light is shown in the Lighthouse at the outer end of the jetty from Sunset to Sunrise; except during the time the gates are open, when the Yellow Light is discontinued and a Green Light exhibited in its place. A Red Ball is hoisted on a Pole at the Lighthouse during the time gates are open by day. In Silloth Bay (between Lee Scar Light and the jetty) there is excellent anchorage in from 4 to 6 fathoms at low water, clay bottom. There is also good anchorage all the way from the fairway buoy to Siloth, with the Red Light a sail's breadth open north of Lee Scar. It is high water here, full and change, 11h. 35m.; spring tides rise 26 feet and neaps 20 feet. The fairway course, from about a mile off Workington to the Light Vessel at the entrance of the channel, is N.E.; and to avoid the tail of Robin Spit, care should be taken not to bring the vessel to the eastward of E.N.E, on which bearing the bright Light on Lee Scar will be in one with it. This Light Vessel is in the middle of the channel, in 3¾ fathoms at low water, and exhibits a fixed Red Light at 25 feet above the water, visible six miles. From it Maryport Outer Light bears S. by W.½W., 4¼ miles; Southerness Light, N. ¼ E., 5½ miles; and Lee Scar Light, E. N. E., 6 miles. It has a black ball at the mast-head during the day, and in fogs a bell is tolled. Having passed the Light Vessel, run up N. E. by N. ¼ N. 1¾ miles which will lead up mid-channel in 3½ to 4 fathoms at low water to the turn Buoys, black and red, where the Cott Red Light opens a ship's length north of Lee Scar, bright, bearing E. by N. ½ N., alter your course to that direction, which will carry you up the fairway as far as Lee Scar in a depth of 2¼ to 5 fathoms. On passing Lee Scar Lighthouse keep a good cable's length to the northward of it. Silloth Harbour is about half a mile above Lee Scar. When following the preceding instructions, it is necessary to bear in mind that, as far as Silloth Bay, the black nun buoys should be kept on the port, and the red can buoys on the starboard hand. The black and white striped buoy marked F, in the fairway off Beckfoot, is passable on each side. The shoalest part of the channel, on which there are 2¼ fathoms at low water, is about half a mile below this latter buoy; thence to Silloth the depth is from 3 to 5 fathoms. The harbour expenses, including light charges, are—Coasting vessels 6d.; Foreign vessels 9d. per register ton. Branch Pilots for Silloth may be had (if required) off Maryport; charge, 1s. 9d. per foot. A powerful Steam Tug attends every tide to assist vessels, when required.

Port Carlisle, a dry harbour, 10 or 11 miles up the Frith from Silloth Bay, is connected with Carlisle by railway, the rails of which run on the quays. It is high water here, full and change, at 12h. 10m.; springs rise 18 feet, and neaps 11 feet; the flood runs 3 hours. Vessels running up from sea and bound to Port Carlisle should alter course for the North Channel at the Fairway Buoy, off Beckfoot, and haul across N. E. by N. ½ N., which course leads up past buoy No. 1 to buoy No. 2, thence N. N. E. leads over the bar to buoy No. 3, from which E.N.E, leads up to Perch Buoy in Powfoot Channel Vessels in the anchorage at Silloth bound up, after half-flood, may take the South Channel, after leaving the Bay N.E. ¾ N. will lead up past buoys Nos. 1 and 2, and up to to the White and Black Buoy, thence N.N.E. will lead over the bar to Perch Buoy in Powfoot Channel, afterwards follow the buoys up, which are all placed in the fairway. The harbour expenses, including light charges, are—coasting vessels, 4d., and foreign vessels, 9d. per register ton. Pilots may be had off Maryport; charge, 3s. 6d. per foot.—At Annan Foot there is a bright tide-light, and 2 perches on the western side of the entrance; the light is shown from half-flood to half-ebb. There is also a tide-light on the end of the jetty at Port Carlisle, 3 miles above Annan Foot, on the opposite or southern side of the channel; this light opens off Knockcross Point, on a S. E. by E. bearing. After passing Annan, soundings should be taken of the English side of the channel up to Port Carlisle.

Magnetic Bearings & Distances

FOR THE WEST COAST OF ENGLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

BUOY NELSON, OFF PRESTON (Lat. 53 43 N., Long. 3 11 14 W.)		MILES.
To Beaumaris entrance....	W. by S.	39
Dundalk Bar.....	N.W. by W.	112
Douglas Head Light	N.N.W. ¾ W.	50
Ross Light, Kirkcudbright....	N.	71
WYRE LIGHT, FLEETWOOD (Lat. 53 57 14 N., Long. 3 1 46 W.)		
To Great Orms Head..	S.W. by W. ¾ W.	45
Dundalk Bar....	N.W. by W. ¾ W.	11[illegible]

WYRE LIGHT, FLEETWOOD — MILES.
To Wicklow Head Light .... W. ¼ S. 118
Calf of Man L'ts. N.W. by W. ½ W. 65
Walney Light .... N. by W. ½ W. 8
WALNEY LIGHT (Lat. 54 2 56 N., Long. 3 10 32.)
To Wyre Light ..... S. by E. ½ E. 8
N.W. L'tship, L'pool. . S.W. by S. 35
Kish Lightship ..... W. ¼ N. 104
Calf of Man .... N.W. by W. ¾ W. 57

ST. BEES' HEAD (Lat. 54 30 50 N., Long. 3 18 W.) — MILES.
To N.W. L'tship, L'pool S. by W. ½ W. 65
Tuskar Rock Light S.W. by W. ½ W 162
Douglas Head Light .. . W. by S. 42
WHITEHAVEN (Lat. 54 33 N., Long. 3 26 2 W.)
To Beaumaris entrance .. S.W. ¾ S. 76
Skerries Light .. . ... S.W. ¾ W. 65
Bahama Lightship ..... W. by S. 24½

WEST COAST OF SCOTLAND.

SOUTHERNESS LIGHT TO THE MULL OF CANTYRE.

Southerness Light, at the west side of Solway Frith, is chiefly useful as a direction to the harbour of Dumfries. It shows a fixed bright light, from N.E. seaward to W., which can be seen at the distance of 11 miles in clear weather.

Little Ross Island—A Lighthouse has been erected upon this Island, which lies off the entrance of Kirkcudbright bay and harbour. It bears a fixed and flashing light, producing 12 bright flashes in a minute, visible from N. by E. to N.W. by W. Southerly, at the distance of 6 leagues.

Kirkcudbright is formed by the Points Balmae and Torrs to the E., and the Island of Little Ross to the W. There are two Towers on Little Ross bearing S.W. from each other, which being kept in one lead over the Bar in the best water to the First Perch on the S E. shore; thence running N.E. about 300 yards, passing a Red Buoy on the point of the bank on the larboard hand; thence N.N.W. passing the Perch on the point of St. Mary's Isle on the starboard hand; thence direct to the lower Fish-house, where is a Pool a vessel can ride afloat at spring ebbs. Abreast and above the upper Fish-house there is excellent lying on soft mud, moored to rings on the rocks, and no stream of tide. On the bar of Kirkcudbright River there are about 7 feet water at half-flood. Vessels running for this place, and not having water over the Bar, will find good anchorage in the Ross Roads in from 2 to 3 fathoms at low water, in good clay ground. Should the wind be Southerly, blowing hard, a vessel should bring up on the W. side of the beach just as the sound begins to open, the closer to the beach the better, as it is very steep-to and quite out of the sea. At half-tide she can trip and run up the lake to the Lake or Fish-house, or waiting 4 hours' flood may run up for the Perch off St. Mary's, and proceed to Fish-house or the town. The coast from Kirkcudbright to Belcarey Bay and River Urr is a bold rocky shore, with neither beach nor harbour.

Belcarey Bay, about 8 miles to the E. of Abbey Head, is formed by the High Lands of Aairds to the W., and Heston Island to the E.; entrance ½ a mile wide. The Heston Island is also high, and highest in the middle: this is an excellent place and too little known. Vessels running for it should keep close past the Aairds, and keep close up till they come above the first salmon weir opposite the large house in the bight, when they may go as far in as water will admit, as it is all clean ground, and quite landlocked from all weathers. The tide sets strong E. and W. past all these places, till a vessel comes within the points mentioned.

Wigton Bay lies to the westward of Kirkcudbright Bay, and has a spacious entrance, with several places where vessels may stop in moderate weather, or when the wind blows off the shore. The river channel at the north-west or upper end of the bay, leading to the town of Wigton, is intricate, and only fit for small vessels who know the place. Vessels may stopwith good anchorage in 7 or 8 fathoms water, about a mile to the northward of Stein Head, and half a mile from the shore, where the bottom is clean sand.

Garlieston. — This is a safe and sheltered dry harbour in the north-west corner of Wigton Bay, with a convenient quay, against which small vessels lie on an even and soft bottom. The outer bay has shelter from W. winds, and good anchorage between Criggleton Point and Eagerness Point. There is a small ship yard, and a town with good supplies at Garlieston. When desired a light is shown from the pier-head, which has been recently extended 250 feet, and where are at springs, 18 to 20 feet, and 11 to 12, neaps. From the pier-head the Ross Light bears S.E. by E. In taking the harbour, keep the perch off the break-

water on the larboard hand. Port charges, 1d. per ton; harbour boat, 3s. to 6s.

Whitehorn.—To the southward of Stein Head and near Burrow Head is Whitehorn Island, between which and the coast is Whitehorn harbour, in which vessels drawing 12 feet water cannot be neaped above twice a year at the quay. It is well sheltered from all winds. The only danger is the Screen's Reef, a rocky ledge, marked by a perch, extending from the west point, upon which the tide sets very strong. Going into the harbour from the west, if Stein Head be kept open of Kairnharrah Hill it will clear the rocks on the west side.

Glenluce Bay.—To the westward of Burrow Head is the bay of Luce, within which and near to the Mull of Galloway lie the Scar Rocks, always above water. There are no shoals near them; but off the Little Scar are two or three rocks, which the sea sometimes washes over. In moderate weather, with W. and S.W. winds, vessels may stop anywhere on the west side of the bay of Luce.

Mull of Galloway.—On the Southern point of the Mull of Galloway, a Lighthouse has been erected, and bears, by compass, from the largest of the Scar Rocks, W. ½ N., 6 miles; from Burrow Head, W. by N. ¼ N., 18 miles. The light is intermittent, 2½ minutes bright, then eclipsed ½ a minute; is visible seaward 23 miles from N. E. to N. W. ¼ W.; but the high lands of Dramore shut the light from the view of the mariner in coasting along the Port Patrick shores. After rounding the Mull, which is a rocky shore, you will soon reach

Cromack Point, about 4 miles from which is

Port Nessic Harbour, fit only for small craft; but a vessel drawing not more than 6 or 7 feet, may find shelter from N. or N. W. winds, by running aground near the pier head. Seven and a half miles further is

Port Patrick, a small and dry harbour open to the westward. Small vessels must go in at high water, and run aground on the N. side of the creek, or within the pier, so as to be out of the reach of the sea, in case the wind should blow from the W. or South-westward.

Point Corsewall is about 14 miles to the northward of Port Patrick, and is the north-west point of entrance to Loch Ryan; between are some rocks, but they lie close in shore, and are mostly above water. On the rocks off Laggan Point called Ebbstone Rocks, which dry at low water, is a red beacon consisting of a pyramid of iron pillars, 40 feet high, with a cylindrical open cage on the top. From it Corsewall Lighthouse bears N.E. by E.; the highest point of Ailsa Craig, N.E. ¾ N.; and Laggan Point, S.S.E. ½ E. On Corsewall stands a Lighthouse, exhibiting a white and red light alternately; these lights revolve, and attain their greatest brilliancy every 2 minutes. They may be seen, like a star of the first magnitude, at the distance of 5 or 6 leagues, and are visible from N.E. by E. northerly, to S.W.

Loch Ryan is capacious, of easy access, well sheltered, with good holding ground, and depth sufficient for large vessels. The only danger to be avoided is the Scar, a tongue of sand on the western side of the Loch, and about 3 miles up the harbour, which extends 1½ miles south-eastward from Kirkholm Point. There is a large Red Nun Buoy on the S. end of the Scar, which distinctly shews its position. The best anchorage is about ½ a mile to the southward of Cairn Point, in 6 and 7 fathoms. On this point is a tower, exhibiting a fixed light of the natural appearance, serving to lead to the anchorage. Opposite the Lighthouse Tower is a small Red Buoy, to mark the eastern edge of the Scar. Fourteen miles N.N.E. from Loch Ryan is the

Craig of Ailsa, a rock 940 feet high, with deep water all round it, serving as a beacon to guide ships to the entrance of the Clyde.

The **Frith of Clyde** makes a fine open entry to several rivers, having no danger more than a quarter of a mile from the shore, excepting the Brist Rock, which lies three-quarters of a mile W. ½ S. from Turnberry Point; it dries at half-ebb, and is about half-a-mile from shore.

Ayr.—Ten miles from Turnberry Point is the Town of Ayr, with a lofty Spire seen from a considerable distance. Here is a commodious harbour, fit for vessels drawing 12 to 14 feet water. The bar, at low water, has from 4 to 6 feet water over it, and with spring-tides at high water there are from 13 to 15 feet, and with neap from 11 to 12 feet over it; with fresh southerly winds there will be a foot more; for S. and S.W. winds raise the tides in all the rivers of the Frith of Clyde, and N. and N. E. winds have a contrary effect. On the north side of the harbour is a lighthouse exhibiting two lights; the upper bright, having a star-like appearance, and the lower red. There is also a tide-light (red) shown when 8 feet water are on the bar. The distance between the lights is 850 feet; and they bear from one

another S.E. by E. ¼ E., and N.W. by W. ¼ W., and are leading lights for entering the harbour, and when kept in one lead over the bar in the deepest water. The upper or bright light may be seen 12 miles off; the red 9 miles; and the tide light 4 miles off. Vessels drawing 7 feet water may make directly for the bar so soon as the tide-lamp is lighted. A flag is hoisted in day-time at half-flood, and continues to be so until half-ebb. About a cable's length S.W. of the south pier lies St. Nicholas Rock, which dries with spring tides only; you will avoid it by keeping the two red buoys on the starboard hand coming into the harbour, the breakwater being on the larboard hand. There is an iron steam tug for towing vessels in and out; and the bar and harbour are being further deepened by means of a powerful dredging machine.

Troon Harbour has an extensive pier and breakwater, with 4000 feet of quayage room, and an average depth of 12 feet at low water; at the outer pier the rise and fall of the tide is from 8 to 11 feet. About 1 mile S.S.W. of Troon Pier is the Lady Isle, a large patch of rock with a large and small Beacon on it. These Beacons are not leading marks, and there is plenty of water inside the Isle. At the distance of half-a-mile N.E. from the pier, is a half-tide shoal, on which is a red buoy. Here are exhibited two Lights; one, on the inner end of the Pier, intermittent, 40 seconds bright and 20 obscured; the other on the Pier-head, red. They bear from each other N.E. ½ N. and S.W. ½ S. 350 yards; and are visible, respectively, 9 and 6 miles. This harbour is perfectly safe, and may be run for in any weather by vessels of moderate draught of water, as there are no dangers but what are to be seen, and pilots are always in attendance. An extensive open wet dock or basin, 400 feet long by 300 wide, with 20 feet at low water tides, and capable of admitting the largest ships or steamboats, adds to the importance of this port. A branch of the Glasgow and Ayr Rail way comes down to the harbour, as does also the Railway of the Duke of Portland from Kilmarnock. There is also an extensive ship-yard, with one of the finest graving docks in the west of Scotland, capable of receiving ships of the largest size. The magnetic bearings and nautic distances are as follows:—From Troon pier head to Ayr Harbour, S. by W., 5 miles; Dunure Point, S.W., 9 miles; Beacon on Lady Isle, W. by S., 2½ miles.

Irvine.—Four miles and a half from Troon are the town and harbour of Irvine; and nearly midway, is Lappock Rock, upon which was erected, in 1843, a beacon about 40 feet above the level of the sea, bearing S.W. Southerly, distant about 2 miles from Irvine bar. There are now from 12 to 13½ feet water on the bar at high water spring tides; ordinary tides, 12 feet; and at low water 4 feet. There is a red warping buoy placed in the *fairway* of the river, about two cables' length from the bar perch, which perch must be kept on the starboard hand on going in. There are also pawls all the way up the river on both sides. Vessels running in should keep the middle of the river, and run right up till they come to the end of the stone quay, where they can either beach or anchor. There is a steam tug for vessels frequenting this harbour.

Ardrossan.—At about a mile to the N.N.W. of Saltcoats are the spacious wet dock and harbour of Ardrossan, in which 100 sail of coasters can lie with ease. The pier and breakwater completely shelter the harbour from southerly and westerly winds; and Horse Isle, with the other rocks, protect it from the N.W. The greatest depth at low water in the Inner Tidal Harbour is 10 feet, and in the Outer Harbour 18 feet. The entrance loch to the wet dock is 160 feet long and 40 feet wide; and at average tides there is a depth of 18 feet over the sill of the lock. The railway trains come alongside all the berths in the wet dock and harbour. There are a graving dock and patent slip attached to the wet dock. —In place of the two previously existing harbour lights, a new lighthouse, exhibiting a red light, has been erected at the extremity of the Breakwater. This light illuminates an arc of from 15° to 20° in the direction of the open channel leading into the harbour, and bears from the middle of this channel E. and by N., on which bearing it is brightest. A vessel running for the harbour should steer the usual course from Pladda towards Cumbray Light, and when about 14 miles past the former, and 7 miles from the latter light, the Ardrossan Light will be seen, in favourable states of the weather, on the starboard, at the distance of about 5 miles, and bearing E. by N. In running into the harbour the light should never be closed; but the vessel must be kept within the illuminated space in which there is nowhere less than 22 feet at low water. A black buoy marks the north side of the channel by day, which is on the west Grinan Rock, and there is a perch on the Grinan Rock, both to be kept on the starboard hand in entering.

The **River Clyde** is remarkable for the ease and safety with which it may be navigated. It is provided with numerous well sheltered harbours, and spacious arms of the sea, of easy access, and capable of containing the largest fleets. In ap-

proaching it, there are neither rocks, nor shoals, nor rapid tides to be feared. Ailsa is a high mountainous rock in the mouth of it, conspicuous at more than 10 leagues' distance, and serves as a remarkable beacon to direct ships to it; there are 4 Light Houses to direct mariners farther up, and to good shelter in the night; and there is hardly one opening to be seen but what a stranger, without chart or pilot, might venture safely to run for in the day time, and find good anchorage within it On coming up the S. or St. George's Channel, and passing Ailsa Rock at 2 miles' distance, the course by compass for Cumbray Head is N.N.E. ½ E. nearly, and will carry you clear of Holy Island, which forms the harbour of Lamlash. If at night, the LIGHTS will be seen on Pladda, a small low Island off the S.E. of Arran Isle. The distance between Ailsa Rock and Pladda Lights is about 11 miles, and from Pladda Lights to the Light on Cumbray Island 18½. There are very large Furnaces of Iron Works between Troon and Ardrossan, which shew for a long distance at night, and might mislead a stranger, unless aware of what they are. It would, however, be advisable for strangers to keep between the Rock Ailsa and the Island of Arran, till daylight. When coming in the NORTH Channel, particularly during the winter months, with a N.W. gale, ships should never run to leeward of Arran during the night, but as soon as they pass the Island of Sanda, inside the Mull of Cantyre, they should haul by the wind, on the larboard tack, with the ship under easy sail, standing 2 hours each way. By this you keep in smooth water, and when daylight comes, can act according to circumstances. Should you run to the leeward of Arran, the wind, which was N.W. will be found at N.W. by N. and sometimes N.N.W. blowing heavy, with very heavy gusts, Keeping to windward, should the gale increase or continue long, you have Loch Ryan under your command; its entrance about 17 miles S.½ W. from Ailsa; but once getting to leeward you can never regain your ground. On approaching the Cumbray Islands, 3 entrances appear before you: the middle one is the main ship channel. In clear weather you cannot mistake the Cumbray Island, being distinguished by an old Light Tower on its highest part, a little to the southward of the present Light-house, which is low down on the hill side. There is a good ship channel to the eastward of the Cumbray Island, but strangers never should attempt it without a pilot. The part of the Island of Cumbray on which the Light stands, is bold and steep close to. Opposite to it lies the Island of Bute, the nearest point of which is Garroch Head, distant about 3 miles. Entering between these 2 head-lands, with the Cumbray Light on your starboard hand, when in mid-channel your course to the Light on the Point of Clough is N.E. ½ E., 12 or 13 miles. In proceeding on this course, a little more than half distance, you will see a REVOLVING LIGHT on your larboard hand, situated on the Point of Toward, which forms the starboard side of the entrance of Rothsay Bay. The Clough light stands on a bold shore. On the opposite side is the town of Dunoon, off which lies a ledge of half-tide rocks, called Gantocks. The position of these rocks is marked by a large stone obelisk, which can be seen from a considerable distance. The river afterwards inclines a little to the eastward, until you get opposite to Gourock, in a small bay on your starboard side. Opposite the middle of this bay is good anchorage; and here it is advisable to anchor till a pilot comes on board. The mark, the centre of the bay with the Clough Light on with Kempuck.

Greenock, which is the chief port for large vessels in the Clyde, has three fine basins adjacent to each other. They are known as the west, the east, and the Victoria harbours. Between the pier-heads, at the entrance of the west harbour, there are about 20 feet at high water, spring tides, and from 10 to 12 feet at low water; alongside the quays is a depth of from 17 to 19 feet. The east harbour contains about the same depth of water, but is more spacious; on the quay is a crane capable of raising 50 tons. The custom-house stands between these two basins. On the eastern side of the east basin is the Victoria harbour, opened in 1851. It has an area of 6 acres, is 563 feet long, and 458 feet wide, with a uniform depth of 26 feet at high water, and 14 feet at low water, spring tides. On the quay is a large crane of 70 tons lift; there is also 2 steam cranes of 15 tons lift, for loading coals. Connected with the east and west harbours are graving docks, the widths of their respective entrances being 34 and 38 feet. There are two lines of Rails all round the Victoria and East Harbours, in connection with the Caledonian Railway. A large Coal Shoot has been erected at the East Harbour, from which a great quantity of Coals are shipped daily. A small light is placed on the quay, in front of the custom-house, as a guide to the shipping, and lights of a red colour are exhibited at the several entrances of the port. In the roadstead are warping buoys; but in order to avoid the shoal off the custom-house, care must be taken to anchor as close as possible *outside* the line of buoys. The best anchorage for small vessels is off Albert Quay, in 4 fathoms water. About a mile N. N. W. of the

custom-house are two fixed red lights, visible at the distance of two leagues: when in one, bearing W.S.W. ¾ W., they lead to the anchorage below the "Tail of the Bank."—COCKLE BANK reaches from the east end of the town of Greenock to the *Old Castle of Newark* at Port Glasgow. A new harbour is now building to the N.W. of Mr. Scott's Building Yard, for the discharge of timber laden vessels, the depth of water at spring tides to be 27 feet, with a large space for storing deals.

