DIARIA BRITANNICA;

OR, THE

BRITISH DIARY:

AN

A L M A N A C K,

FOR THE

Year of OUR LORD 1792.

BEING

BISSEXTILE, or LEAP-YEAR.

CONTAINING,

A VARIETY of uſeful and entertaining MATTER in ARTS and SCIENCES:

Calculated for the Improvement of the CURIOUS.

ALSO AN

E P H E M E R I S,

Wherein are contained the Heliocentric and Geocentric Places of the Planets, accurately calculated.

By COTES and TAYLOR.

The **fifth Almanack** publiſhed of this Kind.

That d'vine miſt'ry, and a hiſt'ry written in ASIA
Was finiſhed (now to be read) in great BRITANNICA;
In wars alarms, ſo aids her arms, and makes her for to keep
Her foes in fear, both far and near, and triumph o'er the deep.
That ſource of ſenſe, that eloquence, called Mount SINAI,
Surveys the earth, and e'ery breath, the air, and orbs on high;
Great reaſon's mount, that flowing fount of ſcience, art, and ſkill,
O! BRITISH SONS, ye chiefeſt DONS, come here and drink your fill.
The mount is dried, not ſatisfied, makes you drink o'er and o'er,
At SION's mount, that flowing fount, drink once you'll thirſt no more;
The firſt gave death throughout the earth, great wars, wrath, jar, and ſtrife,
But SION's MOUNT, that LOVING FOUNT, gives us eternal life.
Attain but this, you cannot miſs, truly yourſelves to know
Your origin, how born in ſin—what fruits in EDEN grow.

BIRMINGHAM,
Printed and ſold by THOMAS PEARSON,
AT THE WHOLESALE ALMANACK, STATIONARY, AND MEDICINE WAREHOUSE IN THE HIGH-STREET, (*Price One Shilling*).

Chronological Notes for the Year 1792.

The Julian period - -	6505	Septuageſſima Sunday	Feb. 5
Roman Indiction - -	10	Shrove Sunday -	Feb. 19
Golden number - -	7	Eaſter Day - -	April 8
Cycle of the ſun - -	9	Whit Sunday - -	May 27
Dominical letters -	A G	Trinity Sunday -	June 3
Epact - - -	6	Advent Sunday - -	Dec. 2
Number of Direction -	18	Years of the Milennium	141

Aſtronomical Characters uſed in this Diary.

♈ Aries	♍ Virgo	♒ Aquarius	♂ Mars	☊ N. Node	
♉ Taurus	♎ Libra	♓ Piſces	♀ Venus	☋ S. Node	
♊ Gemini	♏ Scorpio	H G. Sidus	☿ Mercury	⊕ Earth	
♋ Cancer	♐ Sagitary	♄ Saturn	☉ Sun	⊗ Part.for.	
♌ Leo	♑ Capricorn	♃ Jupiter	☽ Moon		

☌ Conjunction, when planets are in the ſame ſign, D. M. &c.
✶ Sextile, when 2 ſigns diſt. | △ Trine, when 4 ſigns diſt.
□ Quartile, when 3 ſigns diſt. | ☍ Oppoſition, when 6 ſigns diſt.

Of the Four Quarters of the Year.

Spring Quarter begins	March 19, at 22 m. paſt 9 afternoon
Summer Quarter begins	June 20, at 19 m. paſt 7 afternoon
Autumn Quarter begins	Sept. 22, at 4 m. paſt 9 morning
Winter Quarter begins	Dec. 21, at 35 m. paſt 1 morning

Venus will be a morning Star till the 6th day of Auguſt, and after that time ſhe will be an evening ſtar to the end of the year.

Jupiter will be a morning ſtar till the 15th day of April, then an evening ſtar till the 3d day of November, at which time he becomes a morning ſtar to the end of the Year.

Obliquity of the Ecliptic.				Equat. of Equinoctial Points.	
January 1	23°	27′	48″ 7	+ 2″	5
April 1 -	23	27	48 5	+ 1	0
July 1 -	23	27	48 4	— 0	6
October 1	23	27	48 4	— 2	1
December 31	23	27	48 3	— 3	6

Equation of TIME, whereby a Watch or Clock may be ſet from a Sun-dial.

