THE

PERPETUAL ASTRONOMICAL

CALENDAR:

CONTAINING,

COMPENDIOUS TABLES

Done after a Method intirely new.

SHEWING,

For any Year of our Lord past or to come, both for the Julian and Gregorian Accounts, by INSPECTION;

I. The Golden Number and Epacts.
II. The Dominical Letters.
III. The moveable Feasts and Terms, with their Returns.
IV. The fixed Terms and their Returns.
V. The Calendar, shewing the Days of the Year, Month and Week. Rising and Setting of the Sun. Age of the Moon. Saints and holy Days. Equation of Time, &c.
VI. The Moon's Southing, with the Time of the Tides.
VII. A Table of the Comets, shewing the Times when they were nearest the Sun; their Periods; and when they are to appear again.

Together with,

Plain and easy TABLES for finding the Times of the true New and Full Moons, with all their remarkable Eclipses for the above time.

With PRECEPTS for making all plain to the meanest Capacities by Examples.

By *JOHN WILSON.*

GLASGOW:
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MDCCLVII.

PREFACE.

HAVING, some time ago, collected these few TABLES for my own private use, I shewed them to some friends conversant in these calculations, who have prevailed on me to publish them as useful to the public, though I am nowise ignorant that this branch of Astronomy has been handled and done with the greatest exactness by the most eminent and learned men in Europe, but as their works are voluminous, and requires great skill in Astronomy to follow their calculations, which perhaps my readers have neither knowledge enough, time nor leisure to do, I have presumed to deliver them in a more compendious, expeditious and extensive method, than, I fancy, has been formerly done, so as to lay them open to the sketch of an eye, without farther trouble, and humbly submit them to the censure of this criticising age, always making a proper allowance for the author's not being bred up with the advantage of scholastic learning.

The first two TABLES are done after a method entirely new, shewing by inspection for both accounts the Golden Number, Epacts and Dominical Letters, for any time past, or to come, (which has quite extirpated the operose rules of finding them by calculation;) and they are indexes to the following TABLES, which shew the moveable feasts and terms, with their returns, day of the year, month and week, rising and setting of the sun, age of the moon, time of the tides, *&c. &c. &c.*

The TABLES of the mean new and full Moons, with their equations and lunar periods, I have taken from Dr. Halley's Astronomical TABLES, making some alterations of my own, not by way of correction, for his are strictly just, only to adapt them more to vulgar capacities; *viz.* turning the equation of the sun's center, and

and of the moon's, in Syzygiis into time from motion, anſwering to each degree of the ſun's Anomaly, and of the ſun's diſtance from the moon's Apogee, which I call the moon's Anomaly; which two equations when added to, or ſubtracted from, the times of the mean, new or full Moons, give the time of the true, within a few minutes; I have likewiſe adapted them to the Meridian of 3 degrees weſt from London, which I take to be near the middle of the iſland of Great Britain, and will ſerve for the whole, though not Mathematically juſt, within a triffle of time; alſo theſe TABLES begin at midnight, accounting 24 hours to the ſame again, and not at noon as the Aſtronomers uſe.

In calculating the Eclipſes of the Sun, I have omitted the Parallaxes being very difficult and perplexing to thoſe who are not thoroughly acquainted with Aſtronomical calculations, and have given only plain and eaſy rules for calculating all that is remarkable, with very little variation.

I have given from Dr. Halley's Theory of Comets the time when moſt of the Comets that have been obſerved did appear, when they were neareſt the ſun, with their periods, and when they are to appear again, with a particular deſcription of the Comet that is to appear next year being 1758: and I flatter myſelf that this ſmall collection will be of benefit and uſe to the public, to ſave both trouble and expence as it will ſerve, them for a complete and perpetual ALMANACK; as for the cenſures and little criticiſms it may meet with from the dabblers in Aſtronomy, they give me no pain at all. I ſubmit the performance to the ingenious and learned, whoſe opinion I value greatly, for their candid and favourable acceptance, who know, and have goodneſs enough to excuſe my faults, and to pleaſe them is the only aim and deſire of

Their great Admirer and

moſt humble ſervant,

J. WILSON.

TABLE I. Of the Golden Num. and Epacts.

Subt. from Julian Ep.	Years when the Golden Numb. is Unity and the Epact 11.		Sub. J. Ep.	Years when the Golden Numb. is Unity and the Epact 11.		Sub. J. Ep.	Years when the Golden Numb. is Unity and the Epact 11.		Gold. Nu.	Epact.
3	000		6	700		3	1400			
12	1900	19	15	2600	22	17	3300	6	2	12
20	3800	38	23	4500	41	25	5200	25		
28	5700	57	0	6400	60	4	7100	44	3	3
6	7600	76	9	8300	79	12	9000	63	4	14
15	9500	95	17	10200	98	20	10900	82		
4	100		6	800		9	1500			
12	2000	14	15	2700	17	18	3400	1		
20	3900	33	23	4600	36	26	5300	20	5	25
28	5800	52	1	6500	55	4	7200	39	6	6
6	7700	71	9	8400	74	13	9100	58		
15	9600	90	18	10300	93	21	11000	77	7	17
								96		
4	200		7	900		10	1600			
12	2100	9	15	2800	12	19	3500	15		
20	4000	28	24	4700	31	27	5400	34	8	28
29	5900	47	2	6600	50	5	7300	53	9	9
7	7800	66	10	8500	69	14	9200	72	10	20
15	9700	85	19	10400	88	22	11100	91		
4	300		8	1000		11	1700			
13	2200	4	16	2900	7	28	3600	10	11	1
21	4100	23	24	4800	26	27	5500	29		
29	6000	42	3	6700	45	5	7400	48	12	12
8	7900	61	11	8600	64	13	9300	67	13	23
16	9800	80	18	10500	83	22	11200	86		
		99								
5	400		7	1100		2	1800			
14	2300	18	16	3000	21	11	3700	5		
22	4200	37	24	4900	40	19	5600	24	14	4
29	6100	56	2	6800	59	27	7500	43	15	15
7	8000	75	11	8700	78	6	9400	62	16	26
16	9900	94	18	10600	97	14	11300	81		
						22		0		
5	500		8	1200						
13	2400	13	17	3100	16				17	7
22	4300	32	25	5000	35				18	18
0	6200	51	3	6900	54				19	29
8	8100	70	12	8800	73					
17	10000	89	20	10700	92					
6	600		9	1300						
14	2500	8	17	3200	11					
22	4400	27	26	5100	30					
1	6300	46	4	7000	49					
9	8200	65	12	8900	68					
17	10100	84	20	10800	87					

Returns of Numb. to be subtr.	
1.	69.00
2.	138.00
3.	207.00
4.	276.00
5.	345.00
6.	414.00
7.	483.00
8.	552.00
9.	621.00

TABLE II. Of the Dominical Letters.

0	1	2	3	4	5	6	
000	100	200	300	400	500	600	
700	800	900	1000	1100	1200	1300	
1400	1500	1600	1700	1800	1900	2000	Odd Years.
2100	2200	2300	2400	2500	2600	2700	
2800	2900	3000	3100	3200	&c.	&c.	
DC	ED	FE	GF	AG	BA	CB	0.28.56.84
B	C	D	E	F	G	A	1.29.57.85
A	B	C	D	E	F	G	2.30.58.86
G	A	B	C	D	E	F	3.31.59.87
FE	GF	AG	BA	CB	DC	ED	4.32.60.88
D	E	F	G	A	B	C	5.33.61.89
C	D	E	F	G	A	B	6.34.62.90
B	C	D	E	F	G	A	7.35.63.91
AG	BA	CB	DC	ED	FE	GF	8.36.64.92
F	G	A	B	C	D	E	9.37.65.93
E	F	G	A	B	C	D	10.38.66.94
D	E	F	G	A	B	C	11.39.67.95
CB	DC	ED	FE	GF	AG	BA	12.40.68.96
A	B	C	D	E	F	G	13.41.69.97
G	A	B	C	D	E	F	14.42.70.98
F	G	A	B	C	D	E	15.43.71.99
ED	FE	GF	AG	BA	CB	DC	16.44.72
C	D	E	F	G	A	B	17.45.73
B	C	D	E	F	G	A	18.46.74
A	B	C	D	E	F	G	19.47.75
GF	AG	BA	CB	DC	ED	FE	20.48.76
E	F	G	A	B	C	D	21.49.77
D	E	F	G	A	B	C	22.50.78
C	D	E	F	G	A	B	23.51.79
BA	CB	DC	ED	FE	GF	AG	24.52.80
G	A	B	C	D	E	F	25.53.81
F	G	A	B	C	D	E	26.54.82
E	F	G	A	B	C	D	27.55.83
100		200		300	000		
500		600		700	400		
900		1000		1100	800		
1300		1400		1500	1200		
1700		1800		1900	1600		
2100		2200		2300	2000		
2500		2600		2700	2400		
2900		3000		3100	2800		
3300		3400		3500	3200		
3700		3800		3900	3600		

TABLE III. Of Easter Sundays.

Dominic. Letter.	Golden Number.	Epacts.	Easter Sund.
D	16 2 5 10 13 4 7 12 15 18 1 6 9 17 3 8 11 14 19	23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 29 28 27 26 25 24	Mar. 22 29 Apr. 5 12 19
E	5 16 2 10 13 18 1 4 7 12 15 6 9 14 17 3 8 11 19	23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 29 28 27 26 25 24	Mar. 23 30 Apr. 6 13 20
F	5 16 2 7 10 13 18 1 4 12 15 3 6 9 14 17 8 11 19	23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 29 28 27 26 25 24	Mar. 24 31 Apr. 7 14 21
G	5 13 16 2 7 10 18 1 4 9 12 15 3 6 14 17 8 11 19	23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 29 28 27 26 25 24	Mar. 25 Apr. 1 8 15 22
A	2 5 13 16 7 10 15 18 1 4 9 12 3 6 11 14 17 8 19	23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 29 28 27 26 25 24	Mar. 26 Apr. 2 9 16 23
B	2 5 13 16 4 7 10 15 18 1 9 12 17 3 6 11 14 8 19	23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 29 28 27 26 25 24	Mar. 27 Apr. 3 10 17 24
C	2 5 10 13 16 4 7 15 18 1 6 9 12 17 3 11 14 19 8	23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 29 28 27 26 25 24	Mar. 28 Apr. 4 11 18 25

TABLE IV. Of the moveable Feasts.

East. Sund.	Sunds. after Epiph	Sexa. Sund.	Ash Wed.	Rogat. Sund.	Ascen Day.	Whit Sund.	Trin Sun.	Sun. after Trin.	Adv. Sund.
Mr. 22	1	Jan. 25	Feb. 4	Apr. 26	Apr. 30	May 10	Ma. 17	27	Nov 29
23	1	26	5	27	May 1	11	18	27	30
24	1	27	6	28	2	12	19	27	Dec. 1
25	2	28	7	29	3	13	20	27	2
26	2	29	8	30	4	14	21	27	3
27	2	30	9	May 1	5	15	22	26	Nov 27
28	2	31	10	2	6	16	23	26	28
29	2	Feb. 1	11	3	7	17	24	26	29
30	2	2	12	4	8	18	25	26	30
31	2	3	13	5	9	19	26	26	Dec. 1
Apr. 1	3	4	14	6	10	20	27	26	2
2	3	5	15	7	11	21	28	26	3
3	3	6	16	8	12	22	29	25	Nov 27
4	3	7	17	9	13	23	30	25	28
5	3	8	18	10	14	24	31	25	29
6	3	9	19	11	15	25	Jun 1	25	30
7	3	10	20	12	16	26	2	25	Dec. 1
8	4	11	21	13	17	27	3	25	2
9	4	12	22	14	18	28	4	25	3
10	4	13	23	15	19	29	5	24	Nov 27
11	4	14	24	16	20	30	6	24	28
12	4	15	25	17	21	31	7	24	29
13	4	16	26	18	22	Jun. 1	8	24	30
14	4	17	27	19	23	2	9	24	Dec. 1
15	5	18	28	20	24	3	10	24	2
16	5	19	Mar. 1	21	25	4	11	24	3
17	5	20	2	22	26	5	12	23	Nov 27
18	5	21	3	23	27	6	13	23	28
19	5	22	4	24	28	7	14	23	29
20	5	23	5	25	29	8	15	23	30
21	5	24	6	26	30	9	16	23	Dec. 1
22	6	25	7	27	31	10	17	23	2
23	6	26	8	28	Jun. 1	11	18	23	3
24	6	27	9	29	2	12	19	22	Nov 27
25	6	28	10	30	3	13	20	22	28

TABLE V. Of the moveable Terms and their Returns.

Easter Sunday	Easter Term begins	Easter Term ends	Their Returns or Essoin Days. 1 Quind Pasch	2 Tres Pasch	3 Mense Pasch	4 Quinq. Pasch	5 Crastin Pasch
Mar. 22	April 8	May 4	Apr. 6	Apr. 13	Apr. 20	Apr. 27	May 4
23	9	5	7	14	21	28	2
24	10	6	8	15	22	29	3
25	11	7	9	16	23	30	4
26	12	8	10	17	24	May 1	5
27	13	9	11	18	25	2	6
28	14	10	12	19	26	3	7
29	15	11	13	20	27	4	8
30	16	12	14	21	28	5	9
31	17	13	15	22	29	6	10
Apr. 1	18	14	16	23	30	7	11
2	19	15	17	24	May 1	8	12
3	20	16	18	25	2	9	13
4	21	17	19	26	3	10	14
5	22	18	20	27	4	11	15
6	23	19	21	28	5	12	16
7	24	20	22	29	6	13	17
8	25	21	23	30	7	14	18
9	26	22	24	May 1	8	15	19
10	27	23	25	2	9	16	20
11	28	24	26	3	10	17	21
12	29	25	27	4	11	18	22
13	30	26	28	5	12	19	23
14	31	27	29	6	13	20	24
15	May 1	28	30	7	14	21	25
16	2	29	May 1	8	15	22	26
17	3	30	2	9	16	23	27
18	4	31	3	10	17	24	28
19	5	June 1	4	11	18	25	29
20	6	2	5	12	19	26	30
21	7	3	6	13	20	27	31
22	8	4	7	14	21	28	June 1
23	9	5	8	15	22	29	2
24	10	6	9	16	23	30	3
25	11	7	10	17	24	31	4

Of the moveable Terms and their Returns.