Port Glasgow.—The channel from Greenock to Port Glasgow is narrow and intricate as far as *Garville Point*, and should not be attempted without a pilot; about a ¼ of a mile N. from Garville Point is a buoy on the south edge of the *Cockle Bank*. Keep that buoy on the larboard hand, and run about a cable's length from it. Near the E. side of Garville Point is a beacon, which pass on the starboard hand, keeping not less than 2 ships' length from it, nor more than half a cable, to avoid the Cockle Bank. Between this last-mentioned beacon and *Inch Green* is first a buoy and then a beacon; keep both on the starboard side, sailing at the distances before directed. There is also a beacon near the quay of Port Glasgow, which you must pass at 2 ships' length on the starboard side, and enter the harbour about high water. At the quay there is water for small craft only. At low water it is dry, and with spring tides is capable of containing vessels that draw 10 and 11 feet water; the ground is soft and easy to lie on, and a good place for graving ships' bottoms is made here. A light is exhibited on the pier to direct the steamers; and at the entrance of the harbour is a light of a red colour on the west quay. About four miles from Port Glasgow is

Dumbarton, a creek in the mouth of the river Leven. Vessels drawing not more than 8 or 9 feet may go in at high water. If pilots cannot be had, the following directions may be useful. Weigh anchor and sail from Port Glasgow at half flood; keep a cable's length from shore at the Old Castle of Newark; from thence steer eastward between Audoch and Dumbarton Castle, about 2 miles, until you come abreast of Finlayston; then steer south-eastward for the western buoy off Dumbarton Castle; there anchor until it is high-water. Leave that buoy to the larboard, and the other on the starboard, and stand in for the entry, keeping that side close until you have passed the Castle.

Between Port Glasgow and Bowling Bay are three Lights: at Auchenleck, the Garmoyle Floating Light, and the third about a mile above Dumbarton: all to be left on the starboard hand in going up the river.

Glasgow.—On the lower or western extremity of Broomielaw Quay, and larboard hand going up the river, a light, of star-like appearance, is placed for the direction of shipping.

Isle of Bute.—To the westward of the Isles of Cumbray is the Isle of Bute, on the eastern side of which, directly opposite Great Cumbray, is Killichattan Bay, where vessels may anchor in from 11 to 16 fathoms. To the northward is the Bay of Rothsay, the ground good and clean, and well sheltered: you may anchor in any part on the E. side of the Bay: but the most convenient place is 2 cables' length N. of the pier-head, in order to be clear of the tract of the numerous steamers plying from the pierhead to all parts of the Clyde.

Kyles of Bute.—The channels between Bute and the Main are termed the Kyles of Bute: their access is easy, and well sheltered, the bottom is extraordinarily good, and the depth sufficient for the largest ships. They are distinguished by the names of the East and West Kyles.

Island of Arran lies to the southward: at its S. E. extremity lies the ISLAND OF PLADDA, upon which a LIGHT HOUSE is erected, 3 miles north-easterly of which is the ISLAND OF LAMLASH. This island lies right in the front of the bay and forms a good and well-sheltered anchorage: the N. side of it is shallow about 2 cables' length from the shore, but the best parts to ride in are off the houses in Holy Island, in 9 or 10 fathoms, or about 2 cables' length E. by N. or E.N.E. from the pier at the town of Lamlash. A red buoy (called Fergusson's) is placed on a rock, with 14 fathoms water in the south entrance to Lamlash. You can go either side; but the Island side is best. At the north entrance on the mainland side is Hamilton's Rock, for which, in thick weather, a good look out should be kept, though it is scarce a ¼ of a mile from the shore and never quite covers. The lighthouse on Pladda exhibits two bright fixed lights, and may be seen from N.W. by W. southerly, to N.E. by E.; the upper at 17 and lower at 14 miles' distance. At the northern extremity of Arran Island is

Loch Ranza, the ground in which is very good, and water sufficient for large ships, but the place being narrow renders it fit for small vessels only. On the east side of the entrance there is a rocky ledge, dry at low water, which extends near one-third over to the opposite side; to avoid this ledge, keep in the middle of the channel. Anchor abreast of the houses of Ballino, in 5 or 6 fathoms water, nearest the E. side of the Bay,

about a cable's length north of the Old Castle, which stands quite at the bottom of the Bay.

Loch Fyne.—After passing Ardlamont Point the entrance to Loch Fyne is open, and is about 7 miles wide from Skipness Point to the north end of Arran, with an arm of the sea running in of upwards of 40 miles, is an extensive and good place for shipping, but is too deep in the middle for anchorage. Between Ardrishaig and Ilan Yone there are from 2 to 3 fathoms, and from thence to Inverary the coast is very irregular and soundings very variable, from 30 to 70 fathoms; near either side, therefore, about a cable's length or two from the shore, is the best anchorage for large ships, and the north side is reckoned better than the south. In sailing up Loch Fyne the south shore, from Otter Ferry to Inverary, is the cleanest and boldest, and is the tract used by all large vessels. Opposite Minard Castle about 10 miles below Inverary is a shoal extending across the middle of the Lough, it is marked by beacons, and you can go either side, but the west is the safest: all the middle part dries at low water. There is also two Islands, small but high; and Paddy's Rock lies off Castlelachlan: keep the south shore as directed.—On the west side of Loch Fyne, and about 8 miles below Skipness Point, is the little harbour of EAST TARBIT, much frequented by steamers and sailing vessels. INVERMIEL BAY, is also used as an anchorage by large vessels in 10 fathoms water.—At Ardrishaig Point is the Crinan Canal, where there is a Pier, and good anchorage for vessels bound north or to Lock Gilp Head. The best place is on the north side of Ilan Yone, in 3 fathoms, to enter which sail up to Ardrishaig Pier or Lighthouse, and then cross to Ilan Yone.

Campbeltown Harbour lies about 11 miles south westward of Point Carradle: it is large, well sheltered, the ground good, and there is very little to be feared in sailing into it. On coming from the S. or S.E., you will first see the Island of Devar and the *blind* sound to the southwest of it, through which is a view of the town. On Otter Buoy the northeast point of Devar Island, is a lighthouse, from which is exhibited a bright light every half minute; it is visible from N. ¼ W. to E. by S. by the N., and may be seen in clear weather about 15 miles. This light is a good light for clearing Paterson's Rock; if kept in sight, it will lead about 3 miles to the eastward of it. In standing in for Campbeltown at night, be careful to keep to the eastward until the light upon Devar Island is fairly open; then stand for it, keeping it on the port hand, and steering about one or two cables' length from the point of the Island, until you open the harbour; then haul up W. ½ N., or W. by N., still keeping about the same distance from the shore. When abreast of the western end of Devar, a black buoy will be observed on Mulbeg Bank, about 60 fathoms from the Island; this must be passed on the port hand. Steering half a point more northerly, you will next pass on your starboard hand, a red buoy, placed nearly opposite a sandbank, which is always dry, except with spring tides. On this bank is a beacon, painted black. There is also another beacon, painted red, on Trench Flat. Hence the red light on the north pier will be seen, and soon after, on passing Trench Point, the green light shown from Dolintober Quay. Now steer W.N.W., or N.W. by W., and you may come to an anchor in any part of the loch—observing, however, to give the west shore a berth of two cables' length In the Loch, inside the beacons, the deepest water is on the north side; a stranger should, however, keep the lead going if working in, and put about the first shoal cast. as the bank is steep on both sides. The harbour has a depth of water of from 5 to 10 fathoms.—Masters of vessels turning in from a west wind at night, must be careful not to shut the light on the Island when standing south, but tack as soon as it becomes obscured by the high land of the Island, for in that case they are close to the South Bank, and the water shoalens at once; but by keeping the light E. by S. they will go clear. At night, however, it will be better to anchor at Black Rock, on the north side, about a quarter of a mile E.N.E. from the red buoy, or when Devar Light bears about S.E. in 4 or 5 fathoms water, good holding ground, and well sheltered, being within Macrinian's Point, which forms the north entrance to the harbour.

Sanda Island.—About 9 miles south of the Island Devar is the Island of Sanda, a dangerous Island, being surrounded by ledges of rocks. There are several ledges of rocks about the east and west ends extending about a cable's length from shore; and near Gluinmore, which is always above water, there are several rocks that dry at low water, also off the east end around Island Ilanagurach. In the sound, between Ilanagurack and Sanda, is the anchorage, a kind of harbour fit only for small vessels in summer time or in moderate weather. It is protected by the reefs in the sound—the reef to the west, on which there is a beacon, pointing out the anchorage. Anchor when Fair Head [illegible] up on the end of Sanda in about 10 [illegible] water, close to the houses, off an old quay. No vessel should attempt to pass between Sanda and Island

Ilanagurach, the tide being strong and running very irregular. Round Gluinmore and Island Ilanagurach are reefs and sunken rocks with deep water. On the ship rock of Sanda, in lat. 54° 16′ 30″ N., and lon. 5° 34′ 55″ W., a lighthouse, exhibiting a fixed red light, has been erected. It is visible from N.W. ½ W. to S.E. by E. ½ E. by south-westerly, and may be seen at the distance of 5 leagues. It bears by compass from Pladda Light, W. by S. ¾ W., 18 miles; from Ailsa Craig, N.W. by W. ⅛ W. 16 miles; from Corsewall Light, N. by W. ¼ W. 22 miles; from the Maiden's Rocks Lights, N.E. ¼ N., 21½ miles; from N'most Point of Rathlin Island, S.E. by E. ⅛ E., 21 miles; and from S'most Point of the Mull of the Cantyre, S.E. ¾ E., 6 miles. From Sanda Light, E. by S., distant 1½ miles, is the Paterson's Rock Buoy, pointing out a dangerous rock, uncovered at low water. When the Mull Head of Cantyre is seen to the southward of Sanda, you are to the southward of this rock; when the Mull Head is to the northward of Sanda, you are to the northward of it. When Gluinmore Rock appears to the west end of Ilanagurach you are to the eastward; and when Gluinmore Rock appears to the east end of Ilanagurach, you will be to the westward of Paterson's Rock. In sailing east along the south end of Sanda keep the light in sight and you will pass south of the rock: the light is shut when you are in a line with the rock, and when the light is seen over the hill on east end you are within the rock.—Tides.—High water inshore 9, mid-channel 10 30, a.m.

Tides—The stream of flood within a mile of the Mull Head runs southward, and turns sooner than at a greater distance from the land, so that a vessel keeping near the west coast of Cantyre, will have the benefit of the stream 2 hours before one above a mile from the land.

Magnetic Bearings & Distances

FOR THE WEST COAST OF SCOTLAND. WESTERLY VARIATION 25 TO 26 DEGREES.

Ross, OFF KIRKCUDBRIGHT (Lat. 45 46 N., Long. 4 5 1 W.)

		MILES.
To Maryport	SE by E	20
St. Bees' Head Light	S by E ½ E	21½
Rossall Landmark	S ¾ E	61½
Buoy Nelson, off Preston	S	71
NW Lightship, Liverpool	S ¾ W	83
Beaumaris entrance	SSW	85
Bahama Lightship, I. M.	SWbyS	26

MULL OF GALLOWAY (Lat. 54 38 9 N., Long. 4 51 20 W.)

To Beggar Scar Rock	E ¾ S	6
St. Bees' Head Light	SE ½ E	43
Point of Ayre, I. M.	SEbyS ¾ S	21
Bardsey Island Light	SSW ¼ W	113
Smalls Light	SW ¾ S	180
Tuskar Rock Light	SW	153

POINT OF CORSEWALL (Lat. 55 0 29 N., Long. 5 9 28 W.)

To Larne Lock Light	W ¼ N	24
Fair Head	NW ½ N	37
Mull of Cantyre	NNW	30
Sanda Light	NbyW ½ W	26
Pladda Light	NEbyN ¾ N	25
Ailsa Rock	NEbyN	14½
Cumbray Light	NE ⅝ N	43
Ardrossan Harbour	NE	40

TROON (Lat. 55 33 N., Long. 4 41 W.)

To Heads of Ayr	SW ½ S	8
Corsewall Light	SW ¾ W	36
Copeland Light	SWbyW	58
Ailsa Rock	SW ¾ W	22½
Larne Loch Light	WSW	56
Maidens Lights	WbyS ¾ S	55
Pladda Light	W	16

ARDROSSAN (Lat. 55 38 37 N., Long. 4 49 28 W.)

To Troon	SbyE	7½
Ayr Harbour	S	11½
Heads of Ayr	SbyW ½ W	13
Loch Ryan	SW ½ S	38
Corsewall Light	SW	40
Ailsa Rock	SW ½ W	26
Copeland Light	SW ½ W	61
Pladda Light	SWbyW ½ W	17

CUMBRAY LIGHT (Lat. 55 43 16 N., Long 4 58 W.)

To Ardrossan	S ½ E	6
Ayr Harbour	S ¼ E	12
Heads of Ayr	SbyW	18½
Turnbury Point	SSW	23
Loch Ryan entrance	SWbyW	42
Corsewall Light	SW ⅜ S	43
Ailsa Rock	SW ⅜ S	29½
Copeland Light	SW	64

PLADDA ISLAND LIGHT (Lat. 55 26 N., 5 7 6 W.)

To Cumbray Light, from 1 mile North of Pladda Light	NE	19
Irvine Harbour	EbyN	18
Troon do	E	16
Ayr do	EbyS ½ S	16
Turnbury Point	SEbyS	11
Loch Ryan Entrance	SSW	24½
Ailsa Rock	SWbyS ½ S	11
Corsewall Light	SWbyS ½ S	25
Copeland Light	SW	45
Belfast Loch entrance	SW ¾ W	43
Larne Loch Light	SWbyW ½ W	43
Maidens Lights	SWbyW ¾ W	35

MULL OF CANTYRE (Lat. 55 19 N., Long 4 49 W.)

To Sanda Light	SEbyE ½ E	5
Ailsa Rock	SE ½ E	24
Corsewall Light	SSE	30
Calf of Man	S ⅓ W	84
Maidens Lights	SSW	24
Fair Head	W ¼ S	13
Inisterhul Light	NWbyW	49
Lock Ryan entrance	SEbyS ½ S	31
Larne Loch do	SWbyS ½ S	28
Rathlin Island, N. end	WbyN ½ N	13
Sound of Islay, E. end	NbyE ½ E	38

MULL OF CANTYRE TO THE NORTH END OF SCOTLAND.

The Mull of Cantyre is a high rocky promontory, running to the southward, and approaching within 11 miles of the coast of Ireland. On its south-western extremity is a lighthouse, which exhibits a fixed bright light, visible 22 miles in clear weather, from N. N. E. ½ E. to S. by W. ¼ W. by W. Off Dunimore Head, which is about 5 miles to the northward of the lighthouse, is a rock, lying about a cable's length from the shore, which dries at half-ebb. A rocky shoal, with 3 or 4 feet on it at low water, lies further north, about a quarter of a mile off Usid Point, at the Saltpans: on this shoal the sea always swells, and breaks in the calmest weather.

West Loch Tarbit, on the main of Cantyre; the bay of which is well sheltered, and the depth of water for a mile up sufficient for the largest ships; but the ground, being of soft mud, does not hold well with hard gales, except there is a full cable out. The common places of anchorage are, for large ships, off Ardfarik, in the mouth of the loch; and for small vessels, on the east side of Ilanagalligan. On the S. side of Ilan Trayn are several rocks above ½ a cable's length from the island, or ⅓ from it, and ⅔ from the starboard side of the entry. There is also a sand bank extending from the E. point of Corran, nearly ⅓ over to the N. side of the loch; to avoid which, keep nearest to the N. side, or keep the easternmost extremity of Ilan Trayn in a line with the W. end of the highest hill in Gia Island. About 3 miles up the loch, off Duneturik, nearest to the N. shore is a small blind rock, having 5 feet water over it. Keep the middle of the loch, and you will avoid it.

Loch Achastil is a fine harbour, and fit for ships of any size; the ground good, and only one rock, about midway, within it, covered only with spring tides. Ships may anchor in any part of this loch above Castle Swein. The danger to be avoided in sailing towards Achastil is a small rock on the N. side of the two Mackcarmack Islands, which dries with spring-tides only

Jura Island—To the westward is the Island of Jura; on the S.E. side of which is Loch Daguall, with good anchorage, well sheltered, and water enough for a merchant ship. This anchorage is very convenient for vessels bound to the southward. You will anchor near the middle of the bay, when Gia Island is just shut in by the N. point of the entry, and the northernmost Pap of Jura bears N. W. ¼ W. In running either in or out, stand not too near the sides, for on the N.N.E. and N.W. sides of the bay it shoals nearly 2 cables' length from shore.

Sound of Islay is the common track for shipping to and from the N. A Lighthouse has been erected on Rudha Mhail Point showing a Fixed Light, visible 15 miles. It shows RED from about NNE ½ E.W'ly. to about N.¼W.; MASKED W'ly. from about N¼W to about N by W¾W, and from about N by W¾W round S'ly and E'ly to about NNE½E it will show WHITE, excepting where intercepted by the land. When proceeding into, or through, Islay Sound, this light kept in view clears the Black Rock and other shoals at the south entrance. A Lighthouse is also erected on MacArthur's Head, on East side of Islay, and south entrance to the Sound, showing a Fixed Light, visible 17 miles. It shows WHITE up the Sound till it bears S½W; RED towards Jura from S½W till it bears about W; and WHITE from about W. round by the S., or until obscured by the south side of Islay. A tide or a night is the longest any vessel should stop here except in Macdougal's Bay, where one cable may be made fast to a ring or rock on the shore. In entering Islay Sound from the southward, you are to bring Glashilan Island to bear N., or keep within a cable's length or two from the Islay shore, and you will clear the Skerchray Rock, which lies on the starboard side, W. of the small Island of Frochilan.

Loch Tarbet is filled with small rocks, especially on its southern side, it is therefore hazardous to enter. The anchorage is ¼ of a mile above Guinmore, but the best and safest place is near the mouth of the Loch in Glenaberig Bay. This is easy of access, and has 3 and 4 fathoms water. Keep a cable's length from the point in passing, and anchor the same distance eastward of it. About a mile eastward of this anchorage is a cluster of small rocks above water; on the E. side of these a ship may ride safe in five fathoms water, keeping ¼ cable's length from them in going up.

Loch Indaal.—Having rounded the Mull of Kinho, which is the south-western part of Islay, you will open Loch Indaal. This may be said to be the only place in Islay where vessels in winter time can ride in safety. Here small vessels drawing 9 or 10 feet of water may ride, and be well sheltered; larger ships, drawing 15 feet, must ride with the mouth of the loch open, and will therefore not be so safe when the wind blows from the W. or S.W. But the best anchorage is at the further end of the loch called Kilirn Bay, when Bomore House bears S.S.E., lying somewhat nearer to the S. than to the N. side of the harbour, in 3 fathoms, sandy ground. Larger ships anchor more to the westward bringing Bomore House S.E. by E. in 4 fathoms. At the entrance to this harbour are 2 spits of sand; one on the S. side, which never dries, extending from

Atturach Point northwards; the other running from the opposite side southward, which dries gradually. These two spits of sand almost enclose the harbour. In the channel between their two points are 2 and 2¼ fathoms, low water, spring-tides.

Rhins of Islay Light, on the northern side of the entrance to Loch Indaal, upon the small Island of Oversa, bearing by compass from the Mull of Kinho, N. by W. ⅝ W., distant 10 miles; and from the STATIONARY LIGHT of the Mull of Cantyre, N. by W. ⅝ W., 33 miles. From the north eastern extremity of the Island of Rachlin, N. ¼ E., distant 25 miles. From the REVOLVING Light of Innistrahul, E. distant 28 miles. From the Revolving Light, producing a bright flash once in every minute, on the Rock of Skerryvore, distant from Hynish Point, in Tyree, W.S.W. ½ W., 10⅛ miles, it bears S. ¼ W., distant 44 miles. From the Rocks of Dunheertach, lying 11 miles S. W. from Icolmkill, it bears S.S.W., distant 28 miles; and from Tanvore Head S.W. by S., distant 6½ miles. It will be known to Mariners as a STATIONARY and a FLASHING LIGHT. To a distant observer it appears like a star of the first magnitude, producing a bright flash of light every 5 seconds, without those intervals of total darkness which characterise other Revolving Lights upon the coast In clear weather it will be visible at the distance of 6 leagues, and is open from N.N.E. to S.E. (westerly); half-a-mile off Cull Point it disappears.

Oronsa and Colinsa Islands.—Oronsa is much the smaller Island, and is nearly 4 miles to the northward of Ruinanishag Point, in Islay. Off its southern sides are several rocks, one of which extends W.S.W. from Gudimel, a small island on the S.E. part of Oronsa. This rock dries at half-ebb. There is a shoal also about a ¼ mile to the southward of the middle of the rock, on whlch are 6 feet at low water. At the S.W. point of Oronsa is Ilana Roan; one mile S.W. of which are 2 or 3 rocks, which dry with spring-tides only, and some shoals, on which the sea always breaks. A leading mark to go to the southward of these dangers is Ruvaal Point in Islay, on with the S. end of Beninore Hill in Jura. Sail not nearer to Colinsa than till Ruvaal Point bears on the middle of the hill. To the W. of Colinsa are several rocks and shoals, lying a mile out from Ardskinish Point, some are above, some below, and others dry only at low water; you will avoid the whole of them by keeping about 2 miles from the shore, or one mile from those rocks you see above water. There is no anchorage on the W. side of Colinsa, and but indifferent on the E. side.