	Jan.		Feb.		Mar.		April		May		June		July		Aug.		Sep		Oct.		Nov.		Dec.	
M D	Clock t. faſt		Clock t. faſt		Clock t. faſt		Clock t. faſt		C'ock t. ſlow		Clock t. ſlow		Clock t. faſt		Clock t. faſt		Clo. t. ſlo		Clo. t. ſlo.		Clo. t. ſlo.		Clo. t. ſlo.	
1	4	2	14	3	12	30	3	42	3	12	2	30	3	29	5	51	0	30	10	38	16	15	10	17
4	5	26	14	22	11	50	2	48	3	32	1	14	3	25	5	36	1	28	11	33	16	13	9	4
7	6	45	14	34	11	6	1	55	3	46	1	29	4	31	5	16	2	28	12	24	16	3	7	47
10	8	0	14	39	10	18	1	5	3	56	0	54	4	57	4	51	3	30	13	12	15	46	6	25
13	9	10	14	37	9	28	0.	17	4	0	0	18	5	20	4	21	4	32	13	55	15	20	4	59
16	10	14	14	28	8	36	cl.	1	3	58	0	f. 21	5	38	3	46	5	35	14	32	14	47	3	31
19	11	12	14	13	7	42	1	9	3	51	1	0	5	52	3	7	6	37	15	5	14	7	2	1
22	12	3	13	52	6	47	1	40	3	40	1	39	6	1	2	23	7	40	15	32	13	19	0	31
25	12	49	13	26	5	52	2	10	3	24	2	17	6	4	1	35	8	41	15	52	12	25	0	f. 59
28	13	25	12	54	4	56	2	48	3	3	2	54	6	2	0	44	9	41	16	7	11	24	2	27

ECLIPSES for the Year 1792.

IN the courſe of this year there will be but two eclipſes of the greater luminary the ſun, and both inviſible to our iſle of Great Britain, the one happening before the ſun's apogeon, and the other after the ſun's apogeon; therefore no full moon eclipſe this year; the computation and time are as followeth:

I. March 22d, in the afternoon, the ſun will be eclipſed, but inviſible, the conjunction at 5h. 50m. in long. of. 2°. 50'. the moon's latitude 3'. 30". north; the ſun will be centrally eclipſed on the meridian at 5h. 51m. 30ſ. in longitude 87°. 52'. 30". weſt, and latitude 4°. 45'. north.

II. September the 16th, in the morning, the ſun is eclipſed, but inviſible, the conjunction at 9h. 18m. in long. 5ſ. 24°. 8'. the moon's lat. 1'. ſouth; the ſun will be centrally eclipſed on the meridian at 9h. 18m. in longitude 40°. 30'. eaſt, and latitude 1°. 45'. north.

The PRIZES, for the ſeveral ſolutions, have been determined by lot as follows: Firſt, for the prize-queſtion, to Mr. *John Griffith*, 12 *Diaries*.—2d, For the prize enigma, to Mr. *Patrick Hall*.—3d, For the general anſwer to the enigmas, to Mr. *John Fildes*, and Mr. *Daniel Sheridan*, 6 *Diaries* each.—4th, For the general anſwer to the rebuſes, charades, &c. to Mr. *William Salter*. All of whom will pleaſe to ſend for them to Mr. *Pearſon*, Printer, in *Birmingham*.

Unfeigned thanks to correſpondents all,
For their aſſiſtance, either great or ſmall;
And hopes, in future, they will not delay,
To ſend their letters by the *firſt* of *May*.

An EXAMPLE. To find the planets' places Jan. the 1ſt, look in the calendar for Jan. 1ſt, under ♄, and you will find 12 deg. in ♈, then look in the table of min. for Jan. 1ſt. and you will find 22 min. therefore, for the given day, his place is in ♈ 12°. 22'.

A TABLE

A TABLE *of the* MOON's *fouthing, for* Greenwich *for the Year* 1792.