Easter Sunday	Trinity Term begins	Trinity Term ends	Their Returns or Essoin Days. 1 Crast Trinity	2 Octab. Trinity	3 Quind Trinity	4 Tres Trinity
Mar. 22	May 22	June 10	May 18	May 25	June 1	June 8
23	Friday 23	Wedn. 11	Mond. 19	Mond. 26	Mond. 2	Mond. 9
24	24	12	20	27	3	10
25	25	13	21	28	4	11
26	26	14	22	29	5	12
27	27	15	23	30	6	13
28	28	16	24	31	7	14
29	29	17	25	June 1	8	15
30	30	18	26	2	9	16
31	31	19	27	3	10	17
Apr. 1	June 1	20	28	4	11	18
2	2	21	29	5	12	19
3	3	23	30	6	13	20
4	4	23	31	7	14	21
5	5	24	June 1	8	15	22
6	6	25	2	9	16	23
7	7	26	3	10	17	24
8	8	27	4	11	18	25
9	9	28	5	12	19	26
10	10	29	6	13	20	27
11	11	30	7	14	21	28
12	12	July 1	8	15	22	29
13	13	2	9	16	23	30
14	14	3	10	17	24	July 1
15	15	4	11	18	25	2
16	16	5	12	19	26	3
17	17	6	13	20	27	4
18	18	7	14	21	28	5
19	19	8	15	22	29	6
20	20	9	16	23	30	7
21	21	10	17	24	July 1	8
22	22	11	18	25	2	9
23	23	12	19	26	3	10
24	24	13	20	27	4	11
25	25	14	21	28	5	12

TABLE VI. Of the fixed Terms and their Returns.

HILLARY Term begins Janr. 23d, ends Feb. 12th. if not Sundays.

Returns or Essoin Days	Exception Days.	Return of Writ	Days of Appear.
1 Octabis Hillary Jan. 20	Jan. 21	Jan. 22	Jan. 23
2 Quindene Hillary Jan. 27	Jan. 28	Jan. 29	Jan. 30
3 Craftin's Purific. Feb. 3	Febr. 4	Feb. 5	Feb. 6
4 Octabis Purificat. Feb. 9	Febr. 10	Feb. 11	Feb. 12

Michaelmas Term begins Octr. 23d, ends Nov. 29. if not Sundays.

1 Tres Michael Octr. 20	Octr. 21	Oct. 22	Oct. 23
2 Mense Michael Oct. 27	Octr. 28	Oct. 29	Oct. 30
3 Craftin's Annim. Nov. 3	Nov. 4	Nov. 5	Nov. 6
4 Craftin's Marti. Nov. 12	Nov. 13	Nov. 14	Nov. 15
5 Octabis Martin Nov. 18	Nov. 19	Nov. 20	Nov. 22
6 Quind. Martin. Nov. 25	Nov. 26	Nov. 27	Nov. 29

IN SCOTLAND

Candlemas Term begins Jan. 23d. ends Feb. 12th.
Whitsuntide Term begins May 25th. ends June 15th.
Lammas Term begins July 20th. ends Aug. 8th.
Martinmas Term begins Nov. 3d. ends Nov. 28th.

TABLE VII. The Calander.

JANUARY 31. Number of the Month 0.

G	F	E	D	C	B	A	Day of the Mon.	Day of the Yr.	Sun rif. & Sett.	Remarks.
m	tu	w	th	fr	ſa	S	1	1	8 30 4	Circumciſ.
tu	w	th	fr	ſa	S	m	2	2	8 35 4	S.ſlo. 4'49"
w	th	fr	ſa	S	m	tu	3	3	8 35 4	
th	fr	ſa	S	m	tu	w	4	4	8 34 4	
fr	ſa	S	m	tu	w	th	5	5	8 34 4	6' 11"
ſa	S	m	tu	w	th	fr	6	6	8 33 4	Epiphany.
S	m	tu	w	th	fr	ſa	7	7	8 32 4	7' 28"
m	tu	w	th	fr	ſa	S	8	8	8 31 4	Lu.P &M.
tu	w	th	fr	ſa	S	m	9	9	8 29 4	Caſtor.
w	th	fr	ſa	S	m	tu	10	10	8 27 4	Pollux.
th	fr	ſa	S	m	tu	w	11	11	8 26 4	8' 40"
fr	ſa	S	m	tu	w	th	12	12	8 24 4	
ſa	S	m	tu	w	th	fr	13	13	8 22 4	Hill.B.&C.
S	m	tu	w	th	fr	ſa	14	14	8 21 4	9' 48"
m	tu	w	th	fr	ſa	S	15	15	8 19 4	
tu	w	th	fr	ſa	S	m	16	16	8 18 4	
w	th	fr	ſa	S	m	tu	17	17	8 16 4	10' 49"
th	fr	ſa	S	m	tu	w	18	18	8 14 4	
fr	ſa	S	m	tu	w	th	19	19	8 12 4	
ſa	S	m	tu	w	th	fr	20	20	8 11 4	S. in Aqua.
S	m	tu	w	th	fr	ſa	21	21	8 9 4	12' 0"
m	tu	w	th	fr	ſa	S	22	22	8 7 4	Vinc. Ma.
tu	w	th	fr	ſa	S	m	23	23	8 5 4	
w	th	fr	ſa	S	m	tu	24	24	8 3 4	
th	fr	ſa	S	m	tu	w	25	25	8 1 4	C. of S. Pa.
fr	ſa	S	m	tu	w	th	26	26	7 59 5	13' 11"
ſa	S	m	tu	w	th	fr	27	27	7 57 5	
S	m	tu	w	th	fr	ſa	28	28	7 56 5	
m	tu	w	th	fr	ſa	S	29	29	7 54 5	
tu	w	th	fr	ſa	S	m	30	30	7 52 5	K. Ch. M.
w	th	fr	ſa	S	m	tu	31	31	7 50 5	14' 2"

FEBRUARY 28. Num. of the Month 2.

G	F	E	D	C	B	A	Day Mon.	Day Year.	S. rising & sett.			Remarks.
th	fr	sa	S	m	tu	w	1	32	7	48	5	S.slo. 14' 10"
fr	sa	S	m	tu	w	th	2	33	7	46	5	Purif. Mary
sa	S	m	tu	w	th	fr	3	34	7	44	5	Ex. Term
S	m	tu	w	th	fr	sa	4	35	7	41	5	begins
m	tu	w	th	fr	sa	S	5	36	7	39	5	14' 33"
tu	w	th	fr	sa	S	m	6	37	7	37	5	
w	th	fr	sa	S	m	tu	7	38	7	34	5	
th	fr	sa	S	m	tu	w	8	39	7	32	5	
fr	sa	S	m	tu	w	th	9	40	7	30	5	
sa	S	m	tu	w	th	fr	10	41	7	28	5	14' 43"
S	m	tu	w	th	fr	sa	11	42	7	25	5	
m	tu	w	th	fr	sa	S	12	43	7	23	5	
tu	w	th	fr	sa	S	m	13	44	7	21	5	Lions heart
w	th	fr	sa	S	m	tu	14	45	7	18	5	Valentine
th	fr	sa	S	m	tu	w	15	46	7	16	5	14' 34"
fr	sa	S	m	tu	w	th	16	47	7	14	5	Lions neck
sa	S	m	tu	w	th	fr	17	48	7	12	5	
S	m	tu	w	th	fr	sa	18	49	7	10	5	Su. in Pisces
m	tu	w	th	fr	sa	S	19	50	7	7	5	
tu	w	th	fr	sa	S	m	20	51	7	5	5	
w	th	fr	sa	S	m	tu	21	52	7	2	5	14' 0"
th	fr	sa	S	m	tu	w	22	53	7		5	
fr	sa	S	m	tu	w	th	23	54	6	58	6	Ex.term en.
sa	S	m	tu	w	th	fr	24	55	6	56	6	St. Matthias
S	m	tu	w	th	fr	sa	25	56	6	53	6	13' 13"
m	tu	w	th	fr	sa	S	26	57	6	51	6	lo of 2 fore-
tu	w	th	fr	sa	S	m	27	58	6	48	6	m. squa. of
w	th	fr	sa	S	m	tu	28	59	6	46	6	the Gr bear.
th	fr	sa	S	m	tu	w	29	60	6	44	6	Leap-Year.
												13' 0"

March 31. Numb. of the Month 1.

G	F	E	D	C	B	A	Day Mon.	Day Year.	S. rising & sett.	Remarks.
th	fr	sa	S	m	tu	w	1	60	6 43 6	David Arch.
fr	sa	S	m	tu	w	th	2	61	6 40 6	of M.
sa	S	m	tu	w	th	fr	3	62	6 38 6	S.flow 2' 26"
S	m	tu	w	th	fr	sa	4	63	6 36 6	
m	tu	w	th	fr	sa	S	5	64	6 34 6	
tu	w	th	fr	sa	S	m	6	65	6 32 6	11' 31"
w	th	fr	sa	S	m	tu	7	66	6 30 6	
th	fr	sa	S	m	tu	w	8	67	6 28 6	
fr	sa	S	m	tu	w	th	9	68	6 26 6	
sa	S	m	tu	w	th	fr	10	69	6 24 6	Sef.rif. 10'29"
S	m	tu	w	th	fr	sa	11	70	6 22 6	9' 0"
m	tu	w	th	fr	sa	S	12	71	6 20 6	Lyon's Tail
tu	w	th	fr	sa	S	m	13	72	6 18 6	Lower of the
w	th	fr	sa	S	m	tu	14	73	6 15 6	two latt. squ.
th	fr	sa	S	m	tu	w	15	74	6 13 6	of Gr. Bear.
fr	sa	S	m	tu	w	th	16	75	6 10 6	8' 0"
sa	S	m	tu	w	th	fr	17	76	6 8 6	St. Patrick
S	m	tu	w	th	fr	sa	18	77	6 5 6	
m	tu	w	th	fr	sa	S	19	78	6 3 6	
tu	w	th	fr	sa	S	m	20	79	6 6	Sun in Aries
w	th	fr	sa	S	m	tu	21	80	5 57 7	Upp of 2 lett.
th	fr	sa	S	m	tu	w	22	81	5 55 7	squ. of G. Bear
fr	sa	S	m	tu	w	th	23	82	5 53 7	7' 0"
sa	S	m	tu	w	th	fr	24	83	5 50 7	
S	m	tu	w	th	fr	sa	25	84	5 48 7	Lady Day.
m	tu	w	th	fr	sa	S	26	85	5 46 7	5' 44"
tu	w	th	fr	sa	S	m	27	86	5 43 7	
w	th	fr	sa	S	m	tu	28	87	5 40 7	
th	fr	sa	S	m	tu	w	29	88	5 38 7	
fr	sa	S	m	tu	w	th	30	89	5 35 7	
sa	S	m	tu	w	th	fr	31	90	5 33 7	4' 10"

April 30. Numb. of the Month 2.

G	F	E	D	C	B	A	Day Mon.	Day Year	Sun ris. & sett.	Remarks.
S	m	tu	w	th	fr	sa	1	91	5 30 7	Last but 2 in
m	tu	w	th	fr	sa	S	2	92	5 27 7	gr. Bear's tail
tu	w	th	fr	sa	S	m	3	93	5 25 7	Sun slo. 3' 15"
w	th	fr	sa	S	m	tu	4	94	5 23 7	
th	fr	sa	S	m	tu	w	5	95	5 21 7	
fr	sa	S	m	tu	w	th	6	96	5 19 7	
sa	S	m	tu	w	th	fr	7	97	5 17 7	Virgins Spike
S	m	tu	w	th	fr	sa	8	98	5 15 7	1' 47"
m	tu	w	th	fr	sa	S	9	99	5 13 7	Last but 1 in
tu	w	th	fr	sa	S	m	10	100	5 11 7	gr. Bear's tail
w	th	fr	sa	S	m	tu	11	101	5 8 7	
th	fr	sa	S	m	tu	w	12	102	5 6 7	
fr	sa	S	m	tu	w	th	13	103	5 3 7	Sun fast 0' 0"
sa	S	m	tu	w	th	fr	14	104	5 1 7	Last in Great
S	m	tu	w	th	fr	sa	15	105	4 59 8	Bear's Tail
m	tu	w	th	fr	sa	S	16	106	4 57 8	
tu	w	th	fr	sa	S	m	17	107	4 55 8	
w	th	fr	sa	S	m	tu	18	108	4 53 8	
th	fr	sa	S	m	tu	w	19	109	4 51 8	1' 0'
fr	sa	S	m	tu	w	th	20	110	4 48 8	Sun in Taurus
sa	S	m	tu	w	th	fr	21	111	4 46 8	
S	m	tu	w	th	fr	sa	22	112	4 44 8	Dragon's tail
m	tu	w	th	fr	sa	S	23	113	4 42 8	St. George
tu	w	th	fr	sa	S	m	24	114	4 40 8	Arcturus
w	th	fr	sa	S	m	tu	25	115	4 38 8	St. Mark
th	fr	sa	S	m	tu	w	26	116	4 35 8	2' 27"
fr	sa	S	m	tu	w	th	27	117	4 33 8	
sa	S	m	tu	w	th	fr	28	118	4 31 8	
S	m	tu	w	th	fr	sa	29	119	4 29 8	
m	tu	w	th	fr	sa	S	30	120	4 17 8	3' 0"

May 31. Number of the Month 3.

G	F	E	D	C	B	A	Day Mon.	Day Year.	Sun Rif & Sett.	Remarks.
tu	w	th	fr	ſa	S	m	1	121	4 25 8	Phil. & Jac.
w	th	fr	ſa	S	m	tu	2	122	4 23 8	Sun faſt 3' 19"
th	fr	ſa	S	m	tu	w	3	123	4 21 8	Inv. of Croſs
fr	ſa	S	m	tu	w	th	4	124	4 19 8	
ſa	S	m	tu	w	th	fr	5	125	4 17 8	3' 43"
S	m	tu	w	th	fr	ſa	6	126	4 15 8	St. John P.L.
m	tu	w	th	fr	ſa	S	7	127	4 13 8	Upper of two
tu	w	th	fr	ſa	S	m	8	128	4 11 8	forem. in ſqu.
w	th	fr	ſa	S	m	tu	9	129	4 9 8	of Lit. Bear.
th	fr	ſa	S	m	tu	w	10	130	4 7 8	4' 0"
fr	ſa	S	m	tu	w	th	11	131	4 5 8	N. ſcale of lib.
ſa	S	m	tu	w	th	fr	12	132	4 3 8	
S	m	tu	w	th	fr	ſa	13	133	4 1 8	
m	tu	w	th	fr	ſa	S	14	134	3 59 9	Bri. in Crown
tu	w	th	fr	ſa	S	m	15	135	3 57 9	Br. Serp. neck
w	th	fr	ſa	S	m	tu	16	136	3 55 9	4' 3"
th	fr	ſa	S	m	tu	w	17	137	3 53 9	
fr	ſa	S	m	tu	w	th	18	138	3 52 9	
ſa	S	m	tu	w	th	fr	19	139	3 50 9	St. Dunſtan.
S	m	tu	w	th	fr	ſa	20	140	3 49 9	Sco. forehead
m	tu	w	th	fr	ſa	S	21	141	3 48 9	Sun in Gem.
tu	w	th	fr	ſa	S	m	22	142	3 46 9	3' 48"
w	th	fr	ſa	S	m	tu	23	143	3 45 9	
th	fr	ſa	S	m	tu	w	24	144	3 44 9	
fr	ſa	S	m	tu	w	th	25	145	3 42 9	Scorp. heart
ſa	S	m	tu	w	th	fr	26	146	3 41 9	St. Auguſtine
S	m	tu	w	th	fr	ſa	27	147	3 39 9	
m	tu	w	th	fr	ſa	S	28	148	3 38 9	
tu	w	th	fr	ſa	S	m	29	149	3 36 9	K. Ch. II. Bo.
w	th	fr	ſa	S	m	tu	30	150	3 35 9	and Reſtor.
th	fr	ſa	S	m	tu	w	31	151	3 33 9	2' 50"

JUNE 30. Number of the Month 4.