The **Gulf of Coryvreckan,** which is formed by the N. end of Jura, and the Island Scarba, is distinguished by a violent breaking sea with whirlpools, partly occasioned by an excessively rapid stream running over a steep rock, at the N. side of the Sound, near the W. Point of Scarba. On the Jura side of the Gulf the sea rages, and forms whirlpools, both with ebb and flood: but the waves do not rise so high as on the Scarba side of the Gulf.

The Sound of Mull Lighthouse is situated on a small rock called Runa Gall, on the south shore of the Sound of Mull, Argyleshire, about one mile northwards from Tobermory. The tower is about 50 yards within the high water mark of spring-tides, and is connected with the shore by a bridge of two spans. The Light is an azimuthal condensing Light, and shows a FIXED RED LIGHT northwards out to sea; a FIXED GREEN LIGHT towards the New Rocks, the Red Rocks. and the Stirks Rocks, in the Sound of Mull; a FIXED WHITE LIGHT southwards into the Sound of Mull. The Light is exhibited from a tower of masonry about 55 feet above high water of spring tides, and may be seen in clear weather at the distance of about twelve nautic miles.

Adnamurchan Point.—A Lighthouse, exhibiting a Fixed Light of the natural appearance, has been erected on this point; and bears by compass from Caillach Head, N.E. ¾ E., distant 7 miles: from the Cairns of Coll, S.S.E., 8 miles; from Kana Head, S. ¼ E., 30 miles; from Scour of Eigg, S.W, by S. ½ W., 11 miles; from Bo Askadil Rock, W.S.W., 7 miles It is visible 18 miles in clear weather.

Ushenish Lighthouse is situated on the most easterly headland on the eastern side of the Island of South Uist, one of the Hebrides, in the county of Inverness. The Light is a dioptric first-class FIXED RED LIGHT, and is exhibited from a tower of masonry erected on the headland. The Light is about 176 feet above high water of spring tides, and may be seen in clear weather at the distance of about 18 nautic miles.

Island Glass Light, situate on the eastern side of Glass, and on the western side of the channel between Skye and the Long Island. The Light is STATIONARY, appearing like a star of the first magnitude, at the distance of 5 or 6 leagues, from W. by S. to E.N.E. ½ E. by the S.

Skergriatick Rock.—A Beacon, painted black, has been erected on this rock, situate in the Minsh. It consists of a Frame-work of iron, surmounted by a cylindric cage, and rising to about 30 feet above high water spring-tides. There are steps leading from the rock to the

cage, in which shipwrecked mariners may find a temporary shelter. This beacon bears by compass from Skernamule beacon N.N.W., distant 3 miles; from Dunvegan Head, in Skye, N.E.¾E., 18 miles; from Island Glass Lighthouse, S.E. by S. ⅝ S., 7½ miles; from the Greater Galtimore (one of the Shiant Islands), S.W.¼ S., 8 miles. There is foul ground nearly all the way from Skergriatick Rock to Fladdahuan Island, from which the beacon lies 2½ miles to the N. by E.

Loch Terriden.—In entering Loch Terriden avoid Runawhagh Point, its southern entrance, a little way off which point is a rock under water, which dries at spring tides. Excepting this rock, there is no danger in sailing into or up this Loch; for Skerintram Rock, which lies on the north side, is always above water, with deep water all round. Here therefore the access is easy, the ground good, and so well sheltered, that several hundreds of the largest ships may ride with safety in all weathers. Its Entry is 2½ miles wide, the Loch running in S. by E. ½ E. to abreast of Loch Shieldag, then S.E. by E. to the furthest end. The best place for anchorage is in Loch Shieldag, between the two narrows, on the S. side of the Basin, or any where above the second Narrow, which is what may properly be called Loch Terriden.

Loch Gerloch.—About 4 miles further N. is Loch Gerloch, a large and well sheltered harbour, the ground in all parts clean, holding well, and capable of containing a fleet of the largest ships; its entrance is between Coupachar Point and Longa Island; distant from each other nearly two miles. There are no dangers either in or near it; and when it does not blow hard from the W. or S.W. ships may ride in any part, particularly on the E. side of Island Longa. In winter the best anchorages is between Flowerdale and the Island of Horisdale, in from 9 to 20 fathoms water. Small vessels may ride on the W. side of this Island, S. E. of a rock above water.

Lock Yew.—From Longa Island to Ru Rhea the bearing and distance are N. E. ½ N., 3½ leagues. Five miles to the eastward is Loch Yew, a place large and well sheltered, forming a bay of easy access, a moderate depth of water, and having good holding anchorage, where whole fleets may ride in the greatest safety at all times. The entrance to Loch Yew is a mile wide, and nearly off its western point lies the small Island of Fura, with 2 or 3 islets to the eastward of it; there is also a little rock off the northern point of Fura; keep therefore at a distance in passing it, and the channel in is free from danger. In the middle of the bay is Yew Island, at the northern point of which are some rocks above water. The best places to ride are on the E. side of the Island Yew, or on the E. side of the bay off Tunag, and off Inveraspadale at the opposite side of the Loch.

Loch More or Great Loch Brim.—To the northward of Loch Beg, are several islands, lying before Loch More, or Great Loch Brim. Loch More is a great and safe branch of the sea, capable of accommodating the largest fleets, and having no rocks or dangers within it, except a small ledge on the E. side of Ullapool extending above a cable's length from that shore, which is avoided by keeping ⅓ from the Ullapool side. You may anchor in this bay in 14 or 15 fathoms water, above a cable's length from the shore, or any where above Logie Point, in from 13 to 24 fathoms. Should you, in entering or sailing from this Loch, go between the larboard point, or Ru Handerrick, and the Carniskere Islands, remember to give the former a berth on account of a rock called Nuela, which lies nearly a cable's length from the shore, and dries about half ebb.

Loch Kylescough, is nearly 7 miles E.S.E.¼ E. from Ru Stoir, and 3½ miles in the same direction from Ouldenay Island. This is a large and well sheltered branch of the sea, the approach to which is safe, and the anchorage good; but for some miles within the Loch the water is too deep for ordinary vessels. being from 30 to 50 fathoms, unless you carry an anchor on shore. Above the Island Ranich, where the contracted channel commences again to widen, ships may anchor any where, the stream in the narrowest part running not more than 1 mile an hour.—The only rock necessary to notice, lies near the Island Caraway, off the larboard side of entrance; it bears W.S.W. fromit and dries at low water; keep Runachusan Point in Ouldenay Island on with the extremity of Ru Stoir, and you will clear this rock to the southward. At the N.side of the entrance to Loch Kylescough is Loch Shark, and N.E. of Shark lies Lock Calaway.

Loch Inshard.—One league to the eastward of Lusford is Loch Inshard, the last bay before you round Cape Wrath In sailing in, great caution must be observed, as there is a rock lying right at the entrance, which appears at spring ebbs only, Within the Loch you will be well sheltered, your depth moderate, and your ground good. Sail up until you are landlocked, and anchor near the north or east side. To the north west of Loch Ardicar are some Islands, close to the main, called Ilanarone; and nearly N,N. E. of these 4 miles, is Balag Island, having a small rock above water, at both the N.

and S. extremities. This Island lies about a mile from Ru Wochel. Near the latter is a rock above water, close to the land. From hence to Cape Wrath the coast is high and rocky. Off Cape Wrath are said to lie several rocks under water, called the Stags. Vessels in sailing round this headland should always give it a good berth, of 1½ or two miles, and steering E'ward, they will reach the Pentland Frith

Isle Oronsay Lighthouse is situated on a low point at the south-east end of the Island of Oronsay, Inverness-shire, in the Sound of Skye, also called Sound of Sleat. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT, from a tower of masonry about 58 feet above high water of spring tides. The Light may be seen in clear weather about twelve nautic miles.

Kyleakin Lighthouse is situated on a point of rock which covers at high water spring tides, and projects from the west end of Eilan Dool, or Gillean Island, in Ross-shire, at the western entrance of "The Narrows," leading to Loch Alsh. The tower is about fifty-three yards within the high water mark of spring tides, and is connected with the Island by a bridge of five spans. The Light is an azimuthal condensing Light, and shows a FIXED WHITE LIGHT in the fairway of the Sound of Loch Alsh, and a FIXED WHITE LIGHT in the fairway leading to the Sound of Applecross, and which White Light extends southwards to Pabba Island. From thence it shows a FIXED RED LIGHT, extending eastwards along the shore of Skye to the south of the fairway of Loch Alsh. It also shows a FIXED RED LIGHT to the north-eastwards of the fairway to the Sound of Applecross. To the north of the fairway of Loch Alsh the Light is not shown. It is exhibited from a tower of masonry about 53 feet above high water of spring tides, and may be seen in clear weather at the distance of about eleven nautic miles.

Rona Lighthouse is situated on the northern end of the Island of Rona, in Inverness-shire, between the west coast of Ross-shire and the Island of Skye. The Light is a catadioptric second-class holophotal FLASHING WHITE LIGHT, showing a flash EVERY TWELVE SECONDS. It is exhibited from a tower of masonry erected on a peak at the north-east point of the Island. It is elevated about 222 feet above high water of spring tides, and may be seen in clear weather at the distance of about twenty nautic miles.

Cape Wrath Lighthouse, erected on the Cape, forming the north-western extremity of the main land of Scotland, in lat. 58 deg. 37 min. N., and in lon. 5 deg. W., bears from Hoy Head in Orkney, W. ¾ N., distant 50 miles; from the Butt of the Lewis, E. by S. ½ S., 41 miles; from the rocks called the Stags off the Cape, S. W. by W. ½ W., about 1 mile; from the sunken Rock called the Nun, S.S.W. ¾ W., distant 15 miles; and from the Islands of Stack and Skerry, W.S.W., the former 35½ and the latter 38 miles distant. It is known to mariners as a REVOLVING LIGHT, of the natural appearance, changing with one tinged red, which attain their most luminous effect every two minutes, and become, to a distant observer, totally eclipsed for a short time. The light is visible from S. ½ E. to S. W. by W. by the N., at the distance of 23 miles.

Dunnethead Light, on the Northern extremity of the mainland of Scotland, in lat. 58 deg. 40 min. N., bears by compass from the N. end of the Island of Stroma, in Pentland Frith, W.N.W., distant 7½ miles; from Hoy Head, leading to Hoy Sound, S.S.W., distant 13 miles; from the Stack and Skerry, S. by E. ½ E. distant thirty-three miles; and from Cape Wrath, in Sutherlandshire, S.E. by E. ½ E., distant 54 miles. In reference to these bearings, the light will be visible to the mariner in a northerly direction from S.E. ½ E. to W. by northward. The Light is STATIONARY, and being elevated 346 feet above the medium level of the sea, will be seen like a star of the first magnitude, at the distance of from 7 to 8 leagues, and at lesser distances according to the weather.

Magnetic Bearings & Distances

FOR THE NORTH AND EAST COASTS OF SCOTLAND.

		MILES.
CAPE WRATH (Lat. 58 37 30 N., Long. 5 W.)		
To Ru Store	SW by W	26½
Loch Maddy entrance	W by S	92
Glass Island Light	W by S ½ S	70
Chicken Head	W ½ S	47
Tolsta Head	W ½ N	39
To Nun Rock	NNE ½ E	15
Hoy Mouth, Stromness	E ½ S	61
Holburn Head	SE by E ½ E	51
DUNNET HEAD (Lat. 58 40 16 N., Long. 3 22 20 W.)		
To Thurso Bar	SW by W ½ W	5
Holburn Head	W by S	5
Hoy Head	NNE	13
Swona, South end of	E by S	10
Pentland Skerries	ESE	14
SULE SKERRIE (Lat. 59 3 N., Long. 4 13 W.)		
To Dunnet Head	SSE	33
Strathy Head	S by W	28
Sumburgh Head, Shetland	E	100
Westra Frith	E by S	40
HOY MOUTH, STROMNESS (Lat. 59 3 N., Long. 3 23 W.)		
To Scrabster Roads	SW ½ S	17
Strathy Head	W by S ½ S	23
Lock Erobol	W	45
Cape Wrath	W ¾ N	50

DENNESNESS LIGHT, NORTH RONALDSHA (Lat. 59 23 N., Long. 2 23 W.)

		MILES
To Foul Island	NE	45
Pappa Island, Shetland	NE ½ E	60
Sumburgh Light, Shetland	E ¾ N	46
Fair Island	E by S	28

START POINT IN SANDA ISLAND (Lat. 59 16 39 N., Long. 2 22 25 W.)

To Foul Island	NE ¼ N	50
Fair Isle	E	30
Noss Head	SW ¼ W	50
Copinsha Island	SW ½ W	22

SUMBURGH HEAD, SHETLAND (Lat. 59 51 N., Long. 1 16 W.)

To Noss Island	NE by E	20
Bucanness Light	SW by S	140
Fair Isle	SW by W	21
Start Point, Sanda I.	W by S ¼ S	48
Foul Island	NW by N ½ N	28

NOSS HEAD (Lat. 58 28 38 N., Long. 3 3 5 W.)

To Duncansby	NE by N	10
Pentland Skerries Lights	NE	12½
Fair Isle	ENE	78
Sumburgh Head	NE by E ½ E	95

TARBETNESS LIGHT (Lat 57 51 N., Long. 3 48 W.)

To Troup Head	SE ¼ E	48
Cowsey Point	SE by S ¼ S	18
Burgh Head	S ¾ W	13
Mairn	SW ¼ S	16

KINARD'S HEAD (Lat. 57 42 N., Long. 2 1 W.)

To Rattry Brigs	SE by S ⅜ S	8
Helmsdale	NW by N	60
Noss Head	N by W	61
Duncansby Head	N ½ W	67
Copinsha Island	N by E	77

BUCANNESS LIGHT (Lat. 57 28 15 N., Long. 1 46 11 W.)

To Peterhead, S.H.	NNE	2½
Rattry Brigs	NNE	9
Sumburgh Head	NE by N	140
Bell Rock	SW	66
St. Abb's Head	SW ⅜ S	95
Girdleness Light	SW ½ W	25

THE GIRDLENESS (Lat. 57 8 15 N., Long. 2 3 2 W.)

		MILES.
To Bucanness	NE ½ E	25
St. Abb's Head	SSW	72
Bell Rock	SW ¼ S	42
Flambrough Head	S ½ W	193

MONTROSE (Lat. 56 42 N., Long. 2 27 W.)

To St. Abb's Head	S by W ½ W	48
Bell Rock	SSW	11
May Island	SW by S	30
Flambrough Head	S	174
Longstone Light, Ferns	S ½ W	70

BELL ROCK (Lat. 56 26 3 N., Long. 2 23 6 W.)

To Montrose entrance	NNE	11
Girdleness Lights	NE ¼ N	42
Bucanness Light	NE	66
Flamborough Head	S ¼ E	158
Buttonness	NW ½ W	13
Arbroath	N by W ½ W	6
Dumbar Harbour	SW ½ S	27
St. Abb's Head	S. by W. ½ W	32
Fifeness	SW by W ⅜ W	11½

MAY ISLAND (Lat. 56 11 8 N., Long. 2 33 20 W.)

To Fifeness	N ¾ E	5
Arbroath	NE by N ¾ N	21
Bell Rock	NE ¾ E	16
St. Abb's Head	S ¾ E	21
Inchkeith	W ½ N	22

INCHKEITH (Lat. 56 2 N., Long. 3 8 W.)

To Kirkaldy	N by E ½ E	6
Elieness	E by N ½ N	14
Fidra Island	E by S ¼ S	12½
Fisherow	S ¼ E	6
Colm Island	NNW	7
Garvy Island	W by N ¾ N	9
May Island	E ½ S	22

ST. ABB'S HEAD (Lat. 55 55 N., Long. 2 9 W.)

To Buttonness	N	37
Bell Rock Light	N by E ½ E	32
Aberdeen, Girdleness	NNE	72
Bucanness Light	NE ⅜ N	95
Bass Rock	NW by N	11
Elieness	NW by N ¾ N	25½
May Island	N by W	20

EAST COAST OF IRELAND.

POINT CARNSORE TO LOCH CARLINGFORD.

Point Carnsore is the S.E. point or extremity of Ireland, and lies about 42 leagues from Cape Cornwall, bearing N. by E. ½ E.; from the Small's Light N. by W. ½ W., distant 37 miles. Nearly E. by S. from Carnsore Point, distant 6 miles, lies the TUSKAR, a very remarkable rock 20 feet above the level of the sea at high water, upon which stands a lighthouse similar to that on the Eddystone, elevated 81 feet from its base. The light revolves every two minutes, showing two faces bright, and one red. The red light is visible 10 miles, and the bright 15 miles. During foggy weather a bell is tolled every half minute. This rock bears from the Smalls Lighthouse N. ½ W., distant 33 miles. Ships coming from the westward and bound for St. George's Channel, should endeavour to see this rock before they shape their course to the northward.

Blackwater Bank, in front of Wexford Bay, is a narrow sandbank running nearly in the direction of the coast, at the distance of from 4 to 5 miles. A buoy is placed at each extremity of this bank. Moored off the north end, in 20 fathoms,



at low water, spring tides, is a Light Vessel, which exhibits a Fixed Light. The Light is shown from the mainmast, and in clear weather can be seen at a distance of 10 miles. The vessel has three masts, and carries a Ball at the main-mast-head; is painted black, with a White Band, having the word "*Blackwater*," in white letters, on her sides; and lies about 1½ miles E. ¾ S. of the black buoy on the north end of the Blackwater bank, with the following marks and compass bearings:—Arklow Light Vessel, N.E., 13 miles; Cahore Point, N. by W. 5 miles; Tuskar Lighthouse, S.W.¾S., 18 miles. A gong is sounded in foggy weather

Wexford Harbour is capacious and sufficiently sheltered, but is obstructed by a bar extending across it, over which there are at times but 7 feet water. Buoys are laid in the deepest water across the bar; but to enter this harbour a pilot is necessary.

Arklow Bank is a narrow sandbank off Arklow Bay, about two leagues from the land, and nearly 10 miles long from N.E. by N. to S.W. by S., and from ½ to ⅝ of a mile broad; the shallowest part is near the N. end, where the least water is 1 foot; the S. end has from 8 feet to 3 fathoms on it, and except at slack water, you will perceive its ripple; near to its East side are from 13 to 20 fathoms: approach it no nearer than 39 fms. The marks for its southern end are Arklow Rock N.W. ½ N. distant 7 miles, and in one with the northern declivity of the Copper Ore mountains; and the Great Sugar Loaf open to the eastward of the Ballynacarrig Hills, and also of Mizen Head, bearing about E. ¼ E. There is also a buoy placed to mark the south end, striped black and white vertically, with the words "*Arklow Bank South No. 4*" on it. The marks for its northern end are the top of Carrig Mc Rely just open to the N'ward of Maughry Point, bearing N.W.¾N., and the Great Sugar Loaf open to the eastward of Wicklow Head, N.¼W. Wicklow Head bearing N.N.W. clears it. There is also a buoy placed to mark the north end, striped black and white horizontally, surmounted by a staff and globe, with the words "*Arklow Bank North. No. 1*" on it. Two Can Buoys have been placed to mark the eastern edge, the northrenmost of which is chequered red and white, with the words "*Arklow Bank No. 2*" on it. It is placed in 12 fathoms, with the following marks and compass bearings—Arklow Bank North Buoy, E. N.E.½E.; highest part of Bray Head just open of the highest part of Wicklow Head, N. by E.; Mizen Tower on with the peak of a small hill, N.W. by W. The southernmost is striped black and white horizontally, with the words "*Arklow Bank, No. 3*" on it. It is moored in 12 fathoms, low water, with the following marks and compass bearings—Arklow Bank No. 2 Buoy, N.E. by N.; Arklow Bank South Buoy, S.W. ½ S.; Arklow Bank Light Vessel, S.W. ½ W. A Light Vessel is moored, in 22 fathoms, on the south end of the bank. The vessel has three masts, showing a Revolving Light from main-mast, which attains its greatest brilliancy one every minute visible 10 miles. Carries a ball at main-mast-head, and has the words "*Arklow Bank*" painted on her sides. During foggy weather a gong is sounded.

On **Wicklow Head** are two lighthouses, each showing a bright fixed light. The upper may be seen at 21, and the lower 16 miles off. The lights bear from each other N.W. by W. ¾ W., and S.E. by E.¾E., 180 yards, and, when in one, lead between the India and Arklow Banks.

Wicklow Harbour, fit for smal craft only, there being only 9 feet in the entrance at low water, spring tides, and 6 at neap tides. To make its entrance better, a new channel has been opened; this is formed by 2 Piers about half a furlong to the westward of the Old Bar, and there the depth is 12 and 14 feet.

The **Wicklow Banks** are 2 narrow patches of sand, lying about 5 miles E. from Wicklow Head. The southern Patch called the India Bank, is about one mile long, N.N.E.½E., and S.S.W. ½ W.. and ⅓ of a mile broad. On its middle are 2 fathoms, on its N.E. part 3½ fathoms, and on its S.W. end 3¼ fathoms; at its S. W. extremity is a black buoy, from which Wicklow Head Lights bear W.¾S. 5 miles. The lights in one, bearing N.W. by W. ½ W., leads 2¾ miles to the southward of this buoy, in from 12 to 30 fathoms; and the buoy is a guide to pass between Wicklow Head and the Banks. To sail between this Bank and Wicklow Head, bring Wicklow Head lights in one; keep them so until the Sugar Loaf Hill bears N.¾ W.; then steer by this course, and you go clear, and to the southward and westward, of the India Banks.

The **South Ridge** lies at the N. end of the India Bank, separated by a narrow channel of 5 fms.. about a cable's length in width; it is 1½ miles long, and ½ of a mile broad, with 3¼ to 5 fms. water on it. Its direction is N.N.E.½E., and S.S.W. ½ W., and its N.W. end is nearly 5½ miles S.E. by E. from Six Mile Point.

The **Codling Bank.**—The south end of this bank lies N.E. by E., 3 miles from the South Ridge; it then runs N. by E.