M	Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.		Oct.		Nov		Dec.	
D	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.	h.	m.
1	6	18	7	6	6	35	7	4	8	3	9	8	9	36	11	20	0	0	0	33	1	46	2	0
2	7	3	7	55	7	22	8	32	8	51	10	2	10	36	morn		0	54	1	23	2	35	2	47
3	7	48	8	46	8	10	9	15	9	40	11	0	11	39	0	19	1	46	2	13	3	24	3	33
4	8	33	9	27	8	58	10	7	10	31	morn		morn		1	16	2	36	3	2	4	12	4	18
5	9	19	10	15	9	45	10	56	11	24	0	0	0	41	2	10	3	25	3	51	4	59	5	2
6	10	5	11	2	10	33	11	46	morn		1	2	1	43	3	2	4	14	4	40	5	45	5	46
7	10	52	11	49	11	21	morn		0	21	2	4	2	38	3	52	5	2	5	28	6	30	6	30
8	11	39	morn		morn		0	39	1	20	3	4	3	32	4	40	5	51	6	16	7	15	7	15
9	morn		0	36	0	9	1	33	2	20	4	1	4	23	5	27	6	39	7	3	7	58	8	1
10	0	26	1	23	0	58	2	3	3	21	4	55	5	12	6	14	7	26	7	49	8	40	8	56
11	1	13	2	10	1	48	3	28	4	20	5	45	5	59	7	1	8	14	8	35	9	32	9	42
12	1	59	2	58	2	4	4	27	5	17	6	33	6	45	7	48	9	0	9	20	10	21	10	37
13	2	45	3	47	3	34	5	26	6	11	7	20	7	31	8	36	9	47	10	6	11	13	11	35
14	3	31	4	39	4	29	6	23	7	2	8	8	8	17	9	24	10	33	10	53	0	a 7	0	a 36
15	4	17	5	32	5	26	7	18	7	51	8	52	9	4	10	11	11	19	11	41	1	4	1	37
16	5	4	6	27	6	24	8	10	8	38	9	38	9	51	10	58	0	a 5	0	a 31	2	3	2	37
17	5	54	7	26	7	22	9	1	9	24	10	25	10	30	11	44	0	52	1	24	3	2	3	35
18	6	47	8	25	8	19	9	50	10	11	11	12	11	16	0	a 26	1	41	2	19	4	2	4	29
19	7	42	9	24	9	14	10	38	10	57	11	59	0	a 12	1	14	2	31	3	15	4	56	5	21
20	8	40	10	22	10	7	11	26	11	44	0	a 46	0	58	2	0	3	23	4	13	5	52	6	10
21	9	41	11	17	10	58	0	a 12	0	a 31	1	33	1	44	2	47	4	17	5	11	6	45	6	58
22	10	42	0	a 11	11	47	1	0	1	19	2	19	2	29	3	35	5	13	6	9	7	35	7	45
23	11	42	1	2	0	a 37	1	47	2	7	3	4	3	13	4	25	6	11	7	4	8	24	8	32
24	0	a 44	1	51	1	24	2	35	2	54	3	48	3	58	5	17	7	9	7	58	9	12	9	19
25	1	34	2	39	2	12	3	23	3	41	4	33	4	46	6	12	8	7	8	50	9	59	10	7
26	2	26	3	27	3	0	4	10	4	26	5	18	5	33	7	10	9	3	9	41	10	47	10	55
27	3	15	4	14	3	48	4	57	5	1	6	4	6	25	8	9	9	58	10	30	11	35	11	43
28	4	2	5	1	4	35	5	44	5	56	6	52	7	20	9	9	10	51	11	19	morn		morn	
29	4	48	5	48	5	22	6	31	6	42	7	43	8	17	10	8	11	42	morn		0	24	0	30
30	5	34			6	10	7	17	7	29	8	38	9	17	11	5	morn		0	8	1	2	1	16
31	6	21			6	58			8	17			10	10	morn				0	57			1	2