G	F	E	D	C	B	A	Day Mon.	Day Year	Sun Rif. & Sett.	Remarks.
fr	ſa	S	m	tu	w	th	1	152	3 32 9	S. fall 2' 41"
ſa	S	m	tu	w	th	fr	2	153	3 30 9	
S	m	tu	w	th	fr	ſa	3	154	3 29 9	
m	tu	w	th	fr	ſa	S	4	155	3 28 9	
tu	w	th	fr	ſa	S	m	5	156	3 27 9	2' 13"
w	th	fr	ſa	S	m	tu	6	157	3 26 9	
th	fr	ſa	S	m	tu	w	7	158	3 25 9	
fr	ſa	S	m	tu	w	th	8	159	3 24 9	
ſa	S	m	tu	w	th	fr	9	160	3 23 9	
S	m	tu	w	th	fr	ſa	10	161	3 23 9	1' 0"
m	tu	w	th	fr	ſa	S	11	162	3 22 9	St. Barn. Ap.
tu	w	th	fr	ſa	S	m	12	163	3 22 9	Sef. ſits down
w	th	fr	ſa	S	m	tu	13	164	3 22 9	Ex. Ter. beg.
th	fr	ſa	S	m	tu	w	14	165	3 21 9	
fr	ſa	S	m	tu	w	th	15	166	3 21 9	
ſa	S	m	tu	w	th	fr	16	167	3 21 9	S. ſlow 0' 0'
S	m	tu	w	th	fr	ſa	17	168	3 20 9	
m	tu	w	th	fr	ſa	S	18	169	3 20 9	
tu	w	th	fr	ſa	S	m	19	170	3 20 9	
w	th	fr	ſa	S	m	tu	20	171	3 20 9	1' 0"
th	fr	ſa	S	m	tu	w	21	172	3 20 9	S. in Cancer.
fr	ſa	S	m	tu	w	th	22	173	3 20 9	
ſa	S	m	tu	w	th	fr	23	174	3 20 9	
S	m	tu	w	th	fr	ſa	24	175	3 20 9	John Baptiſt.
m	tu	w	th	fr	ſa	S	25	176	3 20 9	2' 0"
tu	w	th	fr	ſa	S	m	26	177	3 20 9	
w	th	fr	ſa	S	m	tu	27	178	3 21 9	2' 27"
th	fr	ſa	S	m	tu	w	28	179	3 21 9	Bright. in the
fr	ſa	S	m	tu	w	th	29	180	3 22 9	Harp. St. Pet.
ſa	S	m	tu	w	th	fr	30	181	3 22 9	3' 0"

JULY 31. Number of the Month 5.

G	F	E	D	C	B	A	Day Mon.	Day Year.	Sun Rif. & Sett.			Remarks.
S	m	tu	w	th	fr	fa	1	182	3	22	9	S. flow 3' 14"
m	tu	w	th	fr	fa	S	2	183	3	22	9	
tu	w	th	fr	fa	S	m	3	184	3	23	9	Ex. Ter. ends
w	th	fr	fa	S	m	tu	4	185	3	23	9	
th	fr	fa	S	m	tu	w	5	186	3	24	9	3' 58"
fr	fa	S	m	tu	w	th	6	187	3	25	9	
fa	S	m	tu	w	th	fr	7	188	3	26	9	
S	m	tu	w	th	fr	fa	8	189	3	27	9	
m	tu	w	th	fr	fa	S	9	190	3	28	9	
tu	w	th	fr	fa	S	m	10	191	3	30	9	4' 45"
w	th	fr	fa	S	m	tu	11	192	3	31	9	
th	fr	fa	S	m	tu	w	12	193	3	32	9	
fr	fa	S	m	tu	w	th	13	194	3	33	9	
fa	S	m	tu	w	th	fr	14	195	3	34	9	5' 15"
S	m	tu	w	th	fr	fa	15	196	3	36	9	Swithen
m	tu	w	th	fr	fa	S	16	197	3	37	9	
tu	w	th	fr	fa	S	m	17	198	3	39	9	
w	th	fr	fa	S	m	tu	18	199	3	40	9	Ex. Ter. beg.
th	fr	fa	S	m	tu	w	19	200	3	42	9	
fr	fa	S	m	tu	w	th	20	201	3	43	9	5' 46"
fa	S	m	tu	w	th	fr	21	202	3	45	9	
S	m	tu	w	th	fr	fa	22	203	3	47	9	
m	tu	w	th	fr	fa	S	23	204	3	48	9	Sun in Leo.
tu	w	th	fr	fa	S	m	24	205	3	50	9	5' 55"
w	th	fr	fa	S	m	tu	25	206	3	52	9	James Apoſt.
th	fr	fa	S	m	tu	w	26	207	3	54	9	
fr	fa	S	m	tu	w	th	27	208	3	56	9	
fa	S	m	tu	w	th	fr	28	209	3	58	9	
S	m	tu	w	th	fr	fa	29	210	4		8	Swan's Tail.
m	tu	w	th	fr	fa	S	30	211	4	2	8	Dogsdays be.
tu	w	th	fr	fa	S	m	31	212	4	4	8	5' 49"

AUGUST 31. Numb. of the Month 6.

G	F	E	D	C	B	A	Day Mon.	Day Year.	Sun Rif. & Sett.			Remarks.
w	th	fr	ſa	S	m	tu	1	213	4	5	8	Lammas
th	fr	ſa	S	m	tu	w	2	214	4	7	8	S. flow 5' 42"
fr	ſa	S	m	tu	w	th	3	215	4	8	8	
ſa	S	m	tu	w	th	fr	4	216	4	10	8	
S	m	tu	w	th	fr	ſa	5	217	4	11	8	5' 27"
m	tu	w	th	fr	ſa	S	6	218	4	12	8	Ex. term ends
tu	w	th	fr	ſa	S	m	7	219	4	14	8	
w	th	fr	ſa	S	m	tu	8	220	4	17	8	
th	fr	ſa	S	m	tu	w	9	221	4	19	8	
fr	ſa	S	m	tu	w	th	10	222	4	22	8	4' 50"
ſa	S	m	tu	w	th	fr	11	223	4	24	8	Seſſion riſes
S	m	tu	w	th	fr	ſa	12	224	4	27	8	
m	tu	w	th	fr	ſa	S	13	225	4	29	8	
tu	w	th	fr	ſa	S	m	14	226	4	31	8	
w	th	fr	ſa	S	m	tu	15	227	4	34	8	3' 59"
th	fr	ſa	S	m	tu	w	16	228	4	36	8	
fr	ſa	S	m	tu	w	th	17	229	4	38	8	
ſa	S	m	tu	w	th	fr	18	230	4	41	8	
S	m	tu	w	th	fr	ſa	19	231	4	43	8	
m	tu	w	th	fr	ſa	S	20	232	4	45	8	2' 55"
tu	w	th	fr	ſa	S	m	21	233	4	47	8	
w	th	fr	ſa	S	m	tu	22	234	4	49	8	
th	fr	ſa	S	m	tu	w	23	235	4	51	8	Sun in Virgo
fr	ſa	S	m	tu	w	th	24	236	4	53	8	Barthol. Ap.
ſa	S	m	tu	w	th	fr	25	237	4	54	8	1' 39"
S	m	tu	w	th	fr	ſa	26	238	4	56	8	
m	tu	w	th	fr	ſa	S	27	239	4	58	8	
tu	w	th	fr	ſa	S	m	28	240	5		7	
w	th	fr	ſa	S	m	tu	29	241	5	3	7	S. John beh.
th	fr	ſa	S	m	tu	w	30	242	5	5	7	
fr	ſa	S	m	tu	w	th	31	243	5	8	7	Sun faſt 0' 0"

SEPTEMBER 30. Num. of the Month 8.

G	F	E	D	C	B	A	Day Mon.	Day Year	Sun Ris. & Sett.			Remarks.
ſa	S	m	tu	w	th	fr	1	244	5	11	7	Fome haut.
S	m	tu	w	th	fr	ſa	2	245	5	13	7	L. Burnt 1666
m	tu	w	th	fr	ſa	S	3	246	5	16	7	S. faſt 1' 1"
tu	w	th	fr	ſa	S	m	4	247	5	18	7	Firſt in Pegaſ.
w	th	fr	ſa	S	m	tu	5	248	5	21	7	wing 1' 39"
th	fr	ſa	S	m	tu	w	6	249	5	23	7	
fr	ſa	S	m	tu	w	th	7	250	5	25	7	Dog's Days
ſa	S	m	tu	w	th	fr	8	251	5	27	7	end
S	m	tu	w	th	fr	ſa	9	252	5	29	7	
m	tu	w	th	fr	ſa	S	10	253	5	31	7	3' 20"
tu	w	th	fr	ſa	S	m	11	254	5	33	7	
w	th	fr	ſa	S	m	tu	12	255	5	35	7	
th	fr	ſa	S	m	tu	w	13	256	5	38	7	Holy Rood
fr	ſa	S	m	tu	w	th	14	257	5	40	7	
ſa	S	m	tu	w	th	fr	15	258	5	43	7	5' 4"
S	m	tu	w	th	fr	ſa	16	259	5	45	7	
m	tu	w	th	fr	ſa	S	17	260	5	48	7	
tu	w	th	fr	ſa	S	m	18	261	5	50	7	
w	th	fr	ſa	S	m	tu	19	262	5	53	7	
th	fr	ſa	S	m	tu	w	20	263	5	55	7	6' 48"
fr	ſa	S	m	tu	w	th	21	264	5	58	7	Matthew Ev.
ſa	S	m	tu	w	th	fr	22	265	6		6	Andro. head
S	m	tu	w	th	fr	ſa	23	266	6	3	6	Sun in Libra
m	tu	w	th	fr	ſa	S	24	267	6	5	6	
tu	w	th	fr	ſa	S	m	25	268	6	7	6	8' 30"
w	th	fr	ſa	S	m	tu	26	269	6	9	6	End of Pegaſ.
th	fr	ſa	S	m	tu	w	27	270	6	11	6	wing
fr	ſa	S	m	tu	w	th	28	271	6	13	6	
ſa	S	m	tu	w	th	fr	29	272	6	15	6	St, Michael
S	m	tu	w	th	fr	ſa	30	273	6	17	6	10' 8"

October 31. Number of the Month 8.

G	F	E	D	C	B	A	Day Mon.	Day Year.	Sun Rif & Sett.	Remarks.
m	tu	w	th	fr	ſa	S	1	274	6 19 6	S. ſalt 10' 27"
tu	w	th	fr	ſa	S	m	2	275	6 21 6	
w	th	fr	ſa	S	m	tu	3	276	6 23 6	
th	fr	ſa	S	m	tu	w	4	277	6 25 6	Pole-ſtar
fr	ſa	S	m	tu	w	th	5	278	6 28 6	11' 39"
ſa	S	m	tu	w	th	fr	6	279	6 30 6	Southermoſt
S	m	tu	w	th	fr	ſa	7	280	6 33 6	in Androme-
m	tu	w	th	fr	ſa	S	8	281	6 35 6	das Girdle.
tu	w	th	fr	ſa	S	m	9	282	6 37 6	S. Den. Areo.
w	th	fr	ſa	S	m	tu	10	283	6 40 6	13' 1"
th	fr	ſa	S	m	tu	w	11	284	6 42 6	
fr	ſa	S	m	tu	w	th	12	285	6 44 6	
ſa	S	m	tu	w	th	fr	13	286	6 47 6	
S	m	tu	w	th	fr	ſa	14	287	6 49 6	
m	tu	w	th	fr	ſa	S	15	288	6 51 6	14' 11"
tu	w	th	fr	ſa	S	m	16	289	6 54 6	
w	th	fr	ſa	S	m	tu	17	290	6 55 6	
th	fr	ſa	S	m	tu	w	18	291	6 58 6	Luke Evan.
fr	ſa	S	m	tu	w	th	19	292	7 5	
ſa	S	m	tu	w	th	fr	20	293	7 3 5	15' 6"
S	m	tu	w	th	fr	ſa	21	294	7 5 5	Andromedas
m	tu	w	th	fr	ſa	S	22	295	7 8 5	Souther. ſoot
tu	w	th	fr	ſa	S	m	23	296	7 10 5	Sun in Scorp.
w	th	fr	ſa	S	m	tu	24	297	7 12 5	
th	fr	ſa	S	m	tu	w	25	298	7 14 5	S. Criſp. 15'45
fr	ſa	S	m	tu	w	th	26	299	7 16 5	
ſa	S	m	tu	w	th	fr	27	300	7 18 5	
S	m	tu	w	th	fr	ſa	28	301	7 21 5	Simon & Jude
m	tu	w	th	fr	ſa	S	29	302	7 23 5	
tu	w	th	fr	ſa	S	m	30	303	7 25 5	
w	th	fr	ſa	S	m	tu	31	304	7 27 5	16' 8"

NOVEMBER 30. Num. of the Month 10.