3 miles, and turns suddenly to W. by N. for 2 miles, then curving round to the S.E. till it joins the south point. In the middle of the bank, which is 2 miles broad, are from 3¼ to 5 fathoms. The Great Sugar Loaf open north of the Gap N.W. ¾ N., leads between the Codling, and the South Ridge. A Black Buoy is placed on each extremity of the Codling, and lying off the south-eastern end, in 8 fathoms, low water, spring tides, is a Black Spiral Buoy, surmounted by a Staff and Globe, and marked "*Codling Bank*," with the following marks and compass bearings:—Carrickgollogan Hill, in one with Bray Point, N.W.¾N.; Great Sugar Loaf, N. W. ¼ W.; Wicklow Head, W. by S. ¾ S.

The **Bray Bank** lies N.E. by E. and S.W. by W.; is 2 miles long and ½ a mile broad, with twelve feet on it. In the Channel, between the Codling and the Bray, which is nearly half a mile wide, there are 8 to 10 fathoms. Carrickgollogan Hill, 2 degrees open north of Bray Head, N.W. ¼ N., clears the Codling to the northward This mark will lead across the bay, in 3 fathoms at low water. The south hummock of the Little Sugar Loaf in one with Windgate Hill, W.N.W. ½W., leads between the Bray and the Kish Banks in 3¼ fathoms. There is a white buoy at the N. end of the Bray Bank.

The **Kish** is a long, narrow sand, stretching N. by E. ½ E.; and S. by W. ½ W., about 6½ miles, and is from ½ to ¾ of a mile broad; on its southern extremity is a black buoy. From it Dublin Lighthouse bears N. by W. ½ W., 12½ miles; Howth Head Light N. 11½ miles; and Bray Head W.N.W. ½ W., 6 miles. On the Kish are from 9 feet to 3 fathoms, the latter depth being near its northern end; here a white buoy is placed, which lies from Howth Head Lighthouse S.S.E., distant 6 miles, and from Dalkey Island E. ¾ S. about the same distance. Three-quarters of a mile from the northern extremity of the Kish, a Floating Light Vessel is moored, with the following mark and bearing:—Ireland's Eye a little open of Howth Head, and Dublin Lighthouse, N.W. ½ N., distant 7½ miles. This vessel bears 3 lights or lanterns, on three separate masts, equidistant from each other, the centre lantern being the highest. Three miles to the southward of the white buoy, is a beacon buoy, lying in 1½ fathoms water, and points out the middle and most dangerous part of the Kish: at this spot the Great Sugar Loaf Hill appears on the saddle of Bray Head, bearing W.½S., and Ireland's eye just open, and shut with the Head of Howth, N. ¼ W.

Bennett's Bank.—The S.E. end of this bank lies about 2 miles N.E. ½ N. from the North Buoy of the Kish, and 5 miles S. E. from Howth Head Lighthouse; it is about 1¾ miles in length, and has 5 to 5½ fathoms on it; at half mile southward are 8 or 9 fathoms.

The **Burford Bank**, at the entrance to Dublin Bay, is narrow, and runs in a N.N.E. ¼ E. and S.S.W. ¼ W. direction, being about 1½ mile long, and one-third of a mile broad. Nelson's Pillar kept open to the southward of the Pigeon-house on Dublin Quay, will lead clear of its southern extremity in 4½ and 5 fathoms water; and the same pillar, or Shallows Bath Light, open to the northward of Poolbeg Lighthouse, will clear its northern end, in 5½ and 6 fathoms water. The mark to go clear to the eastward of it, is Ireland's Eye open to the Nose of Howth. Upon each end of this bank is a buoy; that on the southern end is vertically striped red and white, and that on the northern chequered black and white.

Sailing for Dublin Bay from the Southward.—From the Tuskar to Wicklow Head the bearing and distance are N.E. ¾ N. nearly 46½ miles, but to pass to the eastward of the Arklow Bank the course is N.E., observing to make due allowance thereon for the set of the tide, whether flood or ebb. When Wicklow Head Lights bear N. by W. you will be clear of the Arklow Bank; then to sail within the Wicklow or India Banks bring the Great Sugar Loaf Hill well open of Wicklow Head, bearing N. by W., or Wicklow Lights in one; either of these will lead between the Arklow and India Banks: and when within 2 and 2½ miles of the shore, a N. by E. ½ E. course will carry you past Moulditch Bank and Dalkey Island. If with a westerly or S.W. wind, you may haul close round the Mugglins, and proceed along shore, avoiding the Bullock Rock, which lies about a mile from Dalkey. In working up between the banks and the shore with a flood tide and northerly wind, do not stand further from the land than four miles; for at about that distance the stream turns off to N.E. by E., and with little wind may drift you upon the banks; while near the shore the stream commonly makes to the southward 1½ hours before high water.

Stopping Places.—In moderate weather vessels may stop almost any where within the banks between Wicklow and Dublin, except off the Giant's Bed, where lies the Moulditch Bank; the best part, with westerly winds, is between Bray Bank and the main, from ½ to 2 miles from the shore. Here is very little stream of tide, and the violence of the

sea is considerably broken by the banks.

In **Killynee Bay** vessels may anchor in 5 or 6 fathoms, sheltered from W.N.W. to N.N.E. winds, and also in 7 fathoms off Wicklow Church, sheltered from S.W. and westerly winds.

Dublin Bay.—There is good anchorage in the mouth of Dublin Bay when the wind does not blow hard from the E. and S.E.; with these winds a great sea sets in when it blows hard, so that vessels are obliged to run for some place of safety; with north-easterly winds, vessels run for Kingstown harbour, which lies on the S. side of Dublin Bay, and is enclosed by two large piers; on the head or the eastern of which is a lighthouse shewing a revolving light, presenting white and red faces alternately, and attaining their greatest brilliancy at intervals of thirty seconds. During foggy weather a bell is tolled. There is also a fixed red light on the west pier-head. The entrance to this harbour faces the N.E., and has 4 fathoms water; within, from 4 to 2½ fathoms at low water. When going in, leave the revolving light on the larboard hand, and round it close to. Bailey Light, exhibited from the S. E. point of Howth Peninsula, is stationary, and is visible at a distance of fifteen miles. About a mile to W.S.W. of the lighthouse lies the Rosebeg Bank, which is easily distinguished in blowing weather by the sea breaking over it: and on which are from 2½ to 3 fathoms water. The Revenue Barrack on with the Poolbeg Lighthouse, bearing N.W. by W. ¾ W., leads clear to the southward of it.

Dublin Harbour lies between two banks, the North and South Bull, and is protected by two walls built on piles, the southern one of which is carried 2¾ miles into the bay, and has a lighthouse on its extremity, called the Poolbeg, exhibiting a fixed light all night, and a lower light, much fainter than the upper, from half-flood to half-ebb: in the day a ball is hoisted during the same period. At the extremity of the North Bull Wall there is a beacon, also a black buoy A fixed light is now exhibited on a beacon on the North Bank, 1 mile west of the Pigeon House Basin, open to the channel, but shut to the north of it. There is a fixed light on the point of the north wall opposite King's End, called the North Wall Light. A bar lies across the entrance, on which are 12 feet at low water. Between the bar and lighthouse are 14 to 27 feet. A red buoy is moored on the bar, in 12 feet at low water: it lies a mile E. ¾ S., per compass, from Poolbeg light. Pass about a cable's length to the southward of this buoy, observing the before-mentioned mark, and you will carry 12 feet over the bar at low water. On the north side of the channel, and bearing E., 3-10th's of a mile from the lighthouse, is a white buoy, moored in 12 feet at low water, between which and the lighthouse are from 14 to 27 feet. The south bar buoy (black) lies S. ¼ W. 2-5th's of a mile from the lighthouse, on the southern extremity of the south bar patches, which commence about ¼ of a mile S.E. from the lighthouse, extending in that direction nearly ½ a mile; then turning to the westward about the same distance, when they terminate where the black buoy is placed. On these patches are only from 8 to 10 feet. The channel is regularly buoyed on the north side with black buoys, and on the south with red buoys. The red buoys are conical shaped 5 feet above the water, and are numbered in black figures. No. 10 is the most eastern, and is placed in 7 feet low water on the edge of White Bank, west of Half Moon Battery; and No. 1 about 600 feet below King's End, in 6 feet low water. Between Poolbeg and the Pigeon House there are several places where vessels may anchor, in from 16 to 20 feet at low water, the channel having been greatly improved by means of powerful steam dredges. Ships in general, with suitable draughts of water sail over the bar to the south of the east buoy. This is called the East Channel, and the mark for it is the Church of Irishtown just open to the northward of the lighthouse. This mark will lead you about a cable's length to the southward of the east buoy in no less depth than 16 feet at half-flood. So soon as you are over the bar, the depth will increase to 18 and 20 feet. Keep about mid-channel between the Spit Buoy and the lighthouse, and when about ¼ a mile within the latter you may anchor in 15 or 16 feet at low water. This is called Poolbeg, and although a tolerably good place in summer, it is not so good in winter time; it is then best to go a mile further up, so as to take the ground about half-ebb, or to lie along the wall or along the quay above King's End. To sail in through the West Channel, you must pass to the southward of the South Buoy; when the lighthouse bears N.E. ¼ N., and on with Baldoyle Chapel, or the ruins of Kilbarrack Church, steer for it in that direction, giving it a berth on your larboard hand, as you haul round to the westward. When coming from the southward, keep Sandy Cove Tower on with the eastern extreme of the pier at Kingston, S. ¼ E., until you bring the lighthouse on the above bearing: this will lead you in the best water, and well to the westward of the south bar buoy. In the channel are only 8 feet at low water, spring tides. The tide flows at the lighthouse, on full and change days, 10 hours 47 minutes, and rises 13

feet on springs. Vessels coming from the northward, bound for Dublin, must give the Hill of Howth a berth, to avoid the bank called Rosebeg. To avoid it on the east side, bring the eastern extreme of Howth open of the Bailey, or the Bailey Light N.E. ¼ N.; and on the south side, Poolbeg Lighthouse, N.W. by W. ¾ W.

Ireland's Eye is a small island 1½ miles to the north of Howth Head; on its eastern side is anchorage in 6 fathoms; on its north in 7; but the best is on the west side in about 4 fathoms, with the Stack open to the southward of the height, and from whence it is easy to run for the pier of Howth in case of necessity.

Howth Pier Harbour, to the S. of Ireland's Eye, is capable of receiving vessels of 11 or 12 feet draught. There are two piers, on the easternmost of which stands a lighthouse exhibiting a fixed light of a red colour, of essential use to to clear the dangers off Ireland's Eye. There are also two small lights upon the west pier, which are intended to lead vessels going in from the northward, or from between Ireland's Eye and Lambay Island.

Harbour of the Skerries—This Harbour may be easily known by Rockabill and St. Patrick's Islands; the former is a remarkable rock, always above water, and steep-to all round, having from 9 to 18 fathoms close to it, and on the summit of which a Lighthouse is erected exhiting a FLASHING light every 12 seconds, and can be seen 18 miles. The flash is white between N. ½ W. and S.W. by S.; red between the same bearings round westward or towards the land. It lies 4 miles E. by S. of the Skerries, and about 2½ miles from St. Patrick's Island. To sail in, after you have rounded St. Patrick's Island, steer N.W. by W. until all the town of Skerries appears open of the pier-head; you will then be clear of the Cross, and may round into the road, where you will have 4 or 5 fms. of water. Here the riding is safe, unless it come to blow hard from the E. or N.E.; but if you intend going up to the pier, stop about a cable's length from the pier-head, in 3 fathoms, until the tide serves.

Balbriggan Harbour is sheltered from the east by a Pier, on the S. side of the Bay, which runs northward. Within the Pier Head, at high spring-tides, are 12 feet water, and with neap-tides, 9 or 10. On the pier, S. side of entrance, is a white lighthouse, exhibiting a fixed light, visible at the distance of 10 miles, between W. S. W. and S.S.E. ½ E.

Drogheda Bar lies 27½ miles N. of Dublin, about 10 miles N. of Skerries, and 7 miles from Balbriggan, the river running due E. and W. Formerly the river from the Maiden Tower to the bar had a tendency to run N.E., but an annual outlay of nearly £6000 a-year in its improvements has contributed to give the entrance to the river an E. and W. direction, thereby enabling vessels to take the bar with much more safety than heretofore. The parallel walls at the mouth of the river having been extended within the last few years 1800 lineal yards seaward, and now nearly reaching the bar, has caused the water in the river adjacent to the bar to be comparatively smooth in the severest weather. These walls have also had the effect of deepening the channel, and directing its course in a more southerly direction, thereby making the bar much easier of access in bad weather. The continual dredging of the river has removed the banks and shoals which previously existed, leaving the navigable channel of a uniform depth, not less than from 18 ft. 6 in. to 19 ft. at high water of ordinary spring tides. The water on the bar at spring tides is 22 ft., with 17 ft. 6 in. at neaps, 4 ft. 6 in. at low water of spring tides, and 6 ft. 6 in. at neaps. There is an excellent tug-boat in attendance on vessels requiring her assistance, with a number of experienced licensed pilots always looking out for vessels bound for this port. There are fifty sailing vessels, with five first-class paddle-steamers, having in the whole a registered tonnage of 7327 tons trading to this port, exclusive of other vessels which frequent this place with occasional cargoes. Four lighthouses are placed at the entrance of the river, and a number of stone towers built on the N. side, with wooden perches for landmarks on the S. side; the centre between them denoting the channel. The relative bearings of the E. and W. Lights will be occasionally changed, as the sandbanks alter their places. The present entrance of the river, keeping these two lights in one, is W. by N., until you come abreast of the large Stone Pillar on the north side, then steer N.W. ½ W. for the North Red Light. There has lately been placed at the East end of the North Wall a large Wooden Perch, with Cage and Barrel placed on the top of it, and must be kept about 100 feet on the starboard side in coming in. Ships drawing 10¼ feet should have at least 4 hours' flood tide in bad weather before taking the bar.

Dundalk.—Sailing N. you will pass Clogher Head and reach Dunany Point, off which, about a mile E. of high water mark, lies a small rock, drying with low water spring tides. The first buoy is in 6 fathoms at low water, about 4 miles from Dunany, bearing from it N. by E.

keeping Clogher Head well open, and bearing from Cooley Point W. by N., distant about 4 miles. The second and third buoys bear N.N.W. ¼ N. from the first buoy. The second buoy is in 3½ fathoms at low water; and the third is on the bar, on which there are, at low water springs, 3, and at low water neaps, 6 feet. The depth on the bar at high water springs, varies from 24 to 18 feet; and neaps, from 16 to 13 feet. These depths continue up to Soldier's Point, whence, to the quays, the depth is at high water springs, 19 feet, and neaps 13 feet. From the bar to Soldier's Point, the W. side of the channel is marked by three hexagonal beacons constructed of timber piles, each having a ball on the top, and painted black; and on the E. side near to Soldier's Point, at a place called *The Rock*, there is a large hexagonal beacon constructed of timber piles and painted red; this beacon has a lantern on the top showing a Red Light when lighted at night. Between the Rock Beacon and Soldier's Point on the N. side of the Channel, there are two beacons painted red. Between Soldier's Point and the Quays there is also on the N. side of the Channel, at the entrance to the Ballymascanlon River, a similar beacon to the last, painted Red: from thence to the Quays the N. side of the Channel is marked by perches. All the beacons are furnished with lanterns, which are lighted every night. The second light after passing the lighthouse shows GREEN, the Rock light shews RED, all the rest show Bright Lights. A Lighthouse, on screw piles, has been erected at the entrance of the Harbour Channel. The Light is a Fixed Light, varied by Flashes, giving a flash once in every 15 seconds; its focal point 33 feet over the level of the sea, at high water; and in clear weather it is visible at the distance of about 9 miles. To seaward the Light appears of the natural colour, Bright, between the bearings of W. by N and N.¼W.; it is masked in the direction of the Dunany Reefs between the bearings of N.¼W. and N. by E.¼E.; it is coloured Red towards the west side of Dundalk Bay; and shows Bright towards the Harbour Channel, northerly. The Lighthouse is borne on screw piles of red colour, braced into an open framing below the dwelling, which is of octagonal form, and coloured white: over this the Lighthouse has a dome-formed top. It stands within the entrance of the Channel in lat. 53° 58′ 40″ N., and lon. 6° 18′ W.: and bears from Castle Rocks, off Cooley Point, N.W.¾ W., distant 5¾ nautic miles; from Dundalk Patch (rocky shoal), N. by N. ¾ W., distant 6¼ nautic miles; from Dunany Reefs, eastward of Dunany Point, N¼W, distant 6½ nautic miles. A large bell has been placed on the roof of the lighthouse, which strikes six times per minute in foggy weather. All vessels entering the Port to keep the Lighthouse on the Port hand. Masters of vessels are cautioned to give the beacons and perches a sufficient berth. When vessels bound to Dundalk come between Cooley Point and Clogher Head, they are required to hoist a signal for a pilot. Vessels wanting the use of a Steam Tug are requested to hoist by day an Ensign to the Fore-top-gallant mast-head, by night, Two Lights, one above the other. Masters of vessels necessitated to enter the Harbour, without being able to obtain a pilot, should observe that after passing the Lighthouse, they are to keep the black beacons on the Port hand, and the red Beacons on the Starboard hand.—The Dundalk Harbour Commissioners have had built, at a cost of £3,000, a new and powerful Iron Steam Tug-boat for the accommodation of vessels trading to this Port.

DUNANY AND IMOGENE ROCKS, DUNDALK BAY.—A *black conical buoy*, surmounted by a staff and ball, has been placed in 3¼ fathoms, at low water, spring tides, to mark the position of the Imogene Rocks, which lie about a mile and three quarters S.S.E. off Cooley Point, north side of entrance to Dundalk Bay, and with the following marks and compass bearings:—Dundalk High Chimney, open of Rathcor Point, N.W. ½ W.; Cooley Point, N.N.W. ½ W.; Carlingford Lighthouse. N.E.¼N.—A *red conical buoy*, surmounted by a staff and ball, has been placed in 4 fathoms, low water, spring tides, on the outside of the Dunany Reefs, which lie off Dunany Point, south side of entrance to Dundalk Bay, and with the following marks and compass bearings—Clogher Head, S. W. ¾ S.; Dunany Church, W.¼S.; Dundalk High Chimney, N. by W. ½ W.; Tipping Mountain on with a saddle in the distance, N.¼W.

Loch Carlingford lies two leagues to the eastward of Dundalk Harbour entrance, and forms a large well-sheltered bay, the ground good, and water sufficient for the largest ships; but there are several rocks and dangers which must be attended to. Its entrance is between Ballaggan and Cranfield Points, which bear from each other nearly E. by N. and W. by S., distant 1½ miles. The following Iron Nun Buoys have been laid down at low water, spring tides:—*Black* Buoy on the Shoal N.E. of the lighthouse, in 7 feet water at low water, lighthouse S.W., distant about 40 fathoms; Blockhouse W.N.W. *Red* Buoy off the tail of the Scar, Cranfield Bay, in 8 feet water. lighthouse S.W.; Greencastle N. *Red* Buoy on the south end of the Earls Rock and shoal, in 8 feet water, Greenore Point W. by S.; Greencastle E.; distant from Greenore Point ¾ mile. *Red* Buoy on the

S.W. end of Ballyedmond Bank, in 9 feet water, Monument N.; Old Castle, Carlingford, W. S. W. *Black* Buoy on the eastern edge of Carlingford Bank, in 8 feet water, Greenore, S.S.E; Old Castle of Carlingford, S. W. by S. When inward bound, masters of vessels will keep the red buoys on the starboard hand and black on the port. The Helly Hunter, upon which a large Red Buoy has been placed, is a rocky shoal lying to the eastward of the entrance of the Loch, and stretching about 1 mile S.W. and N.E.; its western end dries with extraordinary low tides only, and on the other parts the least water is 6 feet. To avoid the Helly Hunter. as you sail to Carlingford from the E. or S., do not bring Mount Culy to the westward of W. ½ N. until the Blockhouse comes on with the top of Foy Mountain, bearing N.W. ½ N. Then steer for the N. end of Blockhouse or Haulbowline Island, giving the Point of Cranfield and the Island a berth of a cable's length each from the high-water mark. Between the W. side of Blockhouse Island and Ballaggan Point are several rocks and shoals, and consequently this passage must not be attempted.

Carlingford Loch Light, situate on Greenore Point, on the larboard side in going up Carlingford Loch, revolves, is of the natural appearance, attains its greatest magnitude every 45 secs., and is visible at a distance of 9 miles.

To Sail into Loch Carlingford, take flood-tide, and with the Blockhouse bearing from N. by W. ½ W. to N.W. ½ N., sail in for the E. side of the Island, giving it a berth of a cable's length or two on the larboard. Steer thence for Greenore Point, keeping between ½ a cable and 2 cables' length from it; then run N. by W. up the middle of the channel; and abreast of Killean Point or above it, nearest the E. side, drop your anchor, in from 2 to 6 fathoms water. Small vessels may lie on the W. side, easy and safe, about 2 cables' length eastward of Carlingford Castle, on soft mud.

Carlingford Lights are shown from a tower erected on Haulbowline Rock, which lies upon the bar ⅓ a mile W. by N. from Cranfield Point, on the larboard side of the entrance to the Loch. The upper is a fixed light, and the lower revolving. The higher light is shown throughout the night, and may be seen like a star of the first magnitude, at the distance of fifteen miles. The lower light, having also a starlike appearance, is exhibited from half-flood to half-ebb. In the day during the same period, a ball is hoisted; and in foggy weather, a bell is tolled every half minute.

NORTH-EAST AND NORTH-WEST COASTS OF IRELAND.

LOCH CARLINGFORD TO SLIGO BAY.

Annalong.—A small dry harbour, with excellent shelter for coasters after passing a narrow but easy entrance.

Newcastle.—A dry harbour, surrounded by a quay and sea-wall, affording good shelter for coasters, with an even bottom, and very easy access between the two pierheads.

Dundrum Harbour. — The entrance to Dundrum Harbour (a dry one) lies 2½ miles eastwards of Newcastle, at the mountain foot. In the middle of the entrance channel a black buoy is laid down in 14 feet, low water spring tides. It may be picked up by keeping the old castle that stands above the town a sail's breadth in on the west point that forms the entrance. Steering north from this, you will arrive at a smaller buoy lying in the middle of the river; then by steering N.W. by W. you will come up with the first perch on the banks to the west, having on it a small barrel—give this a berth of half a cable's length on your larboard hand; after which, by changing your course N. by E you reach the second perch, having a triangle on it: allow this the same berth as the first. The third perch has a round black top. from the second perch, from which you have the town and pier open, steer N.N.W. up the river until abreast of the red-topped perch, to which give a berth of half a cable's length on your starboard hand, and then keep for the pier-end.