A TABLE *of the* Seven Stars *fouthing, or Times when they paſs the Meridian.*

	A.		A.		A.		A.		M.		M.		M.		M.		A.		A.	
1	8	4	6	36	4	42	2	49	0	58	10	55	8	51	6	47	4	51	3	41	3	10	59
7	8	26	6	10	4	19	2	27	0	35	10	30	8	27	6	24	4	29	2	42	2	40	10	33
13	7	54	5	46	3	57	2	5	0	11	10	5	8	2	6	1	4	8	2	20	0	15	10	7
19	7	23	5	23	3	36	1	43	11	48	9	47	7	38	5	39	3	47	1	58	11	50	9	40
25	7	3	5	0	3	15	1	21	11	23	9	15	7	14	5	17	3	26	1	35	11	25	9	14

Uſe of the Tables. To find the Time of High Water.

EXAM. On Jan. 1ſt Moon ſouths at	-	6 18 p.m
Add for N. and F. Moon for London	-	2 30
Time of High Water at London		8 48 p.m
Add for next Low Water	- -	5 48
Low Water at London, Jan. 2d	-	2 36 mo
Ex. 1.) On Jan. 1, Seven Stars ſouths at		8 47 p.m
Semidiurnal arc. ſubtract and add	-	8 17
Seven Stars riſes Jan. 1ſt at.	- - -	0 30 p.m
Seven Stars ſets next morning Jan. 2,	-	5 4 m.
Ex. 2.) Seven Stars ſouths Jan. 1ſt at	-	8 47 a.
Sirius ſouths after the Seven Stars	-	3 1
Sirius ſouth Jan. 1ſt afternoon	-	11 48 a.
Semidiurnal arc ſubtract and add	-	4 37
Sirius riſes Jan. 1ſt afternoon	- -	7 11 a.
Sirius ſets Jan. 2d morning	- -	4 25 m.

Na. of Stars.	h.	m.	d.	a.
Aldeharan	0	40	7	29
Capella	1	26		
Betelgeuſe	2	8	6	41
Sirius	3	14	3	37
Alphord	5	42	5	24
Regulus	6	21	7	11
Upp. point.	7	15		
Virg. ſpike	9	30	5	12
Arcturus	10	29	7	55
Antarus	12	41	3	34
Lyra	14	52		
Atair	18	56	6	46
Fomalhaut	19	8	1	55
Pole ſtar	21	13		
Almach	22	16		
Algol	23	19		

Geocentric Latitude.

D	☿	♀	♂	♃	♄	☊	☋
1	0 43	2 32	1 15	2 39	3 20	1	9
13	0 44	2 28	1 17	2 55	3 7	2	n 3
25	0 42	2 25	1 22	3	3 38	3	23

Full Moon 9 day, 9 mor.
Laft Quart. 17 day, 2 mor.
New Moon 23 day, 5 night
Firft Quart 30 day, 11 nig.

JANUARY hath XXXI Days.

Heliocentric Longitude.

D	☿	♀	♁	♂	♃	♄	♅	♆
1	16 30	18 24	18 38	23 31	25 23	16 8		
7	16 35	18 37	19 6	26 9	5♍ 8	20 8	41	
13	16 40	18 49	19 33	28 46	14 54	28 11	19	
19	16 44	19 2	20 0	1♍ 23	24 38	4 8	22	
25	16 40	19 15	20 27	4 1	4♎ 21	5♍ 2	0	