G	F	E	D	C	B	A	Day Mon.	Day Year.	S. rising & sett.	Remarks.
th	fr	sa	S	m	tu	w	1	305	7 30 5	All Saints
fr	sa	S	m	tu	w	th	2	306	7 32 5	
sa	S	m	tu	w	th	fr	3	307	7 34 5	S.fast 16'9"
S	m	tu	w	th	fr	sa	4	308	7 36 5	K. Wil. nat.
m	tu	w	th	fr	sa	S	5	309	7 38 5	Powd. plot
tu	w	th	fr	sa	S	m	6	310	7 40 5	16' 3"
w	th	fr	sa	S	m	tu	7	311	7 42 5	
th	fr	sa	S	m	tu	w	8	312	7 44 5	
fr	sa	S	m	tu	w	th	9	313	7 46 5	
sa	S	m	tu	w	th	fr	10	314	7 48 5	15' 42"
S	m	tu	w	th	fr	sa	11	315	7 50 5	Martin. B.
m	tu	w	th	fr	sa	S	12	316	7 52 5	Ex. term be.
tu	w	th	fr	sa	S	m	13	317	7 54 5	Sef. sits down
w	th	fr	sa	S	m	tu	14	318	7 56 5	
th	fr	sa	S	m	tu	w	15	319	7 58 5	14' 59"
fr	sa	S	m	tu	w	th	16	320	8 4	
sa	S	m	tu	w	th	fr	17	321	8 2 4	
S	m	tu	w	th	fr	sa	18	322	8 4 4	
m	tu	w	th	fr	sa	S	19	323	8 6 4	
tu	w	th	fr	sa	S	m	20	324	8 7 4	13' 53"
w	th	fr	sa	S	m	tu	21	325	8 9 4	Brightest of
th	fr	sa	S	m	tu	w	22	326	8 11 4	the 7 Stars.
fr	sa	S	m	tu	w	th	23	327	8 13 4	Su. in Sagit.
sa	S	m	tu	w	th	fr	24	328	8 14 4	
S	m	tu	w	th	fr	sa	25	329	8 16 4	12' 28"
m	tu	w	th	fr	sa	S	26	330	8 17 4	
tu	w	th	fr	sa	S	m	27	331	8 19 4	Alde baran.
w	th	fr	sa	S	m	tu	28	332	8 20 4	
th	fr	sa	S	m	tu	w	29	333	8 22 4	11' 7"
fr	sa	S	m	tu	w	th	30	334	8 23 4	Andrew Ap.

DECEMBER 31. Num. of the Month 10.

G	F	E	D	C	B	A	Day Mon.	Day Year.	Sun Rif. & Set.	Remarks.
ſa	S	m	tu	w	th	fr	1	335	8 25 4	S. ſtat 10' 22"
S	m	tu	w	th	fr	ſa	2	336	8 26 4	
m	tu	w	th	fr	ſa	S	3	337	8 27 4	
tu	w	th	fr	ſa	S	m	4	338	8 29 4	
w	th	fr	ſa	S	m	tu	5	339	8 30 4	8' 45"
th	fr	ſa	S	m	tu	w	6	340	8 31 4	
fr	ſa	S	m	tu	w	th	7	341	8 32 4	
ſa	S	m	tu	w	th	fr	8	342	8 33 4	
S	m	tu	w	th	fr	ſa	9	343	8 34 4	Ex. Ter. ends
m	tu	w	th	fr	ſa	S	10	344	8 35 4	6' 32"
tu	w	th	fr	ſa	S	m	11	345	8 36 4	
w	th	fr	ſa	S	m	tu	12	346	8 37 4	1ſt in Orion's
th	fr	ſa	S	m	tu	w	13	347	8 38 4	Belt
fr	ſa	S	m	tu	w	th	14	348	8 38 4	Laſt in Do
ſa	S	m	tu	w	th	fr	15	349	8 39 4	4' 9"
S	m	tu	w	th	fr	ſa	16	350	8 39 4	Orion's right
m	tu	w	th	fr	ſa	S	17	351	8 39 4	Shoulder
tu	w	th	fr	ſa	S	m	18	352	8 39 4	Aurig's Do
w	th	fr	ſa	S	m	tu	19	353	8 40 4	
th	fr	ſa	S	m	tu	w	20	354	8 40 4	1' 41"
fr	ſa	S	m	tu	w	th	21	355	8 40 4	Thomas Ap.
ſa	S	m	tu	w	th	fr	22	356	8 40 4	S. in Capri. &
S	m	tu	w	th	fr	ſa	23	357	8 40 4	ſhorteſt Day
m	tu	w	th	fr	ſa	S	24	358	8 40 4	Foot Gr. Dog
tu	w	th	fr	ſa	S	m	25	359	8 40 4	Nativ. Chriſt
w	th	fr	ſa	S	m	tu	26	360	8 40 4	St. Stephen
th	fr	ſa	S	m	tu	w	27	361	8 39 4	St. John Ev.
fr	ſa	S	m	tu	w	th	28	362	8 39 4	Innocents
ſa	S	m	tu	w	th	fr	29	363	8 38 4	
S	m	tu	w	th	fr	ſa	30	364	8 37 4	Syrius
m	tu	w	th	fr	ſa	S	31	365	8 36 4	S. ſlow 3' 45"

TABLE VIII. Of the Tides.

This TABLE ſhews how many Hours and Minutes, after the Moon's Southing, makes High Water at the following Places.

Day of the M's. age.	Hours and Minutes of her Southing.	
1	12	48
2	1	36
3	2	24
4	3	12
5	4	0
6	4	48
7	5	36
8	6	24
9	7	12
10	8	0
11	8	48
12	9	36
13	10	24
14	11	12
15	12	0
16	12	48
17	1	36
18	2	24
19	3	12
20	4	0
21	4	48
22	5	36
23	6	24
24	7	12
25	8	0
26	8	48
27	9	36
28	10	24
29	11	12
30	12	0

	h.	m.
Aberdeen	0	45
Air	11	0
St. Andrews	2	15
Amſterdam	3	0
Banff	0	0
Baltimore	4	30
Beachy	0	0
Berwick	3	45
Blackneſs	1	30
Bourdeaux	3	45
Breſt	3	45
Bridgewater	7	30
Briſtol	6	45
Calais	11	15
Calſhot	11	15
Cork	4	30
Cromarty	0	0
St. David	6	0
Dartmouth	5	15
Dover	10	30
Downs	1	30
Dublin	8	15
Dumbarton	2	0
Dunbar	9	0
Dundee	1	30
Falmouth	5	15
Findorn	0	0
Fluſhing	0	45
N. Foreland	9	45
S. Foreland	9	45
Foulneſs	6	45
Glaſgow	2	0
Graveſend	1	30
Greenock	0	0
Hamburgh	3	45
Harwich	10	30
Hull	6	0
Humber	5	15
Inverneſs	0	0

	h.	m.
Irvine	11	20
Kinſale	4	30
Landſend	7	30
Leith	0	45
Lime	6	0
Liſbon	2	15
London	3	0
Malden	2	15
Man Iſle	9	0
Manlochy	0	0
Milford Haven	7	30
Montroſe	1	30
Newburgh	0	0
Newcaſtle	5	15
N. Port Glaſgow	0	0
Orfordneſs	9	45
Oſtend	3	45
Paiſley	2	0
Peterhead	0	0
Plymouth	6	0
Pool	9	0
Portland	8	15
Portſmouth	0	0
Quinborough	0	0
Rocheſter	0	45
Roterdam	3	0
Severn	4	30
Southampton	0	0
Spey	0	0
Spithead	0	0
Star-point	6	45
Stonehive	0	45
Tinmouth	3	0
Torbay	6	0
Weymouth	6	0
Whitby	3	0
Winchelſea	11	15
Yarmouth	10	30

TABLE IX. Of the mean New Moons, &c.

Julian Years	First N. Moon in January.			Suns Anomaly.			Moons Anomaly.			S. distance fr. the lunar nod		
	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.
1696	24	2	50	7	5	39	5	25	48	2	10	20
97	12	11	39	6	24	55	4	5	36	2	18	23
98	1	20	27	6	14	11	2	15	24	2	26	26
99	20	18	0	7	2	33	1	21	1	4	5	9
1700	10	2	49	6	21	49	0	0	50	4	13	12
1701	28	0	21	7	10	11	11	6	27	5	21	55
2	17	9	10	6	29	27	9	16	15	5	29	57
3	6	17	59	6	18	43	7	26	3	6	8	0
4	25	15	31	7	7	5	7	1	40	7	16	43
5	14	0	20	6	26	21	5	11	28	7	24	46
1706	3	9	8	6	15	37	3	21	16	8	2	49
7	22	6	41	7	3	59	2	26	53	9	11	32
8	11	15	30	6	23	15	1	6	41	9	19	35
9	29	13	2	7	11	37	0	12	18	10	28	18
10	18	21	51	7	0	53	10	22	6	11	6	20
1711	8	6	40	6	20	9	9	1	55	11	14	23
12	27	4	12	7	8	31	8	7	32	0	23	6
13	15	13	1	6	27	47	6	17	20	1	1	9
14	4	21	49	6	17	3	4	27	8	1	9	12
15	23	19	22	7	5	25	4	2	45	2	17	55
1716	13	4	10	6	24	41	2	12	33	2	25	58
17	1	12	59	6	13	57	0	22	21	3	4	9
18	20	10	32	7	2	19	11	27	58	4	12	43
19	9	19	21	6	21	35	10	7	46	4	20	46
20	28	16	53	7	9	57	9	13	23	5	29	39
1721	17	1	42	6	29	13	7	23	11	6	7	32
22	6	10	31	6	18	29	6	3	0	6	15	35
23	25	8	3	7	6	51	5	8	37	7	24	18
24	14	16	52	6	26	7	3	18	25	8	2	21
25	3	1	40	6	15	23	1	28	13	8	10	23
1726	21	23	13	7	3	45	1	3	50	9	19	6
27	11	8	2	6	23	1	11	13	38	9	27	9
28	0	16	50	6	12	17	9	23	26	10	5	12
29	18	14	23	7	0	39	8	29	3	11	13	55
30	7	23	12	6	19	55	7	8	51	11	21	58

Mean New Moons, &c.

Julian Years	First N. Moon in January.			Suns Anomaly.			Moons Anomaly.			S. distance fr. the lunar nod		
	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.
1731	26	20	44	7	8	17	6	14	28	1	0	41
32	16	5	33	6	27	33	4	24	16	1	8	44
33	4	14	21	6	16	49	3	4	5	1	16	46
34	23	11	54	7	5	11	2	9	42	2	25	29
35	12	20	43	6	24	27	0	19	30	3	3	32
1736	2	5	31	6	13	43	10	29	18	3	11	35
37	20	3	4	7	2	5	10	4	55	4	20	18
38	9	11	53	6	21	21	8	14	43	4	28	21
39	28	9	25	7	9	43	7	20	20	6	7	4
40	17	18	14	6	28	59	6	0	8	6	15	7
1741	6	3	2	6	18	15	4	9	56	6	23	9
42	25	0	35	7	6	37	3	15	33	8	1	52
43	14	9	24	6	25	53	1	25	21	8	9	55
44	3	18	12	6	15	9	0	5	10	8	17	58
45	21	15	45	7	3	31	11	10	47	9	16	41
1746	11	0	34	6	22	47	9	20	35	10	4	44
47	29	22	6	7	11	9	8	26	12	11	13	27
48	19	6	55	7	0	25	7	6	[illegible]	11	21	30
49	7	15	44	6	19	41	5	15	48	11	29	32
50	26	13	16	7	8	3	4	21	25	1	8	15
1751	15	22	5	6	27	19	3	1	13	1	16	18
52	5	6	53	6	16	35	1	11	1	1	24	21
53	23	4	26	7	4	57	0	16	38	3	3	4
54	12	13	15	6	24	13	10	26	26	3	11	7
55	1	22	3	6	13	29	9	6	15	3	19	10
1756	20	19	36	7	1	51	8	11	52	4	27	53
57	9	4	25	6	21	7	6	21	40	5	5	55
58	28	1	57	7	4	29	5	27	17	6	14	33
59	17	10	46	6	28	45	4	7	5	6	22	41
60	6	19	34	6	18	1	2	16	52	7	0	44
1761	24	17	7	7	6	23	1	22	30	8	9	27
62	14	1	56	6	25	39	0	2	18	8	17	30
63	3	10	44	6	14	54	10	12	[illegible]	8	25	33
64	22	8	17	7	3	17	9	17	43	10	4	16
65	10	17	6	6	22	33	7	27	31	10	12	18

Mean New Moons, &c.

Julian Years	First N. Moon in January.			Suns Anomaly.			Moons Anomaly.			S. distance fr. the lunar nod		
	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.
1766	29	14	38	7	10	55	7	3	9	11	21	1
67	18	23	27	7	0	11	5	12	57	11	29	4
68	8	8	15	6	19	27	3	22	45	0	7	7
69	26	5	48	7	7	49	2	28	22	1	15	50
70	15	14	37	6	27	5	1	8	10	1	23	53
1771	4	23	25	6	16	20	11	17	58	2	1	56
72	23	20	58	7	4	43	10	23	35	3	10	39
73	12	5	47	6	23	59	9	3	23	3	18	41
74	1	14	35	6	13	14	7	13	11	3	26	44
75	20	12	8	7	1	37	6	18	48	5	5	27
1776	9	20	56	6	20	52	4	28	36	5	13	30
77	27	18	29	7	9	15	4	4	14	6	22	13
78	17	3	18	6	28	31	2	14	2	7	0	16
79	6	12	6	6	17	46	0	23	50	7	8	19
80	25	9	39	7	6	9	11	29	27	8	17	2
1781	13	18	28	6	25	24	10	9	15	8	25	4
82	3	3	16	6	14	40	8	19	3	9	3	7
83	22	0	49	7	3	3	7	24	40	10	11	50
84	11	9	38	6	22	18	6	4	28	10	19	53
85	29	7	10	7	10	41	5	10	5	11	28	36
1786	18	15	59	6	29	56	3	19	53	0	6	39
87	8	0	47	6	19	12	1	29	41	0	14	42
88	26	22	20	7	7	35	1	5	18	1	23	25
89	15	7	9	6	26	50	11	15	7	2	1	27
90	4	15	57	6	16	6	9	24	55	2	9	30
1791	23	13	30	7	4	28	9	0	32	3	18	13
92	12	22	19	6	23	44	7	10	20	3	26	16
93	1	7	7	6	13	0	5	20	8	4	4	19
94	20	4	40	7	1	22	4	25	45	5	13	2
95	9	13	28	6	20	38	3	5	33	5	21	5
1796	28	11	1	7	9	0	2	11	10	6	29	48
97	16	19	50	6	28	16	0	20	58	7	7	50
98	6	4	38	6	17	32	11	0	46	7	15	53
99	25	2	11	7	5	54	10	6	23	8	24	36
1800	14	11	0	6	25	10	8	16	12	9	2	39

TABLE X. Of the Months.