St. John's Point.—On this Point in lat. 54° 13′ 10″ N., and lon. 5° 39′ 50′ W., is erected a tower, shewing an intermitting light, *Red* appearing of its full brightness during 45 secs., and ob. 15 secs

The light bears from Newcastle pier, (Dundrum bay) E. by S. ½ S., 7½ miles, and from the Calf of Man revolving lights N.W. ½ W., 33 miles, and can be seen seaward from W. by N. ½ N. to E. ½ N. The light kept open will lead clear of Gun's Island and of the St. Patrick's rock, off the entrance of Strangford Lough.

Killough, half a league East of St. John's Point, has a good roadstead in off-shore winds, and, within, offers to coasters a safe dry harbour, with a muddy bottom. Killough Pier is built from the West side, and, between it and a smaller Pier on the East side, called Coney Island, lies the entrance to the port. Outside the entrance of the bay an Iron Perch marks the Water Rock, which is covered only at high water: to avoid it, bring a remarkable two-storied house, with white front and roof, (called Cotter's House, and situated inside the harbour,) one-third inboard from the West Pier-head, until you have passed the Perch; then keep more to the Eastward till you bring the House over to the extreme end of the Pier. Two cables N.N.E. ½ E. from the Perch is the Little Plate Rock, and half a cable N. from this is the Big Plate, both covered except at spring ebbs; and, consequently, when there is water to enter the harbour, there is also water over these rocks. The Garter, on which is an Iron Perch, is a ledge of foul ground which runs off from the Western side of the bay, under the Old Mill Stump. There is also a spit of rough stones, called Crane's Point, extending S. W., a short distance from Coney Island; but by keeping Cotter's House midway between the two Pier-ends, when you come within two cables' length of them, you avoid this spit. The best anchorage in the Bay is within the Water and Plate Rocks, in from about five to seven fathom, with shelter from all but southerly winds.

Ardglass Harbour, 2½ miles E. of St. John's Point, is easily known by several old Castles and a rising town on the W. side of the bay. You can anchor at the mouth of the bay, between Ringfad and Fennick Points, in from 6 to 10 fathoms water; but if the wind blows on shore, a small vessel may shelter inside the pier under the middle castle in from 1½ to 2½ fathoms water, with a warp to the quay, or run aground on the beach. A temporary red light is shown from the inner shore of harbour, 2 cables' length from entrance N. by W.

Loch Strangford lies N.E. at the distance of 60 miles from the Hill of Howth, and nearly E.N.E. ½ E. 28 miles from Loch Carlingford. The stream at the entrance is very rapid, and when the tide is ebbing and wind strong at S., S.E., or E., the sea is short and broken, which gives the bar across the river the appearance of a ridge of sunken rocks; but there are not less than four fathoms at low water on any part of the bar, and it is quite free from rocks. Few places afford such safety to wind-bound vessels as this Loch, ships having at all times of tide abundance of water, not only on the bar, but also in the two principal roadsteads, *Ballyhenry* on the east, after passing Portaferry, and *Audley's Road* on the west side of the river, after passing Strangford. An Iron Perch with a square head has been erected on Rock Patrick, which is covered at half-flood, and is about three quarters of a mile off Killard Point. Vessels from the southward can pass close to this Perch, on either hand, in making for the North Bar, the only safe entrance for strangers; and as there has been erected a round Tower of masonry on Rock Angus, and there are Perches on the Garter on the port hand, and Pladdy Lug rocks on the starboard hand, which lie near its mouth, no danger need be apprehended in daylight; but a good offing should be kept from the E. shore to avoid Pladdy Lug; and on the other hand do not stand too far towards the Garter, as the flood has somewhat of a westerly direction towards it. Having passed the Tower on Rock Angus a mile and a half, come to anchor, if you are late for the tide, opposite a White Beacon on the south shore, called Cross Roads, where you can stop a tide until you can get to Ballyhenry or Audley's Road, 2 miles further, and just beyond Strangford and Portaferry towns. A short half a mile above Cross Roads the mid-channel is marked by a tall red and white Pillar on the W. side, and a short white Beacon on the E. side of the Lough. The "Hole" of Strangford is a perfectly sheltered anchorage between the town and Swan Island, and there are 2 Quays opposite the Customhouse, with berths alongside them, and a little Bay with an even beach and smooth water for vessels desirous of taking the ground. There is also at PORTAFERRY (opposite) a good Quay, with berths and a smooth beach along the shore, under the town. A Horse Ferry plies between the two towns. There is a Red Pillar Beacon on the outer end of Swan Island, which marks the entrance into the "Hole" of Strangford. On hoisting a signal, experienced pilots can be had.

South Rock Light is erected on the South Rock, about 2 leagues northward from the entrance to Loch Strangford. The light revolves, attaining its greatest lustre every 1½ minutes, and is visible at a distance of 12 miles. A reef of rocks called the Ridge, extends 1½ miles to the E. of the lighthouse, on the extremity

of which is a red buoy, which bears about S. by E. from the North Rock Beacon. The North Rock, about a mile N. by W. of the lighthouse, is marked by a solid Beacon, like a small church spire, erected in 1856. The Butter Pladdy, about 1½ miles S.W. of the lighthouse, is marked by a blackbuoy, to be left on their outer hand by vessels taking the "Sound of the Light"—a channel much frequented by coasters and now well marked, between the lighthouse and the North Rock Beacon. Sailing along the Downshire shore from the Copeland to the North and South Rock, the South Light should be kept outside of Burr Isle, or the Blackhead of the Gabbans, in Isle Magee, a sail's breadth outside of Donaghadee shore, or the Copeland Light North, to clear Sculmartin Rock that lies N. ½ E. 3½ miles from Burr Isle, and S.E. 1 mile from the town of Ballywater. To the northward of Sculmartin, on which is an Iron Perch, lie Ballawater Rocks, which stretch out about ½ a mile, commencing at Ballyferris Point, and run S. 2 miles. The S. end is seldom covered, the middle is covered at half-tide, the N. end seldom bare. Vessels of 60 and 70 tons frequently go in to discharge; and there is good shelter from all but N. E. winds, though the space is small, because after building the Quay, the Board of Works never cleared away the loose stones inside it. Six and a half miles N. of Ballywater is

Donaghadee. — This harbour has been greatly improved, and there is now a depth of 10 feet water at low water, spring tides, in the improved portion of the harbour, which extends along the S. Pier, from 100 feet west of the western crane to the black buoy, and thence to the N. Pier head. From the S.E. pier head a Light is shown, red to seaward from N.byE.½E.toS.½E., and bright towards the harbour and the entrance of Belfast Bay. Sailing in from the S'ward keep above half a cable's length from the shore until the harbour is open, then run in and let go your anchor inside the pier head. No buoys are allowed to anchors on account of the steampackets. Mariners must be on their guard not to lose sight of the red Part of the light in sailing N. or S. of Donaghadee. About a mile north of Donaghadee is Foreland Point, from whence extends a ledge of rocks to the E., with an Iron Perch on it, and outside of that again is a large black buoy, which should not be rounded too close, particularly at low water. Deputy Rock, on which is a red buoy, lies half way between Donaghadee and Copeland, and has about 8 ft. at low water. The proper course through the sound is between the Foreland and Deputy buoys: but there is a channel on the E. side of the latter, keeping ½ from the Capeland, as a shelf of foul ground runs out after passing the Deputy. Cairn Point, at N.W. end of Copeland, must have a good berth on the starboard hand, to avoid a rock called Gordon's Bush, that lies a cable's length S. of it, and is seldom bare at low water. These are all to be feared in the Sound of Donaghadee.

Copeland Island lies 2½ miles N.E. ½N. from Donaghadee, and 1 mile to the E'ward of Nout Head. E.N.E. 1 mile from Copeland, are the Cross and Mew Islands, between which is a narrow channel not navigable. On the cross Island is the Copeland Light. Between these small islands and the Copeland is the outer sound. On the E. side of the Copeland, near the S. point, is a ledge of rocks extending above two cables' length to the E'ward: there is also a ledge extending from the Mew Island to the W'ward, between these is the channel. Half way between the sound of Copeland and Cross Island, is a small rock called the Pladdins, over which are, with common spring tides 3 or 4 feet water; it bears S. ¼ W. off the light. To avoid this rock on the east side, bring the lighthouse N.byW.; on the south side, bring the S.W. house in Donaghadee in sight with the S. end of Copeland Island: in this sound the currents are strong, and, as there are no buoys, is to be avoided by strangers.

Belfast. — The entrance to Belfast Lough is immediately to the N. of Copeland Light, and lies between Said Light and Black Head; the latter bearing from the former N. N. W., distant about eight miles. At the larboard side of the entrance, about a mile to the W. of Orloch Point, is a rocky ledge called the Briggs, stretching out ¾ of a mile, and upon which is a red buoy. About 6 miles to the W. of the Briggs is Grey Point, and, in a sort of bight between them, is the town and harbour of Bangor, which has about the same depth of water at the quay as is to be found at Carrickfergus, and, as an addition, a wooden wharf for the accommodation of steamers has been attached to the back of the stone pier, at which 7 feet will be found at ordinary low water. 2 miles further W. from Grey Point, a small ridge of rocks runs out from the shore rather more than a ¼ of a mile, on which is a buoy to be kept on the porthand. On the opposite side of the Lough, and bearing WbyN⅝N from Orloch Point, distant 9 miles, is the town of Carrickfergus, where there is a pier, having, with spring tides, 10 feet water, and with neaps 7 feet. As a guide to the entrance of this harbour at night, a red light is shown 2 hours before and 2 hours after high water:

this light to be brought immediatelyover a street lamp in Governor's place—the red light showing about 2 feet *above* the white light, and from a vessel coming in due north. Off this town, to the S. and W., is a bank running out 1½ miles from the shore,and extending N. 1¼ miles; the least water over it is 7 feet. Extending a mile from the shore on the S.sideof the Lough, and opposite the village of Hollywood, is Hollywood bank, on which is a lighthouse built on screw piles, which shows a pale red light, visible 8 miles in clear weather. Between the Hollywood and middle bank is the commencement of the pool of Garmoyle, which extends from abreast the large red buoy on the starboard hand, having from 3 to 4 fathoms at low water. From Garmoyle,the channel up to Belfast is now nearly straight, having above 10 feet at low water, spring tides; it is well buoyed—red on the larboard, and black on the starboard hand going up to the quays. There is also a green light on Hollywood Bank,with three more of the samecolour towards Belfast,all of which are to be left on the port side when going up. There is also a red lightS.W.of the stoneBeacon to be left on the starboard side. Large ships usually anchor off the town of Carrickfergus, near the middle of the Lough. Many vessels frequent this anchorage, which is marked on all the Admiralty Charts of the Lough,and Masters of ships pronounce it excellent. Vessels drawing not morethan 16 feet water may anchor higher up in the Folly Roads—between the Carrick bank and abreast of White Abbey; smaller vessels in Whitehouse Roads. Large vessels drawing 18 feet water, intending to reach the quays, may anchor in Garmoyle. A large pilot cutter is constantly under weigh during the daytime, at night also (weather permitting) and generally boards vessels bound to Belfast abreast of Grey point. The Briggs of Kilroot, now a perch on them,lie on the N.side of the Lough, and stretch almost from KilrootPoint toWhite Head,and about a quarter of a mile from the shore, to avoid which keep Black Head open with the White Head, and a vessel will be clear of all danger.—The Admiralty Chart of 1856, as surveyed and reported on by R. Hoskyn. Master R.N., states:—Belfast Lough is an admirable refuge harbour. Above Grey Point ships may ride securely against all winds.

Loch Larn—A lighthouse is erected on Farres Point, on the larboard hand, going into this spacious Loch, opposite which are the Maiden or Hulin Rocks. Sailing into Larn from the S.E.passMuck Island, Brown's Point and Bay; give Barr's Point a berth near half a mile, as a ridge of rocks runs off above a quarter of a mile; give Farras Point on which is the Lighthouse, a berth of half a cable's length; run for Corran Point on Larn side, on which stand the ruins of an old castle, giving Isle Magee side a large berth, as a long shoal runs out from it very near half way across to the steam-packets' wooden wharf opposite the salt pans, and continue to near the Point of Racknow, round which is Yellow Stone Roads, sheltered from all sea, and little tide. There is a long flat runs out from the N.W. side of the entrance which, when covered, is so deceitful to strangers, that they should open the mouth of the Loch well; keep no more than two cables' length from the lighthouse, run up past the wooden wharf, giving it a berth on the starboard hand. Anchor ⅔ of a cable's length from Isle Magee shore. Small vessels from above the wharf should run up abrest of Corran Point in two fathoms, keeping one third from Corran shore, and two-thirds from the Island. Large vessels should come to further out, about one-third from Corran side. There are no rocks in Larn Loch and should a vessel run too far, she will only go on soft sand or mud. A stranger going in, in the night, should take his soundings from Isle Magee shore; but going to the Yellow Stone roads should take a pilot. Vessels may run in without anchors or cables—there are no rocks nor shoals to interrupt them, coming from the southward, except Barr's Point before mentioned, and Hunter's Rock. Four miles of the mouth of Larn Loch, and 4 miles N.¼W. from Knee or Muck Island, the Sound of Muck appears open, and Corran Castle on with Larn Lighthouse.

Maiden,or Hulin Rocks Light. Two lighthouses, marked with broad red and white belts,are erected on the Maiden or Hulin Rocks. These Rocks bear by compass from the Mull of Cantyre Light, S.S.W., distant 24 miles; from Sanda Island, S.S.W. ¼ W., 18¾ miles: from Ailsa, W.S.W., 23 miles; from Copeland Island Light, N. ¼ E., 16¼ miles, and from the eastern extremity of Rachlin Island, S.by E., distant 20 and a half miles. The lights are distant from each other 320 fathoms, and bear N.W. by W. and S.E. by E. The mariner in passing should give them a wide berth, there being a number of sunken rocks extending upwards of 3 miles N. and 1½ miles S. of them.

Ballicastle Harbour.—Opposite Church Bay, on the Irish Coast, is Ballicastle Harbour, formed at the mouth of a small rivulet near the town, affording shelter for small vessels drawing 7 feet water, for at high water there are 9 or 10 feet between the pier heads, with spring-tides, and 8 feet with heap. In summer

ships may ride near the W. side of the bay in 9 or 10 fathoms water, the glass-house bearing S.S.W., Sheep Island being shut in with Kinbane Head, and Clare House bearing on the top of the cliff near it; but it will not be prudent to lie long here. Should the wind blow from the N. or N.W., and a swell begin to set in, weigh anchor, and rounding Tor Point, make for Cushinden, Cushindaal, or Larn.

The Skerries lie W. by N. 5 miles from Bengore head, and about a mile from the shore: on the south side of the largest of these islands, where it appears lowest, a vessel may anchor in 6 or 7 fathoms water, a little more than a cable's length from shore. In sailing into this anchorage be careful of the Stirks on the east side, and of the Kers on the west side: they lie a little to the southward of a cluster of rocks about half a mile westward of the Skerries, and dry at four hours' ebb.

Port Rush is much improved by a pier and quay; there are from 8 to 24 feet within the harbour, while off the mouth of the port a vessel may anchor in 6 to 8 fathoms, on a bottom of sand. On entering the harbour you must give the North Pier a berth of at least fifteen yards, to clear the stones which have been placed to break off the swell, and which are covered at ¾ flood.

Loch Foyle is a capacious harbour, where the largest ships may ride in safety in all weathers; but the best place for large ships is on the N. side, 3 or 4 miles within the entrance, in from 5 to 8 fathoms water: but vessels of 11 or 12 feet draught will ride easiest between Quigley's Point and Ture, in from 2½ to 3 fathoms. The danger to be avoided is the Tuns Bank, which lies on the S. side of the entrance, having a channel between it and the land, on the N. side, ⅔ of a mile wide. To sail into Loch Foyle, wait for flood tide, or a brisk leading wind to stem the ebb, which runs at the rate of 3½ knots in the entrance: keep Glenegad Head 2 or 3 ships' length open off Inishoan Head, until the mouth of Derry River at Kilmore Point is a little open of Magilligan's Point; then steer for the entrance, keeping ⅓ of a mile from the N. shore, and you will pass between it and the Tuns Bank: when you are within Magilligan's Point, you may keep at a greater distance from shore, and run up to the anchorage. On Donagree Point, a little to the S. of Inishoan Head, are two lighthouses, bearing from each other E. and W., distant 153 yards. The lights are fixed, visible 13 miles, and when in one lead clear of the Tuns Bank.

Inistrahul Island, on the N.E. part of which a lighthouse stands, is 6 miles N. ½ E. from Glenegad Head, and 4 miles from the nearest shore. The light makes a revolution every two minutes.

Loch Swilly.—The entrance of this Loch lies 7 miles W. by S. from Malin Head, and is about 3½ miles wide, from shore to shore. Fannet Point is a low point at the W. side of the entrance; it is distinguished by a lighthouse which displays a steady light, which, when seen from sea, appears of a deep red colour, but from within the Loch, bright. This is a safe harbour for vessels of any size; but the best anchorages are off Burncranah House, 2 or 3 cables' length from shore, in from 4 to 8 fathoms, or between the Island Inch and Rathmullin, rather nearer to the latter, in from 5 to 8 fathoms.

Mulroy Harbour is known at a distance by Tory Island, Horn Head, and Rosgull Hill; it has water sufficient for the largest ships; but a part of the channel is narrow and difficult. Strangers should always take a pilot.

Sheephaven & Downing Bays.—Few vessels like to run for Sheephaven as many get on shore, yet some are compelled, not being aware of the excellent anchorage in Downing Bay, which lies on the E. side, at the bottom of Sheephaven. The bay is formed by points called Downing and Morlach. Close under Morlach Point is the anchorage, in from 4 to 6 fathoms. In running for it from Hornhead, the course will be S.E. by S., distant six miles, care being taken to give a berth to two half-tide rocks about a cable's length N.N.W. from Downing; when the sea breaks on them, which it generally does, they may be approached as most convenient: there are no other dangers.

Tory Island, the east end of which lies 7¼ miles N. W. from Horn Head, has no good anchorage on its S. side; but in the summer season, with S. winds, a vessel may stop on the north side in 18 or 20 fathoms, within half a mile of the shore. On its N.W. end is a lighthouse, exhibiting a steady bright light, visible from seaward 16 miles all round; but when passing to the S.E. of the island, is shut in behind the heights between N.W. by N. and N.W. ½ W.

Rathlin-O-Birne.—This island lies 2 miles S.W. ¼ W. from Malin More Head, and is about ½ a mile long and ⅓ of a mile wide. A lighthouse has been erected upon it, in N. lat. 54° 40′ and W. long, 8° 50′ exhibiting a flashing light, at an interval of 20 seconds, visible at a distance of 16 miles, but red towards the mainland and sound, eastward of that island.

Donegal Harbour is on the E. side of the peninsula, called the Hassens, or Green Islands, 2 miles below the Town of Donegal, where small vessels may ride in 2 or 3 fathoms water at about a cable's length from shore. To sail in, take half-flood, and keep about ½ a mile from the shore on the larboard or N. side, until you are near the Black Rock; then steer E. ¼ N. until you are a cable's length past it; you may then steer directly for the Green Islands, giving the north shore a berth of about two cables' length.

Sligo Bay is to the southward of the point of Raugly, and at the N.E. side of the bay is the entrance to Sligo Harbour: S. by E. ¼ E. from Raugly point is Black Rock, covered at high water, on which is a fixed bright light, shewing from S.W. seaward to S. E. by S. and seen at a distance of 13 miles. To sail in keep about 2 cables' length to the northward of the lighthouse, in order to avoid the shoal water on the N. side of the rock. The only place where a vessel will lie afloat at all times of the tide, is Oyster Island Harbour, but the bottom is rocky, and does not hold well. On this Island are two fixed lights, bearing N.N.W. ¾ W. and S.S.E. ¾ E., 165 yards from each other. After passing the bar, the lights in one clear the Bun Gar Bank, and lead to the entrance of the harbour, or up to the Metal Man Beacon.

SOUTH-EAST COAST OF IRELAND.

WATERFORD TO BALTIMORE.

Waterford Harbour.—From Great Saltee Island to Hook Point, on which Waterford Lighthouse is erected, the bearing and distance are, W.N.W. 13 miles; and from the Longship Lighthouse off the Land's end, N. ¼ E. 43 leagues. When coming from the S. or the E. for Waterford, bring Sleanaman Mount a remarkable mountain inland, to bear N. E. until you see Hook Lighthouse on the E. side of the entrance of Waterford Harbour, from which a bright and steady light is exhibited. Go not nearer Hook Point than about 2 cables' length, to avoid falling into irregular streams of tide that run near it. Having passed the Hook, and intending to proceed for the anchorage at Passage, take a flood tide or a leading wind, and steer for Credan Head, giving it a berth of at least ½ a cable's length. From Credan Head steer N. E. by N. for Duncannon Fort, carefully avoiding the sand banks which extend from both shores. That on the starboard side begins at Bluff Head, extends more than half a mile from the shore, and terminates at Duncannon Fort. Between Bluff Head and Duncannon Fort is Ballistraw Bay. The sand on the other side, called Drumroe Bank, extends more than a mile from shore, and narrows the passage abreast Duncannon fort to about a quarter of a mile. Two lights in Duncannon Fort, one above the other, are exhibited to direct vessels to that point. On the flat, or what is known as "the bar," 14 feet of water can be had on the lowest spring tides. This shallow lies nearly midway between Credan Head and Duncannon, extends for about a mile in length, and is composed of hard sand; the course by compass over it is from N. N. E. ¼ E. to N.N.E. ¼ E. Another lighthouse, having a fixed bright light, is erected N.N.E. ¼ E. from Duncannon Fort lighthouse, distant half a mile. These two lights kept in a line, will lead in the best channel across the bar between the eastern and middle buoys. When above the lights keep near the eastern side, steering about N. ¼ W. for the church of Ballihak, until the perch, which is fixed in the upper end of Drumroe Bank, comes on with the town of Passage; you may then steer upward N. W. by N. in mid-channel. Abreast of this perch are 10 or 11 fathoms. The usual anchorage is about a mile above Passage Town, in 5 or 6 fathoms. Two or three miles above Passage is very good anchorage, and there the stream is much weaker than at Passage. In proceeding for this place, avoid a spit of sand called the Seedes Bank, which stretches off about W. S. W. from Buttermilk Castle, extending about half-way over to the opposite side; the least water on it is 9 feet. Avoid also a small rock which dries at low water, and has fourteen feet over it at high water, which lies about two cables' length from shore, on the south side of Check Point. In proceeding about low water, keep in the middle between the two points, or rather nearest to Buttermilk Point; if the flood-tide be running, keep in the rough part of the stream, and you will clear the shoal. Vessels drawing 20 or 22 feet water may go up to Waterford, where there are 2 fathoms at low water, a ship's length from the quay. The safest channel to Waterford is on the north side of little Island; the channel on the other side is deeper, but it is narrower, and subject to eddy-tides, which make it dangerous. Pilots may always be had at the entrance of the harbour.