M D	W D	Feftival Days.	Aſpects & Wea.	☽ ſets.	☉ ♒	H ♑	☿ ♈	♀ ♎	♂ ♐	♃ ♍	♄ ♓	☽ ♈	☽ Dat. touth
1	A	1 S.aft.Chr.	Snow	Morn	10 53	18	12	28	28	24	0	14 33	0 35
2	M	[Circum.	□ ☉ ♄	0 58	11 55	18	12	28	29	25	1	26 52	1 38
3	T	♃ri.1.38m	or cold	2 2	12 56	18	12	28	29	26	2	8 ♓ 56	2 36
4	W	Sir Iſaac N.	o. 1643	3 4	13 57	18	12	28	29	27	3	20 52	3 26
5	T	O.d Chr. d.	rain,	4 2	14 58	18	12	29	♎	28	3	2♈ 43	4 6
6	F	Epiphany	and	4 58	15 59	18	12	29	0	29	4	14 34	4 36
7	S	♂ri.10.35a	perhaps	5 48	17 0	18	12	29	0	♐	4	26 25	4 54
8	A	1 S. aft Epi.	Lucian	6 35	18 2	18	12	29	0	1	5	8♉ 22	5 0
9	M	Plow Mon.	ome	☽ riſ.	19 3	18	12	29	1	2	℞	20 23	4 51
10	T	♀ri.4. 13m	hunder	5a52	20 4	18	12	29	1	3	5	2♊ 31	4 30
11	W	♂ri.10. 24a	☌ ☽ H	6 54	21 5	18	12	29	1	4	4	14 45	3 56
12	T	OldN.yrs.d		7 50	22 6	17	12	29	2	5	4	27 8	3 11
13	F	Hil.C.T.b.	Stormy	9 4	23 7	17	12	29	2	♑	3	9♋ 40	2 15
14	S	Ox. T. beg.	△ ♂ ☿	10 23	24 8	17	12	29	2	7	2	22 24	1 12
15	A	2 S. af. Epi.	nd	11 21	25 9	17	12	♍	2	9	1	5♎ 22	0 4
16	M	♃ri.0. 47m	□ ♃ ☿	Morn	26 10	17	13	0	2	10	0	18 38	1 n 6
17	T	OldTwel.d.	☌ ☉ ♀	0 33	27 12	17	13	0	3	11	♑	2♍ 13	2 14
18	W	Qu.birth d.	Priſca	1 40	28 13	17	13	0	3	12	28	16 10	3 16
19	T	H ſo.1.14m	☌ ☽ ♀	2 59	29 14	17	13	0	3	13	26	0 ♐ 30	4 7
20	F	Fabian 1 re.	□ ☉ ♃	4 9	♒ 15	17	13	0	3	14	25	15 10	4 44
21	S	Agnes	△ H ♀	5 15	1 16	17	13	0	3	15	24	0♑ 5	5 2
22	A	3 S.aft.Eph.	☌ ☽ ☿	6 17	2 17	17	13	0	4	16	23	15 8	4 59
23	M	Hil.T. beg.	troubl'd	☽ ſets	3 18	17	13	0	4	17	22	0♒ 9	4 36
24	T	♀ri.4. 34m	air with	5a43	4 19	17	13	0	4	19	21	14 58	3 54
25	W	Con. St. Pa.	rain or	6 58	5 20	17	13	0	4	20	20	29 27	2 58
26	T	♂ riſ.9.37a	fleet.	8 13	6 21	17	13	0	4	21	19	13♓ 30	1 53
27	F	Pr.Au.Fr.b		9 25	7 22	17	13	0	4	22	19	27 5	0 43
28	S	[2 ret.	☌ ☽ ♄	10 32	8 23	17	13	1	4	23	19	10♈ 12	0 n 28
29	A	4 S.aft.Eph.	More	11 39	9 24	17	13	1	4	24	19	22 55	1 34
30	M	R.Ch.I. M.	mild	Morn	10 25	17	13	1	5	25	D	5 8 17	2 35
31	T	Pheaſ.ſh. e.		0 43	11 20	17	14	1	5	27	19	17 24	3 27

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day inc.	Declination. ☉	f.	♄	n	♃	f.	♂	n.	♀	f.	☿	f.
1	5 59	8 5	3 55	6 1	7 50	0 7	23	1	2	34	9	48	2	54	15	35	21	16
7	5 57	8 1	3 59	6 3	7 58	0 15	22	23	2	41	10	2	2	17	17	4	18	53
13	5 52	7 54	4 6	6 8	8 12	0 29	21	29	2	40	10	14	1	46	18	24	17	24
19	5 47	7 47	4 13	6 13	8 26	0 43	20	20	2	58	10	24	1	22	19	34	17	31
25	5 41	7 39	4 21	6 19	8 42	0 59	18	57	3	0	10	32	1	7	20	29	18	33

Geocentric Latitude.