Days.	Months				Suns Anomaly			Moons Anomaly			Suns dist. from the lunar nod		
		D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.
29	January	29	12	44	0	29	6	0	25	49	1	0	40
59	Februa.	28	1	28	1	28	13	1	21	38	2	1	20
88	March	29	14	12	2	27	19	2	17	27	3	2	1
118	April	28	2	56	3	26	25	3	13	16	4	2	41
147	May	27	15	40	4	25	32	4	9	5	5	3	21
177	June	26	4	24	5	24	38	5	4	54	6	4	1
206	July	25	17	8	6	23	44	6	0	43	7	4	42
236	August	24	5	52	7	22	51	6	26	32	8	5	22
265	Septem.	22	18	36	8	21	57	7	22	21	9	6	2
295	October	22	7	21	9	21	3	8	18	10	10	6	42
324	Novem.	20	20	5	10	20	10	9	13	59	11	7	23
354	Decem.	20	8	49	11	19	10	10	9	48	0	8	3
	½ Synod. Month.	14	18	22	0	14	33	0	12	55	0	15	20

	Sig.	Deg.	
Mean Limit for a Solar Eclipse.	0	16	at the New Moon. If the Sun's Distance from the Lunar Nod be 16 Degrees, or less, then happens a Solar Eclipse.
	6	16	
	5	14	
	11	14	

			At the Full Moon.
Mean Limit for a Lunar Eclipse.	0	12	If the Sun's Distance from the Lunar Nod be 12 Degrees, or less, then happens a Lunar Eclipse.
	6	12	
	5	18	
	11	18	

TABLE XI. Of the mean New Moons after compleat Cent.

Julian Years	First N. Moon after compl. Centuries.			Suns Anomaly			Moons Anomaly.			Suns distance from the Lunar Nod		
	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.
100	4	8	11	0	3	21	8	15	22	4	19	27
200	8	16	22	0	6	42	5	0	44	9	8	55
300	13	0	33	0	10	3	1	16	6	1	28	22
400	17	8	43	0	13	25	10	1	28	6	17	49
500	21	16	54	0	16	46	6	16	50	11	7	16
600	26	1	5	0	20	7	3	2	12	3	26	44
700	0	20	32	11	24	22	10	21	45	7	15	31
800	5	4	43	11	27	43	7	7	7	0	4	5
900	9	12	54	0	1	4	3	22	29	4	24	25
1000	13	21	5	0	4	25	0	7	51	9	13	53
1100	18	5	16	0	7	46	8	23	13	2	3	20
1200	22	13	26	0	11	7	5	8	35	6	22	47
1300	26	21	37	0	14	28	1	23	57	11	12	15
1400	1	17	4	11	18	43	9	13	30	3	1	2
1500	6	1	15	11	22	4	5	28	52	7	20	29
1600	10	9	26	11	25	25	2	14	14	0	9	56
1700	14	17	37	11	28	46	10	29	36	4	29	23
1800	19	1	48	0	2	8	7	14	58	9	18	51
1900	23	9	58	0	5	29	4	0	20	2	8	18
2000	27	18	9	0	8	50	0	15	42	6	27	45
2100	2	13	36	11	13	5	8	5	15	10	16	32
2200	6	21	47	11	16	26	4	20	37	3	6	0
2300	11	5	58	11	19	47	1	5	59	7	25	27
2400	15	14	9	11	23	8	9	21	21	0	14	54
2500	19	22	20	11	26	29	6	6	43	5	4	22
2600	24	6	31	11	29	50	2	22	5	9	23	49
2700	28	14	41	0	3	11	11	7	26	2	13	16
2800	3	10	8	11	7	26	6	26	59	6	2	3
2900	7	18	19	11	10	47	3	12	21	10	21	30
3000	12	2	30	11	14	8	11	27	43	3	10	58
3100	16	10	41	11	17	29	8	13	5	8	0	25
3200	20	18	52	11	20	[illegible]	4	28	27	0	19	52
3300	25	3	3	11	24	[illegible]	1	13	49	5	9	20

TABLE XII. Equation for the Sun's Anomaly.

	Sign 0 Subt.	I Subt.	II Subt.	III. Subt.	IV Subt.	V Subt.	
Dg.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	Deg.
0	0 0	1 54	3 16	3 49	3 20	1 56	30
1	0 3	1 57	3 18	3 50	3 18	1 52	29
2	0 7	1 59	3 20	3 49	3 16	1 49	28
3	0 11	2 2	3 22	3 49	3 14	1 46	27
4	0 15	2 6	3 24	3 49	3 12	1 42	26
5	0 19	2 10	3 26	3 49	3 10	1 38	25
6	0 23	2 12	3 28	3 49	3 8	1 34	24
7	0 27	2 16	3 30	3 48	3 6	1 30	23
8	0 31	2 19	3 32	3 48	3 3	1 26	22
9	0 35	2 22	3 33	3 48	3 0	1 22	21
10	0 39	2 25	3 34	3 47	2 58	1 18	20
11	0 43	2 28	3 35	3 46	2 56	1 14	19
12	0 47	2 32	3 36	3 46	2 53	1 10	18
13	0 51	2 34	3 38	3 45	2 50	1 6	17
14	0 55	2 38	3 39	3 44	2 48	1 3	16
15	0 59	2 40	3 40	3 42	2 44	1 0	15
16	1 2	2 42	3 42	3 41	2 41	0 56	14
17	1 6	2 45	3 43	3 40	2 38	0 52	13
18	1 10	2 48	3 44	3 39	2 35	0 48	12
19	1 14	2 51	3 45	3 38	2 32	0 44	11
20	1 18	2 54	3 46	3 37	2 29	0 40	10
21	1 21	2 56	3 46	3 36	2 26	0 36	9
22	1 25	2 58	3 47	3 35	2 22	0 32	8
23	1 29	3 0	3 48	3 34	2 19	0 28	7
24	1 32	3 3	3 48	3 33	2 16	0 24	6
25	1 36	3 5	3 48	3 31	2 13	0 20	5
26	1 40	3 7	3 49	3 28	2 9	0 16	4
27	1 43	3 9	3 49	3 26	2 6	0 12	3
28	1 47	3 12	3 49	3 24	2 4	0 8	2
29	1 50	3 14	3 49	3 22	2 0	0 4	1
30	1 54	3 16	3 49	2 20	1 56	0 0	0
	XI add	X. add	IX add	VIII add	VII add	VI add	

TABLE XIII. Equation for the Moon's Anomaly.

Sign 0 add		I add	II add	III add	IV add	V add	
Deg.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	Deg.
0	0 0	5 12	8 48	9 47	8 10	4 34	30
1	0 11	5 22	8 53	9 46	8 4	4 26	29
2	0 22	5 32	8 58	9 45	7 58	4 16	28
3	0 33	5 40	9 2	9 41	7 54	4 8	27
4	0 44	5 49	9 5	9 43	7 48	4 0	26
5	0 54	5 58	9 8	9 41	7 42	3 52	25
6	1 6	6 6	9 12	9 40	7 35	3 44	24
7	1 17	6 14	9 16	9 38	7 28	3 32	23
8	1 29	6 26	9 20	9 36	7 22	3 22	22
9	1 40	6 30	9 23	9 34	7 14	3 14	21
10	1 51	6 38	9 26	9 32	7 6	3 6	20
11	2 1	6 46	9 28	9 28	6 1	2 58	19
12	2 12	6 54	9 30	9 25	6 54	2 48	18
13	2 23	7 2	9 33	9 22	6 47	2 39	17
14	2 34	7 10	9 36	9 20	6 40	2 30	16
15	2 42	7 18	9 38	9 18	6 33	2 21	15
16	2 55	7 24	9 40	9 12	6 25	2 12	14
17	3 4	7 30	9 42	9 8	6 18	2 2	13
18	3 15	7 36	9 43	9 4	6 10	1 54	12
19	3 26	7 44	9 44	9 1	6 4	1 45	11
20	3 37	7 52	9 45	8 57	5 54	1 35	10
21	3 47	7 58	9 46	8 54	5 48	1 26	9
22	3 57	8 4	9 47	8 50	5 41	1 16	8
23	4 6	8 10	9 47	8 46	5 33	1 6	7
24	4 17	8 16	9 47	8 41	5 24	0 57	6
25	4 27	8 22	9 48	8 36	5 16	0 47	5
26	4 37	8 28	9 48	8 31	5 8	0 38	4
27	4 47	8 33	9 48	8 26	5 0	0 28	3
28	4 57	8 38	9 47	8 21	4 51	0 18	2
29	5 3	8 44	9 47	8 16	4 42	0 8	1
30	5 12	8 48	9 47	8 10	4 34	0 0	0
	XI Subt.	X Subt.	IX Subt.	VIII Subt.	VII Subt.	VI Subt.	

TABLE XIV.

Equation of the Sun's Dist. from the Lunar Nod.

For the Sun.	
H. M.	D. M.
12	6
24	13
36	19
48	26
1 0	32
12	39
24	45
36	52
48	58
2 0	1 5
12	5
24	11
36	18
48	24
3 0	31
12	38
24	45
36	52
48	58
0	2 5

For the Moon.	
1	
2	5
3	8
4	10
5	13
6	15
7	18
8	20
9	23
10	25

TABLE XV.

Of the Moon's Latitude.

Sun's Distance from the Lunar Nod,

Deg.	Sign ☊ N. Sign 6 S.	I. N. VII. S.	II. N. VIII S.	Deg.
	D. M.	D. M.	D. M.	
0	0 0	2 30	4 20	30
1	0 5	2 35	4 22	29
2	0 11	2 39	4 25	28
3	0 16	2 44	4 27	27
4	0 21	2 48	4 29	26
5	0 26	2 52	4 32	25
6	0 31	2 57	4 34	24
7	0 37	3 1	4 36	23
8	0 42	3 5	4 38	22
9	0 47	3 9	4 40	21
10	0 52	3 13	4 42	20
11	0 57	3 17	4 43	19
12	1 3	3 21	4 45	18
13	1 8	3 25	4 47	17
14	1 13	3 28	4 48	16
15	1 18	3 32	4 49	15
16	1 23	3 36	4 52	14
17	1 28	3 39	4 53	13
18	1 33	3 43	4 53	12
19	1 38	3 46	4 54	11
20	1 43	3 50	4 55	10
21	1 48	3 53	4 56	9
22	1 53	3 56	4 57	8
23	1 57	3 59	4 57	7
24	2 2	4 3	4 58	6
25	2 7	4 6	4 58	5
26	2 12	4 9	4 59	4
27	2 16	4 11	4 59	3
28	2 21	4 14	4 59	2
29	2 26	4 17	4 50	1
30	2 30	4 20	5 0	0
	Sig XI. S. Sig V. N.	X. S. IV. N.	IX. S. III. N.	

TABLE XVI. Of the Semidiameters of the Sun, Moon, and Earth's Shadow, and the Horary Motion of the Sun and Moon.

Sun and Moon's Anom.	Suns semidiameter.	Sun's horary Moti.	N. & full Moons semidia.	Moons horary motion	Semidi. of earths shadow	Sun & moons Anom.
S. D.	M. S.	M. S.	M. S.	M. S.	M. S.	D. S.
0 0	15 48	2 23	15 0	29 33	40 0	0 XII
5	15 48	2 23	15 1	29 34	40 10	25
10	15 48	2 23	15 2	29 36	40 19	20
15	15 49	2 23	15 4	29 39	40 28	15
20	15 50	2 23	15 6	29 45	40 37	10
25	15 51	2 23	15 8	29 53	40 45	5
I 0	15 51	2 24	15 10	29 59	40 52	0 XI
5	15 52	2 24	15 14	30 10	41 0	25
10	15 53	2 24	15 18	30 22	41 12	20
15	15 54	2 24	15 22	30 36	41 24	15
20	15 55	2 25	15 24	30 50	41 36	10
25	15 56	2 25	15 26	31 6	41 48	5
II 0	15 57	2 25	15 30	31 23	42 0	0 X
5	15 58	2 26	15 34	31 42	42	25
10	15 50	2 26	15 38	32 1	42 14	20
15	16 0	2 26	15 42	32 23	42 30	15
20	16 1	2 27	15 46	32 45	42 45	10
25	16 2	2 27	15 50	33 8	43 0	5
III 0	16 3	2 28	15 54	33 32	43 20	0 IX
5	16 5	2 28	15 59	33 56	43	25
10	16 6	2 28	16 5	34 21	43 40	20
15	16 7	2 28	16 12	34 45	44 0	15
20	16 9	2 29	16 18	35 8	44 20	10
25	16 10	2 29	16 24	35 31	44 40	5
IV 0	16 11	2 30	16 30	35 54	45 0	0 VIII
5	16 13	2 31	16 36	36 14	45 15	25
10	16 14	2 31	16 42	36 34	45 30	20
15	16 15	2 31	16 50	36 53	45 45	15
20	16 16	2 32	17 0	37 10	46 0	10
25	16 17	2 32	17 4	37 24	46 15	5
V 0	16 19	2 32	17 7	37 39	46 30	0 VII
5	16 20	2 32	17 9	37 50	46 40	25
10	16 21	2 33	17 11	38 0	46 47	20
15	16 22	2 33	17 12	38 6	46 53	15
20	16 22	2 33	17 13	38 14	46 57	10
25	16 22	2 33	17 14	38 17	46 59	5
VI 0	16 22	2 33	17 15	38 18	47 0	0 VI

TABLE XVII. Of the Lunar Periods.

Synod. Lunar months	Periods in Julian Years, Days, & parts of a Day.					Suns Anomaly				Moons Anomaly				Sun's Dist. from the Lunar Nod.			
	Yrs.	D.	H.	M.	S.	S.	D.	M.	S.	S	D.	M.	S	S.	D.	M.	S.
111	8	355	21	29	38	11	20	41	49	11	15	39	48	5	14	25	47
223	18	11	7	43	20	0	10	29	57	11	27	8	37	11	29	31	48
235	19	0	16	31	56	11	29	45	49	10	6	56	42	0	7	34	35
270	21	303	6	13	43	9	28	17	7	4	10	31	38	0	1	2	42
364	29	157	3	14	30	5	4	21	27	1	7	18	39	0	4	4	32
446	36	21	15	26	40	0	20	59	54	11	24	17	14	11	29	3	35
534	43	64	8	3	8	2	2	16	18	3	15	9	53	5	28	4	2
587	47	168	10	57	50	5	14	51	24	1	4	27	15	0	3	36	19
669	54	32	23	10	0	1	1	29	51	11	21	25	51	11	28	35	23
810	65	178	18	41	10	5	25	21	21	1	1	35	53	0	3	8	7
892	72	43	6	53	20	1	11	59	48	11	18	34	28	11	28	7	10
980	79	85	23	29	49	2	23	16	12	3	10	27	8	5	27	7	36
1115	90	54	14	36	40	1	22	29	45	11	15	43	5	11	27	38	58
1203	97	96	7	13	9	3	3	46	10	3	7	35	43	5	26	39	24
1338	108	65	22	20	0	2	2	59	42	11	12	51	42	11	27	10	45
2148	173	243	17	1	10	7	28	21	4	0	14	27	36	0	0	18	52
2371	191	255	0	44	31	8	8	51	1	0	11	36	13	11	29	50	39
2641	213	192	6	58	14	6	7	18	8	4	22	8	10	0	0	53	22
3709	299	319	23	4	31	10	11	50	44	11	24	27	56	11	27	1	24
6890	557	21	18	30	12	0	16	3	6	1	7	40	2	0	0	0	11

TABLE XVIII. Of the visible Eclipses in BRITAIN for the Eighteen Century.