Dungarvan Bay.—A lighthouse has been erected on Ballinacourty Point, on the northern side of Dungarvan Bay, with the following marks and compass bearings:—Helvick Head, S. ½ W., 1½ miles; Carrickapane Rock, S. S. E., 9 cables' length; and Whitehouse Spit, W. by N., 3½ cables' length. It shows a fixed bright light, visible between the bearings of W. and S.E. ¾ S.; green, bearing from W. to N. W. by W.; and red in the direction of Carrickapane Rock. Its white appearance can be seen at the distance of about 10 miles in clear weather.—The intermittent light on Mine Head, S. W. by W., 4 miles from Helvick Head, markes the approach from the westward to Dungarvan Bay, and can be seen further eastward than the range of Dungarvan light. A vessel in the entrance of Dungarvan Bay must keep clear of the red colour of the light to avoid Carrickapane Rock; and on the northern side of the bay keep to the southward of the green light to avoid Carricknagaddy, and the rocks which extend half a mile eastward of Ballinacourty Point.

Youghall Harbour lies about 13 miles W.S.W. from the entrance to Dungarvon. During high water, spring tides, ships drawing fully 17 feet may go in, and ride off the middle of the town. Across the mouth of the harbour is a bar, which extends above a mile south from the entrance, and has 6 to 9 feet on it at low water. Except when the wind blows from the south, south-east or south-west, there is always smooth water on this bar; 14 to 15 feet water are on it at high water, neap tides. When Cable Island bears W.S.W. you are on the outer edge of the bar. When sailing for Youghall Bay from the southward, keep Knockmeldown Mountain N. by E. To anchor when waiting to go over the bar, the best places are on the S. side of the bar, the harbour mouth bearing N.N.E., in 3 or 4 fathoms; or on the north side of Cable Island, in 3 to 6 fathoms, about 2 cables' length from the shore. From a tower on the west side and within the entrance, is shown a fixed bright light, open to the harbour, and seaward to S. W. by S., and may be seen at a distance of 6 miles.

Cork Harbour.—From a tower on Roche Point, at the east side of the entrance, is shown a fixed light, red towards the sea, to the harbour bright, and visible at the distance of 14 miles. From it Cork Head bears S. W. by W. about 4 miles. From the Longship Lighthouse off the Land's End to the entrance of Cork Harbour is 46 leagues N. by W. ½ W. Coming from the southward, and bound to this harbour, keep Knockmeldown Hill about N.E. by E. until you see the Old Head of Kinsale, a bluff point of land with a lighthouse on it. From this Head the entrance of Cork Harbour lies E. ¾ N, distant about 5 leagues. When off the harbour, Roche Tower with its lightnouse is remarkable. A little without the point, on E. side of entrance, lie the Stag Rocks. There is clean ground in a moderate depth without the harbour's mouth, where ships may, with a northerly wind, wait the flood or daylight. A white buoy is placed on the edge of the bank off Fort Camden; another white buoy about a mile further in, to the northward of the entrance to Cross Haven; a third, of the same colour, off the east side of Spike Island; and a white buoy on the eastern extremity of East Haulbowline Bank. Each of these buoys is numbered. There are also several black buoys on the side opposite, on the edge of the mud flat: they lie in 4 fathoms, and are likewise numbered. Having passed the narrows, which is about 450 fathoms over, the channel continues that width on a N. by E. and N.E. direction, between the white buoys on W., and black buoys on E. side, to the anchorage off Spike Island, on sandy ground: thence it leads upwards, narrowing round the beacons on the northern side of the Spit extending E.S.E from Haulbowline Island, close in to Queenstown on the north shore. At the entrance of the passage to Queenstown is a white buoy; and at about 160 fms. to the S.W. of this, in 2½ fathoms, is the Lower Spit Buoy, quartered black and white on the top, with alternate black and white rings on the side. The Upper Spit Buoy, white, lies in 9 feet, N.W. by W. ½ a mile from the Lower Spit Buoy. Here the tide runs 2 or 3 knots; it is high water on the full and change at half-past 4, and the tide rises from 9 to 13 feet. Large ships going in at or near low water, must be careful to avoid the Harbour Rock, which lies a little within the Stag Rocks, on the east side. On it are two iron trunk buoys about 1½ cables' length apart: one on the eastern, chequered red and white with beacon; the other on the western edge, chequered black and white It has fifteen feet on it at low water spring tides. About half a mile N. by E. ½ E. from the Harbour Rock lies the S. end of the Turbot Bank, extending thence N.W., and which has on its shoalest part, the north end, 18 feet low water average springs. The middle of this bank lies with a remarkable dark stone building, on the precipitous part of Kenly Cove, bearing W.S.W., and touching the projecting part of the land south-eastward of Temple Breedy Church. It has on it two iron trnnk buoys about a cable's length apart: one on the east, chequered red and white, with beacon; the other on the west side, chequered

black and white In order to avoid the shoals on the east side, keep within two cables' length of the eastern shore; or bring the lower part of the white wall, which stands to the S'ward of the fort upon Dog's Nose, on, or under the west bastion of that fort. To go to the westward of the Harbour Rock and Turbot Bank, keep the fort on Dog's Nose open to the westward of the lower part of the white wall above-mentioned: or when without the harbour, bring and keep a village, which appears upon a hill upon Great Island, over some pine trees, touching the point of Dog's Nose, bearing N. 21 degrees E. which will lead clear of all dangers on that side. To go between the shoals, keep the flag-staff in the fort of Dog's Nose, on, or over the lower part of the white wall. To avoid the Harbour Rock on the S. side, keep the Crow Rock on with Poor Head. The Turbot Bank may be avoided by keeping nearer to the E. than to the W. side of the entrance. Between the Harbour Rock and the east point are 5 to 6 fathoms; between the Harbour Rock and Turbot Bank are 6 and 7 fathoms; and between the bank and the western shore are 5 and 6 fathoms at low water. About a mile E. by N. from Haulbowline Island, extends the Spike Sand, which begins to dry on the north side at half ebb, and shelters the anchorage at Queenstown. On the east elbow of this bank a lighthouse has been erected on screw piles, in 9 feet; it exhibits a fixed red light, visible from N.N.E. ½ E. to S.E. by E. ½ E,, round by eastward, and at a distance of 8 miles. Masters of vessels are cautioned not to cross the bank between the lighthouse and Haulbowline Island, and to give the lighthouse and detached beacon-pillar sufficient berth in passing. In going from Dog's Nose for the anchorage off Queenstown, keep Dog's Nose Point S. by W. ¾ W.; or steer for the eastmost part of the fort on the N shore, between the black and white buoys to avoid a flat which extends in some parts a mile from the E. shore, and also a rock that lies to the westward of Cork Beg, which appears at half-ebb, with a beacon on it. The best place for large ships to anchor is off the garrison, in from 8 to 5 fathoms. Merchant ships may ride off the town of Queenstown in smoother water and less tide, they may go also further up the harbour of Passage, and ride any where between the first houses and Ronan's Point. In proceeding from Queenstown to Passage, do not approach nearer than half a cable's length to the south side of Black Point; and give the W. side of it a berth of about a cable's length, to avoid a sand which extends from that shore, and dries at low water. You may go westward from Haulbowline Island, until you see Ronan's Point in the channel of Passage; then steer N'ward along the W, side of the channel, for the anchorage. Vessels drawing 16 feet may, with spring tides go up to Black Rock or to the town of Cork, and lie at the quays with 9 feet at low water, average tides. Between Passage and Horse Head is a spit of sand, of 6 feet water, extending above a cable's length eastward from the Clay Cliff: you will avoid the extremity of this spit by keeping Dunkettle House on with a grove of trees which stand on the top of a hill above the House. The point of this spit lies with Belveley Castle and Ronan's Point in one; and vessels which anchor near it, should have the castle fairly without Ronan's Point, or wholly shut in with it. In a small creek called Cross Haven, within the entrance of Cork Harbour, and on the west side, opposite Dog's Nose, vessels may ride in 10 or 12 feet.

Kinsale Harbour.—A new lighthouse has been erected on the Rocky Point at the S. end of the Old Head, distant half a mile S.S.W. ½ W. from the old lighthouse, bearing from Bulman's Rock S.W. ¾ W. 4¼ miles. This light is a fixed bright light, similar to that heretofore shown from the old lighthouse, and is visible from N.E. ½ N. seaward to W. by N., and at the distance of 21 miles. In sailing towards the harbour from the southward, keep Knockmeldown Hill N. E. by E. until you see the Old Head of Kinsale: after making that, which is about 3½ miles S.W. by S. from the entrance of the harbour, run in until the old lighthouse on it bears W.N.W. about 3 miles; then run in N.W. by W. until the old lighthouse bears S.W. by S.; and then steer N.E. by N. until you are abreast of the lower cove, where you may anchor in 6 fathoms. The only danger near Kinsale Harbour is Bulman Rock, which lies about a cable's length S.S.W. ½ W. from Hangman's Point on the E. side of the entrance, and has 4 feet on it at low water. This rock is buoyed, and may be passed on either side, but the channel on its W. side is the safest for ships coming in or going out.

Baltimore Harbour lies about 5½ miles to the north eastward of Cape Clear, and is very convenient for ships bound either eastward or westward. Small vessels may ride 2 or 3 cable-lengths N.N.W. of Baltimore Town, in 10 or 11 feet at low water, sheltered from all winds.

BRISTOL CHANNEL.

LIGHT VESSELS AND BUOYS.

Light Vessels are moored, and Buoys laid in this Channel as follows:—

Light Vessels.

A LIGHT VESSEL, exhibiting a bright light, which revolves every minute, and is visible 10 miles, lies near the English and Welsh Grounds, on the south side of the Bristol Channel, and in lat. 51 deg. 26 min. N., and long. 2 deg. 58 min. W. This vessel is painted red, carries a ball during the day, has the words *English and Welsh Grounds* upon her sides, and is moored on the northern edge of the sand in 6 fathoms low water, spring tides, about 10 miles from King Road, with the high land at Minehead on with Flatholm Light Tower, W. by S.; the Usk Light Tower, N. by E. ½ E.; a remarkable Peak on the distant Land (See-mee or See-me-not), on with St. Thomas' Head, S. ½ W. A gong is sounded in foggy weather.

Off the West end of the Skerweather Sand there is a LIGHT SHIP placed to prevent the stranger from passing into the dangers of Swansea Bay. It exhibits a Red Revolving Light. shewing a flash every 20 seconds, at an elevation of 38 feet above the level of the sea. It is intended to show half a globe above the usual globe. Calculations for bearings and distances can be ascertained sufficiently accurate, by judging that of the West Skerweather Buoy.

A LIGHT VESSEL, bearing a bright light, which revolves every minute, and is visible 10 miles, lies off the western end of the Helwick Shoals, and in lat. 51 deg. 31 min. N., and long. 4 deg. 24 min. W. This vessel is painted red, shows a ball in the daytime, has the word *Helwicks* upon her sides, and is moored in 17 fathoms, low water, with Oxwich Point, E. by S. ¾ S.; Worm's Head, N. E. by E. ¾ E.; Caldy Lighthouse, N.N.W. ¾ W.; Lundy Island, S.W. ¾ W., 22 miles. During foggy weather a gong is sounded.

Buoys.

MORTE STONE, Black, Staff and Globe, lies in 9 fathoms low water, spring tides, 1¼ cable's length to the N.W. of the Ledge; Bull Point, E. ¼ S., 1½ miles; Morte Point, S.E. ¼ S., ½ mile; Baggy Point S.W.by S., 2 7-10 miles, Hartland Point, W. by S. ¾ S., 14 4-10 miles; Lundy Lighthouse, W. by N. ¾ N. 16 miles. This Buoy warns mariners of a dangerous and rocky locality over which the tide sweeps at a terrific rate.

SAND RIDGE, White, lies in 4 fathoms low water spring tides, with the Valley of Rocks Hotel, midway between Linton church and a conspicuous house on a hill westward, bearing S.W.; Hurtstone, apparently a cable's length outside the Foreland, S. E. by E. ¼ E.; Rillage bearing W. by N.½N., 10 miles.

GORE, Black, lies in 18 feet, Burnham High Light its length open nortward of Low Light, bearing E. by S. ¾ S.; Flatholms Island, its apparent length open west ofSteepholms; the Lighthouse, N. E. by N., 9 miles; Sand Point appearing open of Brean Down Point, N. E. by E. ½ E.

WEST CULVER, Red and White striped, with Beacon, lies in 4 fathoms, with Swallow Cliff, a little open of the South of Steepholme Island, E. ¼ N.; Willet's Tower, well open to the Westward of West Quantocks Wood, S.S.W. ¼ W. Westerly; East Culver Buoy, E. ½ S., 5 miles.

EAST CULVER, Red, lies in 6½ fathoms, with Penarth Head, on with Lavernock Point, N.N.E. ¼ E.; Black Nose Point, just open Southward of Steepholm Island, E. by N. ¼ N.; Flatholm Lighthouse, N. E. ¼ E.; Burnham Church Tower, S.E. by S.

ONE FATHOM, Black, lies in 4½ fathoms, with Barry Church (with Belfry) twice its apparent breadth on the West end of Barry Island, N. by W.; Lavernock Point, N.E. ¾ E. Flatholm Lighthouse, E. ¼ N., 4½ miles; Steepholm Flagstaff, E. S. E., 4½ miles; Brean Down, S.E. by E. ½ E.

HONEYCOMB, Black, lies in 5 fathoms, about 35 fathoms N.W. of the Rock, with Weston-super-mare Church on with W. end of Piggot's Summer House, S.E. ¾ E.; Kewstock Church about a ship's length open N. of Breanbeck Island, E.by S.¼S.; Brean Down Point, S. W.; Swallow Cliff Point, N.E. by E.½ E.; Flatholm Lighthouse, N.W.¼W., 4 miles

NEW PATCH, White, lies in 9 feet, with the high land of Minehead just open Southward of the South end of Flatholm Island, W. ¾ S.; Flatholm Light, W. ¼ S. S'ly., ½ mile; Grounds Light E. by N N'ly. 6 5-10 miles; Cardiff Church Tower, and the two Glass House Chimnies at Cardiff, apparently at equal distances, the Church Tower being the Eastern object, N. ¼ E.; Hayes' Windmill over the East end of Sully Island, N.W. ¼ W.; Penarth Church, N. ¾ W.

WOLVES, Red and White chequered, lies in 5 fathoms, half a cable's length westward of the rocks, with Hayes' Windmill on with the West end of Sully Island, N.W.; Breaksea Buoy bears W. N.W.W'ly., 10 miles; Penarth Head, N. by E. ½ E.; Flatholm Lighthouse, S.E. ¼ S. The Wolves are a dangerous clus-



ter of rocks: the tides both ebb and flow, set directly on them, therefore great caution is requisite,

SOUTH WEST PATCH, Red, with Beacon, lies in 4 fathoms, with Worle Mill in a line with the western side of Middlehope Beach, S. ¼ E.; Monkstone Beacon W. ¼ S., 4 miles; Flatholm Lighthouse, W. by S. ¾ S.; Usk Lighthouse, N.N.E. ½ E.N'ly.; Grounds Light Vessel, S.E. by E. ¾ E. The Buoy, formerly called the Spit, protects one of the quickest sands in the Channel, and, like many other dangers, the tides set directly on them. The old passage between this sand and the Welsh Hook is now filled up, and rendered unnavigable.

WELSH HOOK, Black, lies in 5 fathoms, low water spring tides, with Aust Head a ship's length open southward of Denny Island, E. by N. ½ N.; Usk Lighthouse, N.N.W., 6 miles; See-me and See-me-not on with Clevedon Old Church, S.S.W. ¼ W.; Grounds Light-Vessel, W.S'ly., 3¾ miles.

RANNEY FLOATING BEACON, placed on the S.S.W. part of Ranie Spit, lies in 3½ fathoms low water spring tides. Sailors' Home at Cardiff, just open off Penarth Head, N. by E. ½ E.; the Western part of Brean Down on with Flatholms Island at low water; the Lighthouse, S. by E.; Ball Point, W. ¼ N.; the highest part of Sully Island, W. ¼ S.

WEST CARDIFF, Black, with Beacon, lies in 4¼ fathoms, with the Monkstone Beacon in line with Clevedon New Church, E.by S.½S.; Grounds Light, E.¾ S., 6¾ miles; Cardiff Hook Buoy, S.W.½ W., 2 7-10 miles; Usk Lighthouse, N.E. by E. ¼ E., 9¾ miles; the Eastern side of Steepholm, just open West of Flatholm, at high water, the Lighthouse S.E'ly.; Sully Island open a ship's length Southward of Ball Point, W. ¼S.; Penarth Church, N.

EAST CARDIFF, Red, lies in 6 fathoms, low water, spring tides; Hook Buoy, S. W. by W. ½ W., 1 mile; Monkstone Beacon on with S.E. end of Steepholm, S.S.W. ½ W.; Penarth Church, W. ¼ S.; Usk Lighthouse, E.N.E.

CARDIFF HOOK, Black and White chequered, lies in 2 fathoms, with Cardiff Church Tower its apparent length open Eastward of a conspicuous Clump of Trees, N. N. W. ¼ W.; Grounds Light, S. E. by E. ½ E., 5½ miles; Peterstone Church Tower apparently midway between the Spire of Newport New Church and the Tower of the Old Church, N.E. ¾ E.; the Usk Light Tower, N. E. by E. ¾ E.

NORTH WEST SPIT, Black and White, Vertical Stripes, lies in 2 fathoms low water spring tides; Cardiff Hook, N.E. ¾ E., 2½ miles; West Cardiff Buoy 2 cables distant, S. S. E. Easterly; the eastern part of Steepholms on with the western high water mark of Flatholms, S. ¼ E.; Penarth Church, N. ¼ E.

BREAKSEA, Black and White striped horizontally, with Beacon, lies in 5 fathoms, about one cable's length from low water mark, and ½ a cable's length without the Rocks, with the Nash Low Light Tower apparently midway between the High Light Tower and the White Beacon upon St. Donant's Cliff, N.W. ½ W.; One Fathom Bank Buoy, S.E. 7½ miles; Evans' Farm House, apparently midway between a large Yellow Dwelling House and Limpert House, the latter being the Eastern object, N. N. E. ½ E.; Brereton Windmill, N. N. W. ½ W.

COCKBURN SHOAL, Black, lies in 4 fathoms, about 20 fathoms S.E. from the shoal, with the Avon Lighthouse one-third between Penpole House and Miles' House, S. E.; High water mark of Black Nose Point on with Portishead Point, W. ½ S.

WEST USK, Black, dries at low water; a farm house at St. Brides in line with a bluff tree on the western land, N.W. by W. ½ W.; Usk Lighthouse, N. by W. ½ W.; Windbound Point, N. by E. ¼ E.

EAST USK, White, dries at low water; a clump of tiles on Stone Hill just open westward of Windbound Point, N.N.W. ½ W.; West Usk Buoy in line with Peterstone Church W. ½ N.

EAST NASH, Black and White chequered, lies in 4½ fathoms, with Groes' House, (yellow) twice its apparent width open Westward of the Tower upon Dunraven Promontory, N.; the North side of the Nash High Light Tower on with the South side of the Low Light Tower, S. E. by E. ¼ E.; Nash Swatchway Buoy, N.W. ¼ W., 4½ miles; Tusker Beacon, N.N.W. ½ W. 4¾ miles; the fair channel course from the Mumbles to this buoy inside the sands, with the Mumbles Light Tower N. N. W. ¾ W., and the Nash Low Light Tower S. S. E. ¾ E.

NASH SWATCHWAY, Black, lies in 2¼ fathoms, with Sker House on with Rhwychwyn Point, N. ¼ E.; Newton Down Windmill, its apparent length open Northward to Newton Nottage Church Tower, N.N.E. ¾ E.; the Nash High Light Tower, its apparent length open Northward of the Low Light Tower, S.E.¼E.; Tusker Beacon, N.E. ¼ N; East Nash Buoy, S. E. ¼ E., 4¼ miles; West Nash Buoy, N. W. by W. N'ly., 2¼ miles.

WEST NASH, Black and White chequered, with Beacon, lies in 6 fathoms, with Newton Down Windmill on with the centre of the Breakwater at Porth Cawl, N. E. by E. ½ E.; Nash High Light Tower, S. E. ½ E., 7¼ miles; the Nash

Low Light Tower, S. E. ¼ E.; East Skerweather Buoy, N by E, 2 6-10 miles; West Skerweather, N.W.¼N., 6½ miles; Mumbles Light Tower, N.N.W.; Nash Swatchway Buoy, right between the Lighthouses, S. E. by E. S'ly., 2 miles; Tusker Beacon, EbyS., 3 miles.

EAST SKERWEATHER, Red and White striped, lies in 6 fathoms, with a conspicuous Shaft on the summit of the highest Hill, open Eastward of Constantinople Cottages, the apparent length of them, N.N.E. ½ E.; Margam Trees, on with the West end of a long stone wall terminating near the Beach E. ½ N.; the Windmill inland of Cwm Mawr on with Dunraven Point, S. E. ¼ E.; Kemfig Church 2¼ points open Westward of the Scar House, N. E. by E. ¼ E.; Nash Low Light Tower, S. E. ½ S., 9 miles; Mumbles Light Tower, N.N.W.½W.; West Nash Buoy, S.byW., 2 4-10 miles; West Skerweather Buoy, N. W. by W. ½ W., 5 miles; Mixon Buoy, N. N. W. ½ W., 9 miles; Tusker Beacon, S. E. ¼ E., 4 miles.