1699	Mar.	5	7 a. M.	1728	Aug.	8	7 a. M.
	Sept.	13	10 m. S.	1729	Febr.	2	9 a. M.
1700	Febr.	23	6 m. M.		July	29	2 m. M.
1701	Febr.	12	0 m. M.	1730	July	4	4 m. S.
1702	Dec.	23	6 m. M.	1731	June	9	3 m. M.
1703	June	18	1 m. M.	1732	Nov.	20	9 m. M.
	Dec.	12	6 m. M.	1733	May	2	6 a. S.
1704	June	6	8 a. M.	1735	Sept.	21	2 m. M.
	Nov.	30	8 m. M.	1736	Mar.	15	12 a. M.
1706	April	17	0 m. M.		Sept.	9	4 m. M.
	May	1	8 m. S.	1737	Febr.	18	3 a. S.
	Octr.	10	8 a. M.	1739	Janu.	13	11 a. M.
1707	April	6	2 m. M.		July	24	7 a. S.
	April	21	4 m. S.	1740	Janu.	2	11 a. M.
1708	Mar.	25	5 m. M.	1743	Octr.	22	4 m. M.
	Sept.	3	9 m. S.	1744	April	15	9 a. M.
	Sept.	18	10 a. M.	1746	Aug.	19	12 a. M.
1710	Febr.	2	11 a. M.	1747	Febr.	14	5 m. M.
	Febr.	17	12 m. S.	1748	July	14	10 m. S.
1712	Janu.	2	7 a. M.		July	28	11 a. M.
1713	Nov.	21	4 m. M.	1749	Dec.	12	8 a. M.
1715	April	22	9 m. S.		Dec.	28	9 m. S.
	Octr	31	4 m. M.	1750	June	8	9 a. M.
1717	Mar.	16	2 m. M.		Dec.	2	6 m. M.
	Sept.	9	6 a. M.	1751	May	29	2 m. M.
1718	Aug.	29	9 a. M.		Nov.	21	10 a. M.
1719	Aug.	18	11 a. M.	1753	April	6	6 a. M.
1721	July	13	9 m. S.		Octr.	15	10 m. S.
	Dec.	22	3 a. M.	1755	Mar.	16	12 a. M.
1722	June	18	3 m. M.	1757	Janu.	24	7 m. M.
	Nov.	27	3 a. S.		July	19	12 a. M.
	Dec.	11	3 a. M.	1758	Janu.	13	6 m. M.
1724	May	11	6 a. S.	1760	May	18	10 a. M.
	Octr.	21	4 m. M.		June	2	7 m. S.
1725	Octr.	10	8 a. M.		Nov.	11	9 a. M.
1726	Sept.	15	6 a. S.	1761	May	7	10 a. M.
	Sept.	30	5 m. M.	1762	April	27	4 m. M.

Of the Eclipses in Britain, &c.

1762	Octr. 6	8 m. S.		Nov. 12	7 a. M.
	Octr. 21	9 a. M.	1782	April 1	6 a. S.
1763	April 2	10 m. S.	1783	Mar. 7	8 a. M.
1764	Mar. 6	11 a. M.	1787	June 4	5 a. S.
	Mar. 21	10 m. S.	1788	May 24	7 m. S.
1765	Mar. 10	2 a. S.	1790	April 3	10 m. S.
1766	Febr. 13	7 a. M.		April 17	12 a. M.
	July 25	7 a. S.		Octr. 11	2 m. M.
1767	Dec. 24	6 m. M.	1791	Mar. 23	2 a. S.
1768	June 19	3 m. M.		Octr. 1	4 m. M.
1769	May 24	7 m. S.	1792	Sept. 5	5 a. M.
	Dec. 2	6 m. M.	1793	Febr. 14	10 a. M.
1770	Nov. 6	10 m. S.		Aug. 25	2 a. S.
1772	Sept. 30	6 a. M.	1794	Janu. 20	10 m. S.
	Octr. 15.	9 m. S.		Febr. 3	10 a. M.
1773	Sept. 19.	7 a. M.	1795	July 20	8 a. M.
1774	Mar. 1	9 m. S.	1797	June 13	5 a. S.
1775	Aug. 15	5 m. S.		Nov. 7	4 a. S.
1776	July 19	12 a. M.		Nov. 23	4 m. M.
	Dec. 29	2 a. S.	1798	Nov. 12	7 m. M.
1778	June 13	4 a. S.	1800	Sept. 20	11 a. M.
1779	June 3	7 m. S.			

TABLE XIX. Of the Comets.

The times when they were neareſt the Sun.				The leaſt diſtance from the Sun.	The Periods	When they are to appear again.
Yrs.	Mon.	Days	Hrs		Years.	Years.
1337	June	2	6	40666		
1472	Febr.	28	22	54273		
1531	Aug.	24	21	56700		
1532	Oct.	19	22	50910		
1556	Apr.	21	20	46390		
1577	Oct.	26	18	18342		
1580	Nov.	28	15	59628		
1585	Sept.	27	19	109358		
1590	Jan.	29	4	57661		
1596	July	31	20	51293		
1607	Oct.	16	4	58680	75.5	1758
1618	Oct.	29	12	37975		
1652	Nov.	2	16	84750		
1661	Jan.	16	24	44851	129	1789
1664	Nov.	24	12	102575		
1665	April	14	5	10649		
1672	Feb.	20	8	69739	70	1812
1677	April	26	0	28059		
1680	Dec.	8	0	612	575	2255
1682	Sept.	4	7	58328	75.5	1758
1683	July	3	3	56020		
1684	May	29	10	96015		
1686	Sep.	6	14	32500		
1698	Oct.	8	17	69129		
1727	Sep.	16	16	99865		

PRECEPTS for TABLE I.

Of the Golden Number and Epacts.

COlumn 1ſt, 3d, and 6th, to the left hand contains the numbers to be ſubtracted from the Julian Epact, to obtain the Gregorian, anſwering to the Centuries with which they are even, in column 2d, 4th, and 6th.

Column 2d, 4th, and 6th, contains on the left hand, the compleat centuries of the current years of Chriſt, and on the right hand incloſed by the braces the odd years, common to all the centuries in that diviſion, when the Golden Number is Unity and the Julian Epact eleven, and the two columns at the right hand contains the other 18 Golden Numbers, or years, with their correſpondent Epacts.

To find the Gold Number and Epacts for any year, look for the compleat centuries in the given year in column 2d, 4th, or 6th, on the left hand; and on the right the odd year, (coupled by the braces) next before the given year, which will be the year when the Golden Number was laſt Unity, before the given year.

Then begin at the head of the column under Golden Number, and the next year after the Golden Number will be 2, and the next again 3, and the next 4, and ſo count down to the

the given year for the Golden Number, and even to the right hand is the Julian Epact under the title Epact, from which ſubtract the number in the ſmall column to the left hand of the centuries in the given year, which will ſhew the Gregorian Epact, adding 30 to the Julian Epact, if ſubtraction cannot be made.

Example 1. *What is the Golden Number and Epacts for the Year* 1757.

1. Find 1700, the compleat centuries in the given year, in column 6th from the left hand.

2. Find in the right hand ſide of the ſame column the odd year next before the given year, *viz.* 48, which is the year when the Golden Number was Unity laſt before the given year.

3. Count down from the top of the column of the Golden N° 49, the Golden N° 2, 50, the Golden N° 3, 51, the Golden N° 4, 52, the Golden N° 5, *&c.* till you come to 57, the odd year of the given year, when you will find the Golden N° 10, and the Julian Epact, 20.

4. Subtract 11, the number to the left hand of 1700, the centuries in the given year, and there will remain 9, the Gregorian Epact.

Example 2. *What is the Golden Number and Epacts for the Year* 2473.

Find 2400, the centuries in column 2d, and the next odd year before 73, in the ſame column, *viz.* 70, then 71, the Golden N° 2, 72

the

the Golden N° 3, 73 the given year, the Golden N° 4, and the Epact to the right hand is 14, from which ſubtract 13, the number to the right hand of 2400, the centuries in the given year, and there remains 1, the Gregorian Epact.

Example 3. *What was the Golden Number and Epacts in the Year* 325.

The compleat centuries is 300, the odd year, 25, the neareſt before which is 23, then 24 the Golden N° is 2, and 25 the given year, the Golden N° is 3, and the Epact 3, from which ſubtract 4, the number to the left hand of the centuries, firſt adding 30, and there remains 29 the Gregorian Epact, and ſo for any other year paſt or to come.

Note 1. That thoſe years begin at 0, the year before the Chriſtian Era, and go on to the 11,300 year of the ſame, when they return in the ſame order again; ſo if the Golden Number and Epacts be ſought for any future year, it is but to ſubtract 11,300 as often as may be, from the given year, and the remainder managed as before, ſhall give the Golden Number and Epacts for the ſame.

Note 2. That the number to be ſubtracted from the Julian Epact, to find the Gregorian, returns to be the ſame again in a period of 6,900 years. And, at the foot of column 6th is a ſmall table ſhewing 9 of theſe returns, which are all years, when the numbers to be ſub-

ſubtracted are 3, as they were at the beginning of the Chriſtian Era; therefore, if for any year to come, you divide the compleat centuries in the given year by 6900, the numbers to be ſubtracted for the given year will be the ſame with the remainder which will be found in the table.

Note 3. That the Golden Number is the ſame in both accounts.

PRECEPTS for TABLE II.

Of the Dominical Letters.

THE firſt ſeven columns to the left hand contain the Dominical Letters for both accounts, *viz.* for the Julian Centuries at the head below the numbers 0, 1, 2, 3, 4, 5, 6, and for the Gregorian Centuries at the foot above the numbers 1, 2, 3, 0, and the eighth column contains the odd years of thoſe centuries common to both accounts.

To find the Julian Dominical Letters for any year, look for the compleat centuries in the given year at the head of the table, below the numbers 1, 2, 3, 4. 5, or 6, and for the odd years, if any, at the right hand below that title, then below the centuries at the head, and even with the odd years at the right hand, is the Dominical Letter ſought.

To

To find the Gregorian Dominical Letter for any year, look for the compleat centuries in the given year, at the foot of the table above the numbers 1, 2, 3, or 0, and for the odd years, if any, at the right hand below the title odd years, then in the column above the centuries in the given year, and even with the odd years at the right hand is the Dominical Letter fought.

Example 1. *To find the Julian Dominical Letter for* 1757.

1. Find 1700, the compleat centuries in the given year, at the head of the table below the the number 3.

2. Find 57, the odd years in the given year, in the right hand column, then below 1700, and even with 57 ſtands E, the Dominical Letter ſought.

Example 2. *To find the Gregorian Dominical Letter for* 1757.

1. Find 1700, the compleat centuries in the given year, above number 1, at the foot of the table.

2. Find 57, the odd years in the given year, in the right hand column, then above 1700 at the foot and even with 57, at the right hand ſtands B, the Dominical Letter ſought.

Example 3. *What was the Julian Letter for the Year* 004.

Below 0, at the head is 000, the centuries in

in the given year, and even with 4 at the right hand ſtands FE, the Dominical Letters ſought.

And if the Gregorian account had been then begun, its letter would have been DC, for above 0, at the foot of the table is 000, the centuries in the given year, and even with 4, the odd years at the right hand is DC.

Example 4. *What will be the Dominical Letters for the Year* 3299.

Below 3200, the compleat centuries in the given year, and even with 99, the odd years, ſtands C, the Julian Letter.

Above 3200, the compleat centuries, and even with 99, the odd years, ſtand D, the Gregorian Letter; and ſo for any year paſt or to come.

Note. That in this table, the year begins with the firſt year before the Chriſtian Era, and goes for the Julian account to 3200, and for the Gregorian account to 3900 years of the ſame: But if the Dominical Letters were wanted for any years further to come, it is but cutting off the two laſt figures or cyphers of the given year, for the odd years, and dividing the compleat centuries for the Julian account, by 7, and for the Gregorian account by 4, and the Dominical Letters will be found below the numbers at the head, for the Julian account, and above the numbers at the foot, for the Gregorian account, that is the ſame with your remainder.

Exam-

Example 5. What will be the Dominical Letters anno 32787.

First cut off 87, the odd years, then how often is 7 in 327, the compleat centuries in the given year, thus, 7 in 32 is 4 times and 4 over, 7 in 47 is 6 times and 5 remains, then below 5 at the head, and even with 87 the odd years, at the right hand stands E, the Julian Letter.

Then for the Gregorian, having cut off 87 the odd years in the given year, as before; then divide 327 by 4, thus, 4 in 32 is 8 times and 0 over, 4 in 7 is one time and 3 remains, then above three at the foot, and even with 87, the odd years, at the right hand stands D, the letter sought, *&c. &c.*

Note 1. In the Gregorian account, the centuries above the numbers 1, 2, and 3, at the foot when there is no odd years, tho' there be two Dominical Letters in the table, the last is only retained for the Dominical Letter of that year, because 3 centuries in the Gregorian account is common years, and the 4 leap year.

Note 2. Leap year is known in the table by having two Dominical Letters; the first of which is for January and February, and the last for the rest of the year, and the years after by being 1, 2, or 3 below the double letters.

PRE-

PRECEPTS for TABLE III.

Of Easter Sundays.

THE Golden Number and Epacts, and the Dominical Letters are the Indices of this table.

To find the Julian Easter; enter the table with the Dominical Letter in column first to the left hand, and the Golden number in column 2d, and in a straight line to the right hand is Easter Sunday, below that title at the head.

To find the Gregorian Easter; enter the table with the Dominical Letter in column 1st, to the left hand and the Gregorian Epact in column 3d, and straight to the right hand is Easter Sunday, below that title at the head.

N. B. That in the column of Easter Sundays, if the name of the months is not just with the figures for the day of the month, the figures belong to the month next above them.

Example 1. *What day does Easter Sunday fall upon, for the Julian account* 1757.

The Dominical Letter was found to be E for that year, and the Golden N° 10, therefore with E in column 1st, and even with 10 in column 2d, in the right hand column is

March 30, the day on which Eaſter Sunday happens.

Example 2. *What day does Eaſter Sunday fall upon for the Gregorian account* 1757.

The Dominical was found to be B, for that year, and the Epact 9: Therefore with B in column 1, and 9 in column 3d, ſtraight to the right hand is April 10, the day on which Eaſter Sunday happens that year; and ſo for any other year paſt or to come.

PRECEPTS for TABLE IV.

Of the Moveable Feaſts.

Eaſter Sunday is the index of this table.

Having found Eaſter Sunday for any given year, enter the table in column 1ſt, therewith and in a ſtraight line to the right hand is the days of the months, the Moveable Feaſts happens on for that year, below their reſpective names at the head.

Example 1. *For the Julian Moveable Feaſts for the Year* 1757.

The Julian Eaſter was Mar. 30, therefore with Mar. 30 in column 1ſt to the left hand, enter the table and ſtraight to the right is two Sundays after Epiphany. Sexageſima Sunday

is

is Febr. 2d, Aſh-wedneſday Febr. 12th, Rogation Sunday May 4th, Aſcenſion Day May 8th, Whitſunday May 18th, *&c.*

Example 2. *For the Gregorian Moveable Feaſts for the Year* 1757.

The Gregorian Eaſter was April 10th, therefore with April 10th, enter the table, and ſtraight to the right hand is 4 Sundays after Epiphany, Sexageſima Sunday is Febr. 13th, Aſh-wedneſday Febr. 23d, Rogation Sunday May 15th, *&c.*

Note. That ſuch feaſts as happen in January or February, are every leap year one day latter.

PRECEPTS for TABLE V.

Of the Moveable Terms and their Returns.

EAſter Sunday is likewiſe an index to this table, and it is managed in the ſame way as the laſt of the moveable feaſts, for the Julian Eaſter gives the Julian terms and their returns; and the Gregorian Eaſter gives the Gregorian terms and their returns, which needs no example.

PRE-

PRECEPTS for TABLE VI.

Of the fixed Terms and their Returns.

THis table is plain at firſt ſight, and needs no explication, but may not be amiſs to obſerve here; that every term hath 4, 5, or 6 days, which are ſet apart for the ſeveral ſorts of proceedings in any cauſe to be determined, which are of 6 kinds, thence one of them is repeated in moſt terms, with the name of this or that Feſtival, whereunto they are appropriated, *viz.* Craſtino, that is, the morrow after the day nominated, Octabis, the 8th day after inclusively, Quindeno, the 15th day after, Tres, that day 3 weeks, Menſe, that day month, and Qninque, that day 5 weeks, *&c.* as in the table.

PRECEPTS for TABLE VII.

The Calendar.

THE firſt ſeven columns to the left hand below the Dominical Letters, G, F, E, D, C, B, A, contains the days of the week in every month, below the reſpective Dominical Let-

Letters for any given year; S ſtands for Sunday, m for Munday, tu for Thueſday, w for Wedneſday, *&c.* anſwering to the days of the month in column 8th, with which they are even: Column 9th contains the days of the year, by which may be found the number of days from any day in one month, to any day in another month, by ſubtracting the leſſer number from the greater, and the remainder is the number of days.

Thus from May 1ſt, to Octr. 20th is 172 days.

oppoſite to October 20th, is ----- 293
oppoſite to May 1ſt, is -------- 121

Remainder 172

Note. If the year be leap-year when the number of days is ſought from any day in January or February, to any day in the reſt of the months, increaſe the remainder by one.

Column 10th contains the riſing and ſetting of the ſun for every day in the year for New Stile, apparent time, and latitude 56 North.

Subtract the ſun's riſing from 12, the remainder is the ſun's ſetting; double the ſun's ſetting gives the length of the day; double the ſun's riſing gives the length of the night.

Column laſt to the right hand contains remarks, *viz.* ſaint's and holy days, equation of time for every 5 days, S. ſlo. ſtanding for ſun ſlow, and S. faſt, for ſun faſt; the minutes marked ' thus, and the ſeconds " thus: Alſo the times of the Seſſion's ſitting down and riſing.

ing, with the beginning and ending of the exchequer terms in Scotland, and the ſouthing of the principal fixed ſtars, uſeful for finding the hour of the night, and the names of the ſtars, *&c.* all anſwering to the days of the month, to which they are oppoſite for New Stile.

Note. That the number which ſtands immediately after the name of the month at the head, thro' the Calendar, is the number of days which that month contains, and the number of the month which follows, is a number which when added to the day of the month and epact, gives the age of the moon.

Exam. 1. *What day of the week was the firſt day of January* 1757?

The Julian Dominical Letter was found to be E, the Gregorian Dominical Letter was found to be B, therefore below E at the head in January, and even with the firſt day of the month ſtands w. for Wedneſday the day ſought for Old Style.

And for the New Stile below B, and even with the firſt day of the Month in January, ſtands ſa. for Saturday, the day ſought, for N. S. and ſtraight to the right hand is the 1ſt day of the year, and the ſun riſes 36 minutes after 8, and ſets 36 minutes before 4, and below remarks is Circumciſ. for Circumciſion, the feſtival of that day.

Exam-

Exam. 2. *What day of the month was the first Sunday of Feb.* 1757. *for both accounts?*

Below E, the Julian letter, in Febr. the first S. for Sunday, ſtands even with the 2d day of the month: And below B the Gregorian letter in Feb. the firſt S. or Sunday, ſtands even with the 6th day of the month. So the firſt Sunday O. S. was on the 2d day, and the firſt Sunday N. S. was on the 6th day.

Exam. 3. *What day of the week and year, and at what time does the Sun riſe and ſet, and what is remarkable upon Oct.* 25. 1789?

Firſt find the Dominical letters by Table II. the Julian letter for that year is G, and the Gregorian letter is D.

In October below G, the Julian letter, and even with the 25th day of the month, ſtands th. for Thurſday, the day of the Week for O. S. and the reſt is for N. S.

In October below D, the Gregorian letter, and even with the 25th day of the month, ſtands S. for Sunday, and ſtraight to the right hand is 298, the day of the year, the ſun riſeth 14 minutes after 7, and ſets 14 minutes before 5, and it is St. Criſpin's day, the ſun is faſt 15 minutes and 45 ſeconds, and ſo for any other time paſt or to come.

Exam.

Exam. 4. *What day of the month, and day of the moon's age, was the* 3*d Friday of May* 1757. N. S.?

Below B the Gregorian Dominical letter look down till you come to the 3d fr. or Friday, even with which ſtands the 20th day of of the month, find the epact by table 1ſt to be 9, then

The day of the month ----	20
The Gregorian Epact -- ---- ---	9
The number of the month in May	3
Sum	32

From which ſubtract 30, reſt 2, the moon's age that day.

PRECEPTS for TABLE VIII.

Of the Tides.

THIS Table is plain at ſight by the titles at the head of the columns.

Exam. To find the time of full ſea at Aberdeen the ſecond day of the moon's age.

Even with 2 the moon's age in column 1ſt to the left hand, ſtands in column 2d, 1 hour, and in column 3d, 36 minutes the moon's ſouthing, to which add 45 minutes oppoſite to Aber-

Aberdeen to the right hand, which makes 2 hours and 21 minutes for the time of full ſea in the morning and afternoon, and ſo for any other day of the moon's age and place in the Table.

PRECEPTS for TABLE IX.

Of the mean New Moons, &c.

THE firſt column to the left hand contains the Julian years of the Chriaſtin Era.

The ſecond the firſt mean New Moons in the month of January for theſe years.

The third the Sun's Anomaly.

The fourth the Moon's Anomaly.

The fifth the Sun's diſtance from the Lunar Nod at thoſe new Moons.

To find the firſt mean new Moon in the mon. of January for any year. Look for the given year in column 1ſt, and ſtraight to the right hand in column 2d, is the day, hour and minute of the mean new moon. And in column 3d, the ſigns, degrees and minutes of the ſun's anomaly. And in column 4th, the ſigns, degrees and minutes of the moon's anomaly. And in column 5th, the ſigns, degrees and minutes of the ſun's diſtance from the moon's nod, plain from the titles at the head of the columns.

Exam. 1. *When was the firſt mean new moon in January* 1700?

	Me. N. moon			S. anomaly			M. anomaly			S. distan		
	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M
1700	10	2	49	6	21	49	0	0	50	4	13	

Example 2. *for* 1757.

	Me. N. moon			S. anomaly			M. anomaly			S. distan		
	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M
1757	9	4	25	6	21	7	6	21	40	5	5	5

And thus write out the numbers for any o ther year in the Table.

PRECEPTS for TABLE X.

Of the Months.

COlumn 1ſt to the left hand contains th number of lunar months from January to the day of the months to which they are oppoſite.

Column 3d contains the days, hours and minutes to be added to the mean new moons in January, to obtain them for the month after that to which they are oppoſite in column 2d.

And the other 3 columns to the right hand contain the ſigns, degrees and minutes of the ſun and moon's anomalys, and ſun's diſtance from the lunar nod, to be added to the ſame motions in January for the months as above.

At the foot of the table is half a ſynodical month, with its motions, to be added to any mean new moon to find the following full moon, or ſubtracted to find the foregoing full moon.

Exam.

Exam. 1. *To find the mean new and full moons June* 1757.

First find the mean new moon with its motions for January as before, to which add the time and motions oppoſite to May, thus,

	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.
1757	9	4	25	6	21	7	6	21	40	5	5	55
May	27	15	40	4	25	32	4	9	5	5	3	21
N.M. June	5	20	5	11	16	39	11	0	45	10	9	16
½Mon.	14	18	22	0	14	33	0	12	55	0	15	20
F.M. June	20	14	27	0	1	12	5	13	40	10	24	36

Note. When the half month with its motions is added as above, the moon's anomaly is to be increaſed by 6 ſigns: And when ſubtracted, decreaſed by as many.

Exam. 2. *To find the new and full moon in December* 1758.

Firſt, To the mean new moon (in Janr. for 1758 the given year) and its motions, add the time and motions oppoſite to Nov. the month before the given month, and that gives the mean new moon in December.

Secondly, From the time and motions of the new moon, ſubtract the half month with its motions, becauſe if added, it would exceed the bounds of the month of Decem. and that will give the mean full moon, thus;

	D.	H.	M.	S.	D.	M.	S.	D.	M.	S.	D.	M.
1758 Jan.	28	1	57	7	9	29	5	27	17	6	14	3
Nov. ad.	20	20	5	10	20	10	9	13	59	11	7	2
N. Moon in Dec.	18	22	2	5	29	39	3	11	16	5	21	5
½ mon. ſub.	14	18	22	0	14	33	0	12	55	0	15	2
F. Moon in Decr.	4	3	29	5	15	6	6/9	28	21	5	6	3

Note. In adding the months in this tabl to the day of the month in January on whic the mean new moon happens, deduct the num ber of days contained in the month added, an the remainder gives the day of the new moo in the given month.

In the example above, the mean new moo is Jan. 28. and the month added, *viz.* Novem ber is 20 days, which makes in full 48 days but November has 30 days, which take fro 48, remains 18, for the day in the give month, *viz.* December.

Note 2. That 30 or 31, or 28 days mak a month, 24 hours a day, 60 minutes an hour and 12 ſigns one circle or revolution, 30 de grees one ſign, 60 minutes one degree.

Note 3. If the years be leap years, ſubtrac one from the number of the days in the month after February.

Note 4. All thoſe examples are for the Ju lian account.

PRE

PRECEPTS for TABLE XI.

Of the mean new Moons after compleat Cent.

COlumn 1ſt to the left hand contains complete Julian centuries.

The ſecond contains the days, hours and minutes of time.

The 3d, 4th, and 5th, the ſigns, degrees and minutes of ſun and moon's anomaly, and ſun's diſtance from the lunar nod, to be added to the mean new moons, with their motions in the 18 century, for time to come, and to be ſubtracted for time paſt, in order to find the mean new moon with its motions, diſtant from any given new moon, in the 18 century, by compleat centuries.

Exam. 1. *To find the mean new moon January* 1544.

Find a year in the 18th century different from the given year by compleat centuries, which in this example will be 1744, different by 200, then write down the time and motions oppoſite to 1744, out of table IX. from which ſubtract the time and motions in this table, oppoſite to 200, (in column 1ſt) the number of centuries, thus:

1744

	D. H. M.	S. D. M.	S. D. M.	S. D. M.
1744 Jan.	3 18 12	6 15 9	9 5 10	8 17 58
Add a Synod. month.	29 12 44			
	33 6 56			
200 ſub.	8 16 22	0 6 42	5 0 44	9 8 55
Mea. N. Moon 1544.	24 14 34	6 8 27	7 4 26	11 9 3

Exam. 2. *To find the mean new moon January* 2279.

Find a year in the 18 century different from this by compleat centuries, which will be 1779, different by 500. Then write down the time and motions oppoſite to 1779, out of table IX. to which add the time and motions in this table oppoſite to 500, thus:

	D. H. M.	S. D. M.	S. D. M.	S. D. M.
1779 Jan.	6 12 6	6 17 46	0 23 50	7 8 19
500 add.	21 16 54	0 16 46	6 16 50	11 7 16
Me. N. Moon 2279.	28 5 0	7 4 32	7 10 40	6 15 35

And ſo for any other year or month paſt or to come.

Note 1. If for time paſt, the numbers in this table be greateſt; ſo that ſubtraction cannot be made, add 29 days, 12 hours, 44 min. one ſynodical lunar month, to the time, and 12 ſigns, one revolution to the motion, as in example 1ſt. And ſubtract the ſame for time to come, if the time exceed the given month, or the motion one revolution.

Note

Note 2. If the year ſought be before Chriſt, to decreaſe the ſame by one, and ſubtract as before.

Note 3. If the year of the 18 century be leap year, the year ſought, paſt or to come, will be likewiſe leap year.

PRECEPTS for TABLE XII.

Of the equation for the Sun's Anomaly.

THE firſt column to the left hand contains degrees of the ſun's anomaly, deſcending, belonging to the ſigns at the head, marked o, I, II, III, IV, V, below which is hours and minutes to be ſubtracted from the mean new or full moon.

The laſt column to the right hand contains degrees of the ſame aſcending, belonging to the ſigns at the foot marked XI, X, IX, VIII, VII, VI, above which is hours and minutes to be added to the time of the mean new or full moons.

Example. For the mean new moon in January 1757.

	Mea. N. Moon	S. anom.	M. ano.	Diſt.
	D. H. M.	S. D.	S. D.	S. D.
Mean N. Moon Jan.	9 4 25	6 21	6 22	5 6
Sun's Equation add.	1 22			
The mean N.M. equ.	9 5 47			

In

In this example, the ſun's anomaly is 6 ſigns, 21 degrees, neglecting the minutes, if under 30, and adding 1 deg. if they had been above 30, enter the table with VI. the ſigns found at the foot, and 21 degrees up the right hand column; then above the VI. ſigns, and even with 21 degrees, is 1 hour, 22 minutes to add as the table directs, and ſo for any other mean, new or full moons.

PRECEPTS for TABLE XIII.

Of the equation for the Moon's Anomaly.

THIS table is the ſame with the laſt, for the ſun's anomaly in every reſpect, except that as the ſun's anomaly is an index to the laſt, the moon's is an index to this, and when the laſt is added, this is ſubtracted, and *vice verſa*, as the table directs.

Exam. For the New Moon Jan. 1757.