WEST SKERWEATHER, Red, with a Beacon, lies in 4½ fathoms, with Constantinople Cottages on with the mouth of Aberafon Harbour, E.N.E. Northerly; Margam Trees open Southward of Sker House three times their apparent width E. by S.; Nash High Light Tower, S.E., Easterly, 14 miles; Mumbles Light Tower, N., Easterly, 6 miles; East Skerweather Buoy, S E. by E. ½ E., 5 miles.

HUGO, Black, lies about a cable's length from the dry sand on the N.E. side of the Bank, in 3 fathoms low water with a large square House on with the South end of the large Store House at Porth Cawl, S. E. ¼ E.; Kemfig Church its apparent breadth open South of a White Cottage (the Northernmost in the Village), E. ½ N.; Nash Low Light Tower, S. E. by S.; Mumbles Light, N. N. W. ¾ W.; Constantinople Cottages N. E. ½ N.; East Skerweather Buoy, S. by E.

INNER GREEN GROUNDS, Red Nun, lies in 3½ fathoms, about one and a half cable's length from 5 feet on the S.E. end of the Shoal, with Kilvey Old Mill, ⅓ distant from the Inn (a large brick house), towards Tennant's Look-out House, N.N.E. ½ E.; Swansea East Pier Head, N. by E. ¾ E., 2 3-10 miles; Mumbles Lighthouse, W.½N.; Woodland Castle, N.W. N'rly.

OUTER GREEN GROUNDS, Black and White chequered, lies in 2½ fathoms, with the Tut between the two Houses on the Mumbles Point, W. ½ N.; Woodland Castle, N. N. W. ¾ W.; Swansea Pier and Lighthouse, N.E. by N.; Kilvey Old Mill, N.E. ¼ N.; Green Grounds Buoy, E.

MIXON, Black, with Bell, lies in 10 fathoms, with Porth Einion Point on with Oxwich Point, W. by N. ½ N.; Kilvey Old Mill Tower on with Swansea East Pier Head, N. E. ½ E.; Mumbles Light Tower, N. E. ½ N.; West Skerweather Buoy, S½E., 5½ miles.

WEST HELWICK, Black, with Beacon, lies in 6 fathoms, and is surrounded by 11, 14, and 15 fathoms. Worms Head, bears N.E. by E. ¼ E.; Helwick Light Vessel, W.byN.¼N.; West Scar, S.E.½S.

HELWICK SWATCHWAY, Black and White striped, lies in 4½ fathoms, with Burry Holmes appearing in the centre of Worms Sound, N.N.E. N'ly; Oxwich Point on with Porth Einion Point, E. by S.½S., Easterly; East Helwick Buoy, E. by S. ¾ S., 3½ miles; Worms Head, N., 2 4-10 miles; West Helwick Buoy, W. by N. ¾ N., 2½ miles.

EAST HELWICK Black, lies in 2½ fathoms, with Rhossily Point open westward of Tears Point the supposed breadth of a ship, N. W. ¾ N.; a White Building upon the high land, apparently midway between two White Cottages below that building, N.N.E. ½ E.; Helwick Swatchway Buoy, W. by N.¾N., 3½ miles; West Skerweather Buoy, S. E. ½ E. S'ly., 12¼ miles; Mixon Buoy, E. by S. ¼ S., 9¼ miles; Worms Head, N. W. ¼ N., 5 miles.

TUSKER AND MONKSTONE.—A mast with a large red ball attached is erected as a beacon upon each of these rocks. From the Tusker Beacon, Porth Cawl Point, N. ½ W., is 1½ miles; Mumbles Lighthouse, N. W. by N. 13 miles; Nash Low Light Tower, S. S. E. ½ E., 5¼ miles; East Skerweather Buoy, N. W. ¼ W., 4 miles; East Nash Buoy, S.S.E. ¾ E., 5 miles; West Nash Buoy, W., 2½ miles.

BEACON ON THE WOLF ROCK.—This Beacon consists of an artificial cone, bearing a mast having a large ball upon its summit at an elevation of 36 feet above the level of the sea at high water; the mariners are to observe that spring tides rise at this station 19 feet, and that at low water of those tides, the rock is uncovered to the height of 15 feet. St. Michael's Mount open of Lemorn Cove leads 2½ miles to the Eastward of it; Longships Lighthouse touching Cape Cornwall leads 1¼ miles Westward of it. The Bearings and Distances of the undermentioned objects from this Beacon, are as follows, viz.:—Longships Lighthouse, N. E. ¼ N., 7¾ miles; Scilly Lighthouse, W. by N. ½ N., 21 miles; Rundlestone Rock, which covers at half-flood, E. by N. ½ N., 7 miles; Seven Stones Light-vessel, N.N.W.¼W., Westerly, 12½ miles; Lizard Lighthouses, E. S. E., 23 miles.

WEST COASTS OF ENGLAND AND WALES.

SMALLS LIGHT TO THE PORT OF LIVERPOOL.

Smalls Light is placed on Smalls Rocks, lying off St. David's Head in Pembrokeshire, and bearing from St. Ann's Point, N.W. by W., distant 18 miles. This light is stationary, appearing like a star of the first magnitude, at the distance of 13 miles. To avoid these rocks, keep above a mile from the highest on all sides, and do not attempt to pass inside of them without a good chart and ample directions, or a pilot; with these there is excellent anchorage to be found in St. Bride's Bay in 8 or 9 fathoms.

South Bishop Light.—The Bishop and Clerks are a number of dangerous rocks, with great overfalls, lying northwest of Ramsey Island, at the distance of 2½ miles. On the southernmost, called the South Bishop, is a lighthouse, exhibiting a revolving light, visible in all directions, and appearing with great brilliancy at intervals of 20 seconds, whereby it will be readily distinguished from the Smalls and other lights in its vicinity; it can be seen at the distance of 18 miles. This light is the principal guide the mariner has to enable him to know his exact situation, when sailing near this dangerous part of the coast of Wales. The light must be always passed to the westward, and when to the northward of it never bring it to the westward of south, until you are 3½ or 4 miles from it, particularly on a flood-tide, in moderate weather, for then you have the tide nearly on the beam, which runs rapidly through amongst the islands; at spring tides nearly 5 knots, and causes several overfalls. The passages between the rocks must not be attempted by strangers.

From St. David's Head to Strumble Head the course is E. N. E. ½ E., distant 10½ miles; between them at the distance of 5½ miles from the former, is Abercastle Island, lying close to the land. In sailing from St. David's Head to Cardigan Bay you must give the shore a good berth, for several rocks under water lie scattered about, some of which are nearly a mile from shore; they are called the Sledges, and are 2 miles eastward of St. David's Head.

Fishgard Bay.—Three miles to the eastward of Strumble Head you open Fishgard Bay, having good anchorage with any wind, except from the N. to the E., the ground holding well. The best anchorage will be to the southward of the Crow Rock, which is always above water, in 4 or 5 fathoms, the rock bearing N. by E. ½ E., distant ¼ to ½ a mile. This bay is more desirable for vessels seeking shelter in gales from S. and W. than Studwall's Road, which is 51½ miles to the leeward, as it is well sheltered from these gales, which Studwall's Road is not, and the bay affords a more ready outlet to the S. or N. than any place in the neighbourhood.

Newport Bay opens when you are 6 or 7 miles distant from Strumble Head.—The bar and channel to Newport lie about ½ a cable's length from the shore, directly below the village of Newport. On the bar are 13 feet water with spring tides, and 7 or 8 at neaps. When a vessel is over the bar, she will be sheltered from all winds.

Cardigan Bay.—The Buoy on the Causeway in Cardigan Bay has been moved, and now lies near the extremity of the Causeway Reef, in five fathoms at low water springs, with the following marks and compass bearings: Slandebrog Mill in line with the east side of West Island at St. Studwall, N. by E.; Penkilan Head, N. by W.; Bardsey Lighthouse, N. W. ½ W. A LIGHT VESSEL lies in 20 fathoms, low water, spring tides, 1 Red revolving light, shewing a flash every 30 seconds, 25 feet above the level of the sea, South Bishop Lighthouse, S. W. by W., 36½ miles; Strumble Head, S.W. ¼ S., 21½ miles; Kenmaes Head, S. ¼ W., 16½ miles; Causeway Buoy, E. by N. ¾ N., 25 miles; Bardsey Lighthouse, N.E. by N., 23 miles.

Cardigan Harbour is adapted for vessels drawing about 15 feet. In the channel over the bar, which is liable to shift, are 14 feet water with spring tides, and 8 or 9 with neap; but in Cardigan Road a ship may stop, in moderate weather, almost any part without the bar, about two cables' length from the shore, in 6 fathoms water.

Aberystwith Harbour is fit for vessels which draw 15 feet. There are land-marks to lead you over the bar, one of which is moored on wheels, as the bar shifts. When any vessel is seen off the place in the evening, there are lights put upon the marks, which must be brought in one, to direct you over the bar.

Aberdovey is abont 3 leagues to the northward and eastward of Aberystwith, and 6 miles to the south of the Diamond Beacon on Beach Head. This harbour has a shifting bar about a cable's length broad, and about half that in and out. The Trinity Board have placed a large Black Buoy at the entrance, outside, and a Red one inside the bar. A good look-out should be kept for a small Buoy between the Black and Red Buoys, which makes the angle of the passage if any. These Buoys are all placed in the fairway. Vessels may come to anchor half a mile above the Red Buoy, and which is about the same distance below the town, where from 12 to 15 sail, drawing from 12 to 15 feet water may ride in safety and in good holding ground.

Barmouth Bay may be known at a distance by the highest mountain on that coast: it has two tops—the southmost is highest; and when seen from the westward, is in a line with the N. side of the entrance of Barmouth. From the N. side of the Bay, and about 1 mile from the main, a shoal called the Causeway, extends W. by S. 3 leagues: at low water there is not more than 2 or 3 feet water all along the edge of it, where at a cable's length the compass is so affected by magnetism, as to vary 90 degrees, and, as you approach nearer, quite reverse the points.

Studwall's Road affords excellent anchorage for the largest ships, sheltered from all winds except from E. to S. E. by E. It is easily known by two Islands that lie off the point, and there is no danger except a small rock about ¼ of a mile eastward of the Islands, between which there is a good passage, as well as between the westernmost and the main, at a cable and a half's length from them.

Bardsey Island is separated from the mainland by a channel more than a mile and a half wide, having from 15 to 25 fathoms in it. On the S.W. part of this Island is a Lighthouse exhibiting a bright fixed light, visible seaward from E. ¾ S. to N.E. ¼ E., and at a distance of 17 miles; but masked between the bearings of N. 50 deg. E. to S. 70 deg. E. If in a gale of wind from the W.N.W. vessels should be unable to weather Bardsey Island, this light will point out a secure asylum in Studwall's Road, enabling them to preserve a proper position until daylight, when they can proceed to the anchorage therein. Vessels bound to Studwall's Road, or laying-to for daylight, must not bring the light to bear to the westward of W. N. W.; and if they lose sight of the light when it bears from them nearly in that direction, they will be too far to the northward, and in danger of getting embayed in Hell's Mouth.

Carnarvon. — From Brauchypool Head the shore lies nearly E. N. E. to Carnarvon Bar, and from thence nearly N. by W. ½ W. to Holyhead Island, forming Carnarvon Bay. Vessels going in are to leave the outer or Black Buoy on the port hand, the Red Buoys on the starboard hand, and the Perch beacon on the port hand. The black and white chequer buoy is placed in mid-channel. Nun buoys, painted green, denoting sunken rocks, are placed off Llanddwyn Point. This Point may be distinguished in the daytime by two white towers (a large and a small one), and during the night by a fixed red light, visible in clear weather about five miles to seaward, between the bearings (from Llanddwyn by compass) of N. W. by N., and S. W. by W.; and which is intended solely as a leading light for the entrance to the Menia Straits. The bar should not be attempted until daylight, nor by vessels drawing more than 10 feet before half flood, During gales from W. to N., vessels may find shelter on the S.E. side of Llanddwyn Point. The proper anchorage is about a quarter of a mile from the shore, with the small tower a little open to the northward of the large tower. In running in give a good berth to the sunken rocks (the green buoys indicating which are placed to seaward); but it is much preferable for strangers to heave-to outside sufficiently to windward and make signal for Pilot, four of whom are stationed at Llanddwyn, with a life-boat and Marryat's code of signals. Vessels wishing to communicate will be answered from the large tower.

South Stack Light.—Off the N.W. point of Holyhead Island is the South Stack Rock, upon which is a lighthouse, bearing a brilliant light, which revolves every minute, whereby it will be readily distinguishable from the light on the Skerries, which is a stationary light, and bears from the light on the South Stack N.E. ½ E., distant 8 miles, and may be seen through a great part of Carnarvon Bay. During foggy weather, a smaller bright light, revolving in 1½ minute, is occasionally shown, about 40 feet above the sea, and 30 yards north of the main lighthouse. Any vessel making either of these two great lights, can find no difficulty in navigating round the head, or into the harbour of Holyhead, if the wind permits; and no directions that could be given would serve equal to that of having the two lights in sight, as will be the case in the situation above mentioned.

Holyhead Refuge Harbour is chiefly formed by an immense breakwater, the heel resting on Soldier's Point, from whence it projects N.E. by E. nearly one and a half cables' length, then E.S.E. about five cables' length, and then E.N.E.

to its end, which is marked by a red light, visible at a distance of 3 or 4 miles. The end of the breakwater is N.N.E., one mile from the Old Harbour Light.—To sail into Holyhead Refuge Harbour, give the end of the breakwater a good berth, as a strong tide sets to the westward nine hours out of the twelve, and strikes hard upon it. Having rounded the breakwater, steer to the W.S.W., between it and the outer Platters, leaving all the black buoys on the port hand, and anchor well in, close to the beach. There are passages between the Platters and Salt Island; but these should never be attempted by strangers. Vessels should have both anchors ready for letting go, with 50 or 60 fathoms of chain ranged according to the weather, and should be careful to anchor well up, or they will have to shift berth. Vessels disabled or without ground-tackle may be laid on a beaching slope at the head of the harbour which has been prepared for the purpose.

Old Harbour of Holyhead.—A wooden pier has been recently built, extending from the Old Harbour Lighthouse in a direction E. by S.: two red lights of equal height mark its end.—All vessels bearing up for Holyhead Harbour should be prepared with both bower anchors ready to let go, and the end of a good warp for a boat to take to one of the dolphins, moored along the passage for that purpose. The course round the pier, up the harbour, is W. by N., then W.N.W.; therefore, with the wind at N., and to the westward of that point, a press of sail should be carried, especially after-sail; run the jetty close on board, and neither start tack nor sheet till the vessel is well inside the lighthouse and the packets' moorings, then act as circumstances may require. Rise of water at spring tides, 17 feet; depth of water at the entrance, at low water, spring tides, about 12 feet. Holyhead harbour being a tide harbour, and frequently with many anchors down in the way, vessels drawing 12 feet should not run in until about two hours' flood, and those of a heavy draught should, if possible, keep off until four hours' flood. In tempestuous weather no vessel should run for the harbour at night time. There is no occasion to use this as a harbour of shelter now the new harbour is established. All vessels anchoring outside must keep a light up during the night.

Holyhead Harbour Lights, situate on the starboard hand in entering the harbour, are stationary. The higher, a bright fixed light, is visible at the distance of 11 miles; and the lower, red, is visible from S.S.W. to S.W. only, serving as a mark to clear the Platters, and rocks on both sides. Vessels entering the harbour are in the fairway when they see the RED light and steer for it. A red light is shown from the eastern extremity of the new breakwater; and two red lights, of equal height, are exhibited from the end of the temporary wooden jetty which has been recently built out from the Old Harbour Lighthouse in a direction E. by S.—**N.B.** The Old Harbour Light will probably be soon removed from its present position to a lighthouse at the extremity of the Great Eastern Jetty, at the entrance of the Harbour. Due notice will be given of this alteration.

FOG SIGNALS AT HOLYHEAD.—A gun is fired during fogs from a position immediately over the North Stack every hour and half hour, Greenwich time; and every ¼ of an hour from 10 45 to 2 45 a.m. and p.m. pending the arrival of the packets from Ireland. The ¼ hour intervals are resumed so soon as the Packets have passed

The Skerries is a cluster of islets and rocks 13-5ths mile to the northward of Carmel Point, occupying a space of about half a-mile. Upon the centre and highest islet of the group is a lighthouse 54 feet high, showing a fixed bright light at 117 feet above the level of high water, visible 16 miles. The position of this lighthouse is lat. 53° 25′ 18″ N., and long. 4° 36′ 24″ W. A short distance all round the islands is deep water, except on the northern side of the group, where is a dangerous rock of 2¾ fathoms, called the African, lying with the lighthouse in one with Pengarn Hill bearing S.S.E. Upon this rock there is a great overfall when the tide is running either way. Between the Skerries Islets and Carmel Point is a dangerous ledge of rocks, drying with spring tides only, called the East Platters. Close-to all round are 8 to 16 fathoms, and there is a strong rippling when the sea is heavy. You may sail between the rocks and the Skerries by bringing the South Stack Bridge over the North Stack and between them and Carmel Point, by bringing the South Stack and North Stack in one. The Beacon on the West Mouse Rock in one with the Middle Mouse, also clears it on the south side.

Point Lynas lies S. E. by E. ¼ E. of the eastern point of Amlwch Bay, distant 1¼ mile, and is situate in lat. 53° 25′ N., and long. 4° 17′ W. It is a bold conspicuous point of land both from the eastward and westward. A lighthouse is erected on the high pitch of the point, and is a castellated building, with a white basement. It exhibits a flashing light, which becomes instantaneously obscured at intervals of 10 seconds, and remains obscured 2 seconds only, so that it is readily distinguishable from the Skerries and other lights in the vicinity. From Lynas Lighthouse to Great Orms Head, S.E., 16 miles; N.W. Lightship, Liverpool, E.S.E.,

37 miles; Calf of Man, N. ¼ W., 42 miles; Buoy Nelson, off Preston, E., 41 miles; St. Bee's Head, N.E., 70 miles.

Port of Amlwch, Anglesea.—In the day time, when the Breakwater Balks are down, a Ball is fixed on a pole at the easternmost point of the harbour. When too many vessels lie at the entrance of the harbour, a Red Light will be shown, and when the entrance is clear a White Light.

To Sail into Beaumaris Harbour, THROUGH THE SOUND IN LOW WATER.—Steer in for Table Land, till the W. end of Puffin Island comes open with the E. end of Penmaenmawr Hill. These marks will clear the Dinmora Bank on your starboard hand. You then have the Sound fairly open; but to avoid the rocks off Trwyndu Point, keep more to the Perch on your left; and when Beaumaris comes open off Trwyndu Point, haul up for the red buoy off Penman, keeping it on your starboard hand, and off the red buoy of the Causeway on your left. Anchor in 4 fathoms off Penman red buoy, clean and good holding ground, well sheltered from a north-westerly wind; but if one hour's flood, you will carry 16 feet over the Flats off Penryn Point. Steer for the black buoy on the Spit of the Levan Sand, abreast of Friar's House, where anchor in 5 fathoms low water spring tides, or at half flood steer for the town, keeping the red buoy on Watch House Point on your starboard hand, in 6 and 7 fathoms. Keep that depth of water until the Church at Beaumaris bears N.N.E. by compass, when you may anchor in 9 fathoms at that time of tide. Thence you will see Bangor Pool, which is above Ferry Point. But if any of the buoys should be missing, as you steer up, keep the Church Tower and Lodge Hill in one.—Opposite the Friar's House, in mid-channel, is a sand-bank, marked by a red and white chequered buoy: in sailing up to Beaumaris, keep this buoy on the starboard hand.

To Sail out of Beaumaris Harbour, FROM THE ANCHORAGE OFF THE TOWN.—Weigh at high water, and drop down to Friar's Road. Give the black buoy off the Spit a berth on your starboard hand, and the red buoy off Penman on your larboard. At half ebb, take the eastern passage, keeping off the red buoy of the Causeway on your larboard hand. From the latter, steer for the east end of Puffin Island, on your larboard hand, keeping off it half a cable's length, and the black buoy off the Dutchman's Spit the same distance on your starboard hand.

Menai Lighthouse is erected at the north-eastern entrance of the Menai Straits. The light is STATIONARY and of a RED colour, visible from N.W. ¾ W. seaward, to S.W. ¼ W. excepting that by the intervention of Puffin Island the light will be eclipsed to vessels upon the bearings from it of E. by N. ½ N. to E. ½ S. A ledge of rocks extending under water from the base of the lighthouse nearly 50 yards, it is advisable not to approach the building within that distance.

Conway Harbour.—There are two channels leading into this harbour—the west and north. For the west channel, steer from the N.W. black buoy to the second black buoy, leaving them on your larboard hand; keep the red buoy off Penmaenbach, the chequered red and white buoy, the two red buoys, and the perch, on your starboard hand; haul up, and steer for the quay, keeping close to Deganwy Point on the larboard hand. The entrance to the north channel is marked with a black perched buoy: the second, third, and fourth are all black, and moored in the best of the channel. Vessels drawing from 10 to 12 feet may lash alongside the quay, on mud and sand, dry at low water.

To Sail from Point Lynas to the Great Ormshead.—The course from Point Lynas to the Great Ormshead is S.E. per compass; from whence keep the Ormshead as the line is drawn on the chart, till Rhyland Castle and St. Asaph Church are in one; then haul in till the south mark on Helbre and Bidstone Lighthouse come in one. Steer forward on that line which is the deepest water along the shore. It will also clear the Middle Patch on the left, which is dry at low water, spring tides. Buoys are placed here; red on the starboard. and black on the larboard hand, coming in. Give the Point of Ayr Lighthouse a berth of a mile on the starboard hand; and when it bears W. haul up S.S.E. for mid-channel. At that time the rippling of the tide on the edge of the Salisbury Bank will be very perceptible, as well as on the Welsh side. Continue that course, in mid-channel, till the Grange Mill bears N.E. by E. by compass, then haul quick for Dawpool, and keep that bearing till Burton Mill comes over the town of Parkgate. That course clears the south end of Salisbury Bank, and the Bagilt Flats on your right. As you advance, keep the lead going, and borrow on the Haswell Church side of the shore. It will carry you clear to Bearhouse Pool, where anchor till you obtain a pilot. The leading mark for passing at high water across the Salisbury Bank to Hoylake is Helbre Eye on with the Grange Mill.