	Mea. N. Moon	S. anom.	M. ano.	Diſt.
	D. H. M.	S. D.	S. D.	S. D.
Mean N. Moon, Jan.	9 4 25	6 21	6 22	5 6
Sun's equation add.	1 22			
N. Moon once equat.	9 5 47			
Moon's equati. ſubt.	3 22			
True new Moon	9 2 25			

In

In this example the moon's anomaly is 6 ſigns, 22 degrees, as the minutes exceed 30. With 6 ſigns found at the foot of the table, and even with 22 degrees at the right hand is 3 hours and 22 minutes, to ſubtract from the mean new moon once equated, (as the table directs) which gives the time of the true new moon, the 9th day, 25 minutes after 2 in the morning; and ſo for any other new or full moons.

Note 1. That the time of the mean new and full moons, is accounted from midnight to the ſame again, equal time.

Note 2. That they are for the Julian account of time, and muſt be reduced to the Gregorian, by adding the difference of days betwixt the accounts.

PRECEPTS for TABLE XIV.

Of the Equation of the Sun's Diſtance from the Lunar Nod.

WHEN the hours and minutes of time, equal to thoſe in the firſt column to the left hand of this table, is added to or ſubtracted from, the mean new or full moons, for the ſun or moon's anomalies, the degrees and minutes in col. 2. even therewith, muſt be added to, or ſubtracted from, the ſun's diſtance from

the lunar nod, to have the true diſtance.

In the laſt examples for January 1757.

1 Hour, 22 min. was to be added for the ſun's anomaly, to the mean new moon; therefore in this table below [for the ſun] is about 40 minutes of a degree, likewiſe to add to the ſun's diſtance from the lunar nod, and at the ſame new moon, 3 hours and 25 minutes, was to ſubtract for the moon's anomaly; therefore [below moon] 8 minutes of a degree is likewiſe to be ſubtracted from the ſun's diſtance from the lunar nod, and ſo in all other caſes.

PRECEPTS for TABLE XV.

Of the Moon's Latitude.

COlumn 1ſt to the left hand contains degrees of the ſun's diſtance from the lunar nod, belonging to the ſigns at the head, marked,

{Sign 0 N. I. N. II. N. } S. ſtanding for South and
{Sign VI. S. VII. S. VIII. S. } N. for North Latitude.

Below which is degrees and minutes of the moon's latitude.

And the laſt column to the right hand contains degrees of the ſame aſcending, belonging to the ſigns at the foot of the table, marked,

{XI. S. X. S. IX. S. } S. alſo ſtanding for South,
{V. N. IV. N. III. N. } and N. for North Latitude.

Above which is degrees and minutes of the moon's latitude. *Exam.*

Exam. For the Moon's Latitude at the Time of the New Moon, Janr. 1757.

The Sun's Diſtance from the Lunar Nod was	5	5	55
The Suns equa. was 1 h. 22 m. add. therefore the equation for the nod was, to add			40
	5	6	35
The Moon's equation was 3 h. 25 m. ſub. therefore the equation for the nod to ſub.			8
The Sun's true diſtance from the lunar nod	5	6	27

Then above 5 ſigns at the foot, and even with 6 degrees at the right hand, is 2 degrees, 2 minutes, the moon's latitude North.

PRECEPTS for TABLE XVI.

Of the ſemidiameter of the Sun, Moon, and Earth's Shadow, and Horary Motions of the Sun and Moon.

THE firſt and laſt columns of this table contain the ſigns, and every fifth degree of the ſun or moon's anomalies, anſwering to to the minutes and ſeconds with which they are even, in the other columns, giving the motions, or ſemidiameters, according to their titles at the head.

Note 1. That the ſun's anomaly, gives the ſun's ſemidiameter, and horary motion, and the moon's the reſt in the table.

Note

Note 2. That M. ſtands for minutes a
S. for ſeconds.

Example. At the new Moon Janr. 1757

	S.	D.
The ſun's anomaly was	6	21
The moon's anomaly was	6	22

With 6 ſigns at the right hand, and 20 degre
the neareſt to the given degrees of anomalie
is in a ſtraight line to the left hand.

	M.	S.
Semidiameter of the earth's ſhadow	46	4
Moon's horary motion	38	
New and full moon's ſemidiameter	17	1
Sun's horary motion	2	3
Sun's ſemidiameter	16	2

And ſo for any other.

To find the notable eclipſes of the ſun an
moon for any year.

1. Find the ſun's diſtance from the luna
nod at the firſt new moon in Janr. and if it b
within the mean limit of an eclipſe of the ſu
at the foot of Table X. there will be an eclipſe
but if not, look for the month in table X. tha
hath the ſun's diſtance from the lunar nod
that will bring it within the limit, when ad-
ded to, or ſubtracted from, the ſun's diſtance
from, *&c.* at the firſt new moon in Jan. an
that will be the time of the ſolar eclipſe, *&c*

2. Add or ſubtract the ſun's diſtance from
the lunar nod, for the half month at the foo
of table X. to or from the ſun's diſtance, *&c*.

a

at the firſt new moon in Janr. and if it be within the limit of an eclipſe of the moon at the foot of table X. there will be an eclipſe at that full moon, but if not, look for the month in table X. that hath the ſun's diſtance from the lunar nod, that will bring it within the limit when added to, or ſubtracted from, the ſun's diſtance, *&c.* at the firſt full moon in January, and that will be the time of the lunar eclipſe.

For Eclipſes of the Moon.

1. At the time of the true full moon find the moon's latitude. by table XV. with the ſun's diſtance from the lunar nod, augmented by ſix ſigns.

2. By table XVI. find the full moon's ſemidiameter, and ſemidiameter of the earth's ſhadow.

3. Add the moon's ſemidiameter to the ſemidiater of the earth's ſhadow.

4. Subtract the moon's latitude from the ſum of the ſemidiameters of the moon and earth's ſhadow, and the remainder is the parts deficient.

5. As the moon's diameter is to 12 digits, ſo is the parts deficient to the digits eclipſed.

For Eclipſes of the Sun.

1. At the time of the true new moon, find the moon's latitude by table XV.

2. The ſun and moon's ſemidiameters by table XVI.

3. From the ſum of the ſun and moon's ſemidiameters ſubtract the moon's latitude, and the remainder is the parts deficient.

4. As

4. As the diameter of the ſun is to 12 digits ſo is the parts deficient to the digits eclipſed.

Example 1. *For the Eclipſes, anno* 1757.

	S.	D.	M.
Sun's diſtance, *&c.* at the new moon in January	5	5	5
Sun's diſtance, *&c.* for the ½ month add	0	15	2
Gives the ſun's diſtance, *&c.* at the full moon in January, and is within the limit	5	21	1
Add a ſynodical month to the new moon, or half a month to the full moon, gives the new moon in Feb. likewiſe within the limit	6	6	35
The ſun's diſtance, *&c.* at the firſt eclipſe is	5	21	15
Oppoſite to June is ſun's diſtance, *&c.* add.	6	4	[illegible]
Sun's diſtance, *&c.* at the full moon July, likewiſe within the limit	11	25	16
Add for the next new moon the ½ month		15	20
Sun's diſtance, *&c.* at the new moon Aug. within the limit alſo	0	10	36
Sun's diſtance, *&c.* oppoſite to Nov. add.	11	7	23
Gives the Sun's diſtance, *&c.* at the new moon in Dec. within the limit	11	17	59

And ſo for the eclipſes in any other year.

Note. That there are ordinarily 4 eclipſes in a year, *viz.* 2 of the ſun, and 2 of the moon, which fall out in pairs thus, one of each luminary at a fortnight's diſtance, and another pair in the ſame manner about half a year after, and if more or fewer, may be ſeen almoſt by inſpection, by obſerving the ſun's diſtance from the lunar nod, oppoſite to the months that will make the limit, when added to, or ſubtracted from the ſame, at the firſt new or full moons in January for the year given.

Ex-

Exam. 1. *To calculate the eclipse of the moon, January* 1757.

	D.	H.	M.	S.	D.	S.	D.	S.	D.	M.
1757 Janr.	9	4	25	6	21	6	22	5	5	55
½ month ad.	14	18	22		15		13		15	20
Me. F. moon	23	22	47	7	6	7	5	5	21	15
Sun's equ. add		2	16	For the Sun's equ. add					1	5
Once equat.	24	1	3					5	22	20
Moon's equ. add		5	58	For the m's equ. add						15
True F. moon	24	7	1					5	22	35
							add		6	
							True distance, *&c.*	11	22	35
							Semidiameter of the earth's shadow	46′	15″	
							Semidiameter of the moon	17′	4″	
Digits eclip. 7							Sum	63	19	
							Moon's latitude South subt.	39	0	
							Parts deficient	24	19	

Exam. 2. *To calculate the eclipse of the sun that happened in May* 1706.

	D.	H.	M.	S.	D.	S.	D.	S.	D.	M.
1706 Jan.	3	9	8	6	16	3	21	8	2	49
Apr.	28	2	56	3	26	3	13	4	2	41
Mean New Moon May	1	12	4	10	12	7	4	0	5	20
Sun's equ. add		2	48	For the Sun's equ. add						30
	1	14	52					0	5	50
M. equ. sub.		5	8	For the moon's equ. sub.						13
True new Moon	1	9	44	Sun's true distance				0	5	37
				Sun's semidiameter				16′	17″	
				Moon's semidiameter				17	4	
Digits eclipf. 1½							Sum	33	21	
							Moon's lat. North subt.	29		
							Parts deficient	4	21	

Exam.

Exam. 3. *To calculate the eclipſe of the moon* *July* 1757.

	D.	H.	M.	S.	D.	S.	D.	S.	D.	M.
1757 Jan.	9	4	25	6	21	6	22	5	5	55
June	26	4	24	5	25	5	5	6	4	1
½ Month	14	18	22		15		13		15	20
Mean full moon July	20	3	11	1	1	0	10	11	25	16
Sun's equ. ſub.		1	57	For ſun's equ. ſub.					1	4
Once equat.	20	1	14					11	25	12
Moon's eq. ſub.		1	35	For moon's equ. ſub.						1
True full m.	19	23	39					11	25	11
						add		6		
						True diſtance		5	25	11

Digits eclipſ. 12

Semidiameter earth's ſhadow	40′	19″
Semidiameter of the moon	15	2
Sum	55	21
Moon's latitude	25	0
Parts deficient	30	21

Note. That an eclipſe of the ſun is occaſioned by the moon's coming betwixt the ſun and the earth, and thereby hiding the light of the ſun from the earth, which can only happen at the new moon.

And an eclipſe of the moon is occaſioned by the ſhadow of the earth falling upon the moon, or by the moon's paſſing thro' the ſhadow of the earth, whereby ſhe is neceſſarily darkened, and loſes the light of the ſun, this can only happen at the full moon.

The reaſon why the ſun is not eclipſed every new moon, and the moon every time ſhe

is

is full, is, becauſe of the inclination of the moon's orbit to the plain of the ecliptic, ſo that an eclipſe can never happen, but when the moon is either at or near one of the nods.

Note 2. Aſtronomers divide the diameters of both ſun and moon into 12 equal parts, which they call digits, and each digit into minutes, *&c.* by which they meaſure the quantity of obſcuration, or the bigneſs of an eclipſe.

PRECEPTS for TABLE XVII.

Of the Lunar Periods.

THE uſe of this table is, to find the returns of the new and full moons and eclipſes, for if theſe periods be added to, or ſubtracted from, the times of any new or full moons, or eclipſes, they will give the times they did or will happen.

PRECEPTS for TABLE XVIII.

Of the viſible Eclipſes in Britain for the eighteenth Century.

IN this Table is the Julian year of the Chriſtian Era. The month, day and hour when the eclipſes happen; a. ſtanding for afternoon, and m. for morning; S. ſtanding for Sun, and M. for Moon.

Example. In 1757 is Jan. 24. 7 m. M. *i. e.* Janr. 24th day 7 in the morning of the moon.

PRECEPTS for TABLE XIX.

Of the Comets.

COlumn 1ſt gives the Julian years, days and hours when they were neareſt the ſun.

Col. 2. Gives their leaſt diſtance from the ſun in ſuch parts as the middle diſtance of the earth from the ſun contains 100,000.

Col. 3. Their periods in years, that is, the time they take in returning to be neareſt the ſun again.

Col. 4. The years when they may be expected to appear again.

Not many more than 20 Comets have yet been obſerved, at leaſt ſo, that their paths in the heavens have been traced and deſcribed. The time in which they compleat their revolution is not yet known, except perhaps 3 or 4 of them, as in the table. But Aſtronomers are now come to a much greater certainty in calculating the revolutions, and conſequently the appearances, of Comets, than they were formerly, by comparing together the orbits of the comets that appeared in the years 1607 and 1682, they are found ſo coincident, that we cannot but ſuppoſe them to be one and the ſame comet, and has already appeared ſix times,

viz.

viz. in the years 1305, 1380, 1456, 1531, 1607, and laſt 1682; revolving about the ſun at the intervals of 75 and 76 years alternately, which is made very probable by the time of the appearance, the length of the period, the retrograde motion, the place of the perihelion, and nodes: The perihelion diſtance, and the inclination of the orbit, being nearly the ſame in all, except ſome ſmall irregularities, which have been very well accounted for by Dr. *Halley*; as alſo, why the period of this comet is at one time 75 years, and the next 76; and ſince the laſt period in 1682 was of 75 years, it is preſumed, the preſent period will contain 76 years, and therefore its next appearance will probably be in 1758.

But the time of its appearing is uncertain, and it may happen the latter end of the preſent year 1757, or the beginning, middle, or latter end of the next year. After 85 days it will attain to its perihelion, or be neareſt of all to the ſun; and after 130 days it will come to its deſcending node, at which time it will be very near the earth's orbit; and ſhould that happen the 12th of May we ſhould be in a very dangerous ſituation, as the denſer part of its blazing tail would then envelop the earth.

The time is now approaching near, and I thought proper to give you this previous notice to prevent your ſurprize.

For, if this comet returns according to this period

period in 1758, (and we have the greateſt reaſon to think it will) Aſtronomy will then have ſomething new to boaſt of. It ſeems to be of thoſe that riſe to the leaſt height from the ſun, its greateſt diſtance being only 35 times greater than the diſtance of the earth from the ſun: So that at the fartheſt, it does not run out four times farther from us than Saturn. It will probably be the firſt that will be added to the number of revolving planets, and eſtabliſh this part of Sir *Iſaac Newton*'s theory.

F I N I S.

E R R A T A.

Page 12. in the title *for* Calander *read* Calendar.
p. 38. line 3. from the top *for* 6th *read* 5th.
p. 41. l. 8. from the foot *for* letters *read* letter.
p. 42. l. 4. from the top *for* letter *read* letters.
p. 53. l. 9. from the top *for* Chriaſtin *read* Chriſtian.