Chester Bar is a narrow sandbank between 3 and 4 miles in length, stretching rather circularly from S.E. to N.W.; its south end is near to Nant House, and is called the Middle Patch, sometimes drying, the middle of it is called Earwick, and dry at low water; but much the

greater part of it never dries, having from 3 to 6 feet water over it at all times. To clear the Earwick to the eastward, bring Nant House and the barn above it in one. To SAIL OVER CHESTER BAR in a ship drawing 12 feet, take half-flood; and when Craig Disart Hill bears S. S. E., which with Middle Hill and Comb Hill form an equilateral triangle, keep the two Ormsheads shut below, and a little open above; by this you will avoid all danger on the southward. To avoid the banks and shallows on the north side, open the Ormsheads below near a ship's length, but not more. If a vessel comes to Chester Bar before half-flood, and is apprehensive of not having sufficient water to cross it, she may sail between the Middle Patch and the Earwick, keeping the Ormsheads a little open below; and when Craig Disart Hill and Middle Hill are in a line, steer N.E. by E. until you deepen your water to 4 or 5 fathoms, and sail along Hoyle Sand for the Point of Air, giving that point a berth of half-a-mile. To avoid that part of Hoyle which is opposite to Air, keep Bidston Windmill to the south of Helbre Summerhouse; this will carry you through the Swashway toward Hoyle Lake. But the mark which leads clear of the north part of the Hoyle Sand, and directly into Hoyle Lake, is the Point of Air Lighthouse open to the northward of Hilbre Island.

The River Dee.—Vessels may stop a tide about a mile to the eastward of the Point of Air, upon which a lighthouse is erected. The tide runs, when strongest, 3½ miles an hour; and when the tide and wind are contrary to each other, make a rough sea here. At this place, which is called Wild Road, you can anchor in 5 or 6 fathoms; or you may proceed higher up to the anchorage off Linacre Creek, where, in 6 or 7 fathoms, you will be much better sheltered than in Wild Road from north-westerly winds, and ride on ground that holds well. To sail from Wild Road to Dawpool, a distance of near 6 miles, bring the southernmost house of Dawpool, which stands below a clay cliff, exactly in a line with the barn having a white end, standing on the top of the cliff, but the barn must not be brought on either side of the house, anchor about 2 cables' length from high water mark in 3½ or 4 fathoms at low water. Here the stream runs 5 miles an hour when strongest. At Parkgate, which is more than 4 miles up the river, vessels must lie aground on the beach; for though there are 2½ fathoms in the channel off the town, and 3 fathoms above it, yet the stream is so strong, and the ground so indifferent, that a vessel would drag its anchor. Take the ground about 2 hours before high water, below the houses of Parkgate. Vessels in making their passage to Parkgate must use the utmost caution to avoid the Salisbury Bank, a dangerous shoal, and lying in the direction of the river. The channel now to Parkgate is opened into a swashway by Bagilt and Flint; four red buoys are placed on the edge of the Mostyn and Bagilt Banks, and two black ones on the Salisbury Bank, the former of these are to be left on the starboard side, the latter on the larboard. A black buoy lies on the SELDOM SEEN ROCKS in the channel between the Salisbury Bank and the Lime Wharf. There are three small islands or rocks, called the Helbre Islands, lying to the southward of the Hoyle Sands: on the northernmost, which is called Great Helbre, are two wooden beacons or marks, distant from each other 633 yards.

BAY AND HARBOUR OF LIVERPOOL.

In the vicinity, and to the northward and westward of the Rivers Dee and Mersey, lie the banks which form the several channels to Liverpool, viz., the Hoyle Banks, the Burbo Sands and Flats, the Jordan Banks, Formby Point Flats, &c. The principal channels are, the Horse and Rock Channels, the Victoria Channel, the Queen's Channel, the Old Formby Channel, and the Crosby or Main Channel.

The principal lights and sea-marks of Liverpool Bay are as follow:—

GREAT ORMSHEAD.—A first order Dioptric Fixed Light is exhibited from a new Lighthouse, situate on the Northermost point of the Great Ormshead, at an elevation of about 325 feet above the mean sea level. It will appear as a bright fixed Light when seen from any direction between the bearings NWbyW ¾ W. round by the North to East, and as a RED Light from East to E. ¾ S. By this arrangement the light will be found to mask suddenly when standing into Beaumaris Bay, if brought to bear to the Eastward of S.E. by E. ¾ E., warning of the approach to shoal water; when to the eastward of Ormshead, the change of colour from bright to Red arises upon the line of bearing of the Fairway Bell Beacon, off the entrance to the Queen's Channel, in Liverpool Bay, and the Red Light will finally disappear if brought to bear to the northward of W. ¾ N., warning of the approach to the northern edge of West and East Hoyle; if the Red Light be kept in sight, those banks can-

not be approached nearer than one mile.

The NORTH-WEST LIGHT SHIP has been removed to the position indicated by the transition of the Ormshead Light from Bright to Red, and by the masking or unmasking of the Upper Holylake Light on a N.N.W. bearing; she will lie off the West extreme of Three and Four Fathom Tongue, in 6½ fathoms at low water, and will exhibit a powerful bright Revolving Light, appearing once in every minute, with the following bearings. Ormshead Light West, 20 miles: Queen's Channel Bell Beacon East, 3¾ miles; Formby Light Ship, E. ¾ S., 6 miles; N.W. Buoy of East Hoyle, S.S.E. 4½ miles; Helbre Swash Fairway Buoy, S. by E., 4¼ miles.

A BELL BEACON, *in the form of a* Square Pyramid, *the body of open lattice work, painted* RED, *and marked in white letters* "HORSE CHANNEL, S.E. ¼ S." *has been moored in the fair-way to the Horse Channel. This Beacon occupies the position formerly held by the N. W. Light-ship; the marks for its station are, the Beacon on the Eye, and Hilbre Beach Mark in one S. ¾ E. (nearly). Bidston Lighthouse open Eastward of Leasowe Lighthouse S.E. ¼ S.*

The FORMBY LIGHT VESSEL, at the elbow of the Crosby and Queen's Channels, moored in 25 feet at low water, shows one *Red* light visible 8 miles; a red ball is exhibited during the day. Her hull is painted red. In foggy weather a bell is tolled. Crosby Lightship, S. E. ½ S., 2½ miles; N. W. Mark, E. by N. ¼ N., 3⅞ miles; Buoy Q. Fy. (bell beacon), N. W. by W. ½ W., 2⅜ miles.

The CROSBY LIGHTHOUSE, situated to the north-eastward of Crosby Point, shows a fixed Bright light, elevated 96 ft. above the level of the sea at half-tide, and visible between the bearings of S.S. E. ¼ E. and E., which limits indicate respectively when a ship is westward of Formby Spit, or to the southward of Crosby Lightship.

About a mile and a quarter to the north-eastward of Crosby Lighthouse is the FORMBY OLD LIGHTHOUSE, the light from which has been discontinued. Near the latter, on the strand, is a beacon, which formerly formed a leading mark for Victoria Channel; further to the northward is the Life Boat House; and near it just round Formby Point, is the North-west Mark. This mark is one with another on Mad Wharf, bearing S. E. by E. ¼ E., is the leading direction for entering the Old Formby Channel.

The CROSBY LIGHT VESSEL, at the north-east elbow of the Great Burbo Bank, moored in 44 feet at low water, shows a yellow fixed light, visible 8 miles, and carries a red ball at the mast-head in the daytime. Her hull is painted red. From hence the fairway course up the Mersey is S. by E. ½ E. In sailing through Crosby Channel during ebb-tide, to avoid the indraught through the gullies in Great Burbo Bank, vessels should be kept well to the eastward of a line drawn between the Rock Lighthouse and Crosby Lightship.

At Bootle, near Liverpool, are two obelisks on the shore, and behind Bootle, near Walton Church, is a beacon, called Bootle Inner or Walton Mark.

On the south side of Liverpool Bay, on the peninsula separating the Mersey from the Dee, are many objects used as sea-marks, several of which will have been seen before arriving at the North-west Light Vessel. Off the west end of the peninsula are the islets, called the Great and Little Helbre, upon which are placed two beacons. On the mainland, within two miles S.E. by S. of the Helbre Islets, are the village and church of Kirby, to the east of which is Grange Hill, surmounted by a beacon, in the form of a pillar, at 173 feet above half-flood. Within two miles S. S. E. from Kirby, is Irby Hill, with its mill and wood.

About a mile and a quarter north of Kirby, near the shore, is the Hoylake Hotel, and within half a mile E.N.E. from this are the HOYLAKE LIGHTHOUSES, showing fixed lights. The Upper Light will be exhibited from a bearing of NNW round to the eastward, masking suddenly on the bearing just named, indicating thereby the line of bearing of the N.W. Buoy of East Hoyle, and of the N.W. Lightship. The Lower Light will be exhibited from a bearing of North round to the Eastward, masking suddenly on the bearing just named, to indicate the sailing line between the East Hoyle Bank and the Four and Six Feet Flats. The lower light must be sighted (instead of the upper as formerly) to clear the Flats. The Hoylake Lights in a line indicate the turning point from the Horse into the Rock Channel, or the contrary, between Spencer's Spit and Dove Spit. At a mile to the eastward of the lower light are the Dove Beacons, erected as a mark for the eastern passage into Hoylake, the interior channel of communication between Helbre Swatch, and the Horse Channel, which is, at times, a very desirable harbour.

The Old Bell Beacon lies at the entrance of the Rock Channel. It bears a self-acting bell, and is marked, "R 1, Spencer's Spit."

The next conspicuous object is the LEASOWE LIGHTHOUSE, which is white; its light brilliant and fixed, 110 feet above the level of half-tide, is seen 5 leagues off, and is so masked as to give a defined light in the Rock Channel, within certain limits, and suddenly disappears, bearing S.W. ½ S. to vessels inward-bound, when

off West Wharf Buoy, R 3, Red, and suddenly appears when outward-bound. This is succeeded inland by the BIDSTON LIGHTHOUSE, upon the summit of Bidston Hill, with its church and mill. This lighthouse is of stone, but appears of a dark colour, and shows a brilliant fixed light at 244 feet above the level of half-tide. Its light can be seen 23 miles off. This light is so masked as to give a defined light in the Rock Channel, within certain limits, and to vessels inward bound it suddenly disappears on the bearing of S. by W. ½ W. when abreast of East Wharf Buoy, R. 4, Red, and suddenly appears when outward bound. The lights of Leasowe and Bidston are called the Sea Lights. At three-quarters of a mile eastward from the Leasowe Light is the Mockbeggar Hall, and 2½ miles further east is the Black Rock Lighthouse, standing upon the reef, so called, at the entrance of the Mersey.

THE BLACK ROCK LIGHTHOUSE is built on the rocks off New Brighton, on the west side of the entrance of the River Mersey, and is a handsome round tower of Anglesea limestone. It is surrounded by water at nearly half-tide. The height of the building, from the lantern to the base, is 75 feet, and the whole height above the level of the sea is 88 feet. The light revolves, exhibiting alternately from the same light room, two bright lights, and one of a red colour, each at intervals of a minute, the whole revolution being completed in 3 minutes. Having acquired their brightest state, they gradually become less luminous, and are eclipsed. The light in clear weather can be seen about 5 leagues off. A bright fixed light from a lower chamber is also shown down the Rock Channel and up the River while 11 feet water remain in the Gut, and a black ball denotes the same by day. Three bells toll in succession during foggy weather; and a blue flag summons the Magazine life-boat when distress appears.

Garston Dock.—This Dock, which is 4 miles south of the Liverpool Docks, and on the same side of the river, is free from the Liverpool dock rates, vessels entering it being only liable for the harbour and light dues. The channel from Liverpool is buoyed with red and black buoys.

STORM-WARNING SIGNALS.



Gale probably from the Northward.



Gale probably from the Southward.



Dangerous winds may be expected from nearly opposite quarters successively.



Dangerous wind probably at first from the Northward.



Dangerous wind probably at first from the Southward.

Whenever such a signal is shown (in consequence of a telegram from London) it will be kept up, shown distinctly, till dusk of *that day only*, unless otherwise specially directed.

These cautionary or warning signals advert to winds during some part of the next nights or two or three days; therefore due *vigilance* should prevail (until the weather is again thoroughly settled), but without suspending *departures* or any operations *unnecessarily*.

It should be remembered that only the greater and more *general* disturbances of the atmosphere are to be made known by this method (Warning Signals), not merely local or sudden changes (however violent or dangerous) which are not felt at a certain distance, and do not therefore affect other localities. Local changes may be indicated to observers at such places, by their own instruments,—by signs of the weather,—and by due consideration of the Weather Reports for a few previous days.

Fair and Foul Weather Prognosticator

The following Table and the accompanying remarks, are the results of many years actual observation; and will show the observer what kind of weather will probably follow the entrance of the Moon into any of her Quarters.

MOON	TIME OF CHANGE	IN SUMMER.	IN WINTER.
If New Moon—First Quarter—Full Moon—or last Quarter happens	Between Midnight and 2 in the Morn..	Fair.....	Hard Frost, unless the wind be S. or W.
	2 and 4 do	Cold, with frequent Showers...	Snow and stormy.
	4 and 6 ..	Rain	Rain.
	6 and 8 .	Wind and Rain.....	Stormy.
	8 and 10	Changeable	Cold rain, if the wind be W. Snow, if E.
	10 and 12..	Frequent Showers	Cold and high winds.
	At 12 o'clock at Noon and to 2 P.M..... .	Very Rainy	Snow or rain.
	Between 2 and 4 After.	Changeable	Fair and mild.
	4 and 6	Fair	Fair.
	6 and 8....	Fair, if the wind N.W. Rainy, if S. or S.W.	Fair and frosty, if N. or N. E. Rain or Snow, if S. or S.W.
	8 and 10	Ditto	Ditto.
	10 and 12	Fair.....	Fair and Frosty.

REMARKS.—1. The nearer the time of the Moon's Change, First Quarter, Full; and Last Quarter to MIDNIGHT, the fairer will the weather be during the 7 days following. The space for this calculation occupies from 10 at night to 2 next morning.—2. The nearer to MIDDAY these phases happen, the more foul or wet the weather may be expected the next 7 days. The space for this calculation occupies from 10 in the forenoon to 2, afternoon.—3. The phases happening from 4 to 10 in the afternoon, may be followed by fair weather, but this mostly depends upon the wind.—4. To prognosticate correctly, where the WIND is concerned, a good VANE should be within sight. Dr. Kirwan remarks, if a storm arise from the East on or immediately preceding the time of the Spring Equinox, or from any point of the compass near a week after; then, in either of these cases, the succeeding summer is dry, four times out of five; but if a storm arise from the S.W., or W.SW., on or just before the Spring Equinox then the summer following is wet, five times in six.

Useful Stamp Tables

BONDS.

Given as security for money

Not exceeding	£50 ..	1s	3d
Above £50 .. and not exceeding	100 ..	2	6
Above 100 .. and not exceeding	150 ..	3	9
Above 150 .. and not exceeding	200 ..	5	0
Above 200 .. and not exceeding	250 ..	6	3
Above 250 .. and not exceeding	300 ..	7	6
For every £100 above £300, or any fractional part of £100 ..		2	6

PROBATE OF WILLS.

£20..	£100 .	£0	10
100..	200..	2	0
200..	300..	5	0
300..	450..	8	0
450..	600..	11	0
600..	800..	15	0
800..	1000..	22	0
1000..	1500..	30	0
1500..	2000..	40	0
2000..	3000..	50	0
3000..	4000..	60	0
4000..	5000..	80	0
5000..	6000..	100	0
6000..	7000..	120	0

Above ... and under

INLAND BILLS.

Not exceeding	£5 ..	0s	1d
Exceeding £5 .. and not exceeding	10 ..	0	2
Exceeding 10 .. and not exceeding	25 ..	0	3
Exceeding 25 .. and not exceeding	50 ..	0	6
Exceeding 50 .. and not exceeding	75 ..	0	9
Exceeding 75 .. and not exceeding	100 ..	1	0
Exceeding 100 .. and not exceeding	200 ..	2	0
Exceeding 200 .. and not exceeding	300 ..	3	0
Exceeding 300 .. and not exceeding	400 .	4	0
Exceeding 400 .. and not exceeding	500 ..	5	0
Exceeding 500 .. and not exceeding	750 ..	7	6
Exceeding 750 .. and not exceeding	1000 .	10	0
Exceeding 1000 .. and not exceeding	1500 ..	15	0
Exceeding 1500 .. and not exceeding	2000 ..	20	0
Exceeding 2000 .. and not exceeding	3000 ..	30	0

AGREEMENTS.

Of the value of £20 and upwards, containing only 1080 words, 2s. 6d.; and for every further 1080 words 2s. 6d.

Letter of Power of Attorney	£1	10	0
Bills of Lading, each	0	0	6
Charter Party	0	5	0

APPRENTICES' INDENTURES

If no Premium	£0	2	6
Prem. under £30 ..	1	0	0
If 30 .. .. 50 ..	2	0	0
50 .. .. 100 ..	3	0	0
100 .. and under 200 ..	6	0	0
200 .. and under 300 ..	12	0	0
300 .. and under 400 ..	20	0	0
400 .. and under 500 ..	25	0	0
500 .. and under 600 ..	30	0	0
600 .. .. 800 ..	40	0	0
800 .. .. 1000 ..	50	0	0
1000 and upwards ..	60	0	0

SEA INSURANCE POLICIES

Upon any voyage, for every £100 charged as follows:

	s.	d
Not exc. 10s. per cent..	0	3
Exceed. 10s. .. and not exceed. 20s....	0	6
Exceed. 20s. .. and not exceed. 30s....	1	0
Exceed. 30s. .. and not exceed. 40s....	2	0
Exceed. 40s. .. and not exceed. 50s....	3	0
Exceed. 50s.	4	0

For every £100 insured for a term,

Not exc. six months....	2	6
Exc. six months	4	0



Royal Family of England

Queen VICTORIA I. born 24 May, 1819
Princess Royal . . . November 21, 1840
Prince of Wales ..... November 9, 1841
Princess Alice Maude Mary, April 25, 1843
Prince Alfred Ernest Albert, Aug. 6, 1844
Princess Helena Augusta V. May 25, 1846
Princess Louisa Caroline A. March 18, 1848
Prince Arthur Wm. Patrick, May 1, 1850
Prince Leopold Geo. Albert, April 7, 1853
Princess Beatrice Mary.. . April 14, 1857
Geo. Fred. King of Hanover, May 27, 1819
Duke of Cambridge ..... March 26, 1819
Duchess of Mecklenburgh, July 19, 1822
Princess Mary of Cambridge, Nov. 27, 1833
Duchess of Cambridge..... July 25, 1797

Sovereigns of Europe

KINGDOMS.	TO WHOM SUBJECT.	WHEN BORN.	BEGAN REIGN
England, &c.	Victoria I. ..	1819	1837
France.....	Napoleon III	1808	1852
Russia.. ...	Alexander II.	1818	1855
Spain	Isabella II...	1830	1833
Portugal	Dom Louis I.	1838	1861
Prussia.....	William I ..	1797	1861
Netherlands	William III	1817	1849
Denmark . .	Frederick VII	1808	1848
Sweden.....	Charles XV.	1826	1859
Austria	Franc. Joseph	1830	1848
Belgium	Leopold . .	1790	1831
Popedom ...	Pius IX ...	1792	1846
Greece	George I. ..		1863
Italy	Victor E. II.	1820	1861
Ottoman Em.	Abdul A. Khan	1830	1861
Hanover	George V. ..	1819	1851

Her Majesty's Ministers.

THE CABINET.

First Lord of the Treasury ..... Viscount Palmerston.
Lord High Chancellor..... Lord Westbury.
Chancellor of the Exchequer .. ... Right Hon. W. E. Gladstone.
Lord President of the Council..... Earl Granville, K.G.
Lord Privy Seal..... Duke of Argyle, K.T.
Home Secretary ..... Sir George Grey.
Foreign Secretary... ..... Earl Russell.
Colonial Secretary ..... Duke of Newcastle
War Secretary .....
Indian Secretary ..... Sir C. Wood, Bart.
First Lord of the Admiralty ..... Duke of Somerset.
Postmaster General..... Lord Stanley of Alderley.
President of the Board of Trade ..... Right Hon. Milner Gibson.
Chancellor of the Duchy of Lancaster..... Mr. Cardwell.
President of the Poor-law Board.... ..... Mr, C. P. Villiers.

NOT IN THE CABINET.

Lord-Lieutenant of Ireland ..... Earl of Carlisle.
Chief Commissioner of Works .. . . Mr. W. F. Cowper.
Attorney-General..... Sir W. Atherton.
Solicitor-General ..... Sir Roundell Palmer.
Attorney-General for Ireland .. .. Mr. O'Hagan,
Solicitor-General for Ireland ..... Mr. T. A. Lawson.
Secretary for Ireland ..... Sir Robert Peel.
Secretaries of the Treasury ..... Mr. F. Peel. / Mr. Brand.
Secretary to the Admiralty ..... Lord Clarence Paget.
Civil Lord of the Admiralty ..... Mr. Whitebread.
Judge Advocate-General ..... Mr. T. E. Headlam.
Secretary to the Poor-law Board..... Mr. Gilpin.
Vice-President of the Privy Council for Education.... Mr. Lowe.
Under Secretaries of State:—
Home ..... Mr. G. Clive.
War ..... Lord Ripon.
Foreign..... Mr. Layard.
Colonial ..... Mr. C. Fortescue.
India..... Mr. Thomas Baring.
Lords of the Treasury .. .. Sir W. Dumbar, Bart. / Mr. Hugessen. / Colonel White.

THE ROYAL HOUSEHOLD.

Lord Steward..... Lord St. Germans.
Master of the Horse ..... Marquis of Aylesbury.
Master of the Buckhounds ..... Earl of Bessborough.
Mistress of the Robes ..... Duchess of Sutherland.