D	☉ n	☽ f.	♃ n	♂ n	♀ s	☿ n
1	0 44	2 24	1 22	3 20	2 16	2 17
13	0 44	2 21	1 24	3 35	1 33	0 6
25	0 44	2 19	1 27	3 45	0 48	1 28

Full Moon 8 day, 3 morn.
Laſt Quart. 15 day, at noon
New Moon 22 day, 5 mor.
Firſt Quart. 29 day, 7 night

FEBRUARY hath XXIX Days.

Heliocentric Longitude.

D	☉	☊	♄	♈	♃	♎	♂	♍	♀	♎	☿	♎
1	16	54	19	29	20	59	7	4	15	39	4	43
7	16	59	19	42	21	26	9	41	25	19	25	39
13	17	3	19	54	21	54	12	19	4♍	58	14♍	6
19	17	8	20	7	22	21	14	57	14	34	1	♐ 8
25	17	12	20	10	22	48	17	35	24	9	17	39

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ ſets	☉ ♒	☊ ☉	♄ ♈	♃ ♍	♂ ♎	♀ ♐	☿ ♑	☽ ♉	☽ lat. ſouth
1	W	♀ riſ. 4. 47 m	Moder.	1 42	12 26	17	14	1	5	28	19	29 21	4 10
2	T	Pur. or C.d.	✱ ☉ ♄	2 41	13 27	17	14	1	5	20	19	11♊13	4 41
3	F	Blaſe. 3 ret.	✱ ♃ ♀	3 34	14 28	17	14	1	5	♑ 20	23	4	5 0
4	S	♄ ſet 10. 7 a	Snow	4 22	15 29	17	14	1	5	1	20	4♋58	5 6
5	A	Septua. Su.	☿ ☉ H	5 0	16 30	16	14	1	R	2	21	16 58	4 59
6	M	[Agatha	and	5 45	17 30	16	14	1	5	4	22	29 6	4 39
7	T	♂ riſ. 8. 48 a	□ ♂ ♀	6 39	18 31	16	14	1	5	5	22	11♌24	4 5
8	W	♀ ri. 4. 54 m	ſleet.	☽ riſe	19 32	16	14	1	5	6	23	23 53	3 19
9	T	4 return		6a49	20 32	16	14	1	5	7	24	6♍33	2 23
10	F	Dies Sco. O.		7 58	21 33	16	14	1	5	8	25	19 23	1 18
11	S	Hſo. 11. 36 a	♂ ☽ ♂	9 7	22 34	16	15	1	5	9	26	2♎25	0 9
12	A	Sexageſ. S.	P. ſh. en	10 18	23 34	16	15	1	5	11	27	15 30	In 3
13	M	Hil. T. ends	O. C. d.	11 31	24 35	16	15	1	4	12	28	29 (	2 12
14	T	Valentine	Windy	Morn	25 35	16	15	1	4	13	29	12♍46	3 15
15	W	♄ ſet 9. 29 a	with	0 41	26 36	16	15	R	4	14	♒	26 41	4 8
16	T	Collop Th.	(□ ♃ ☿	1 53	27 36	16	15	1	4	15	1	10♐40	4 46
17	F	♃ ri. 10. 45 a	ſnow	2 58	28 37	16	15	1	4	16	3	25 10	5 8
18	S	☿ riſ. 7. 58 a	☌ ☽ ♀	3 58	29 37	16	15	1	4	18	4	9♑41	5 10
19	A	Quinquag.	△ ☉ ♃	4 51	♓ 38	16	15	1	4	19	5	24 15	4 52
20	M	Cam. Term	☌ ☽ ☿	5 34	1 38	16	15	1	3	20	6	8♒40	4 15
21	T	Shrove Tu.	or cold	6 13	2 39	16	16	1	3	21	8	23 15	3 23
22	W	Aſh Wedn.	△ H ♄	☽ ſets	3 39	16	16	1	3	22	9	7♓27	2 18
23	T	Pr. Octa. b.	rain.	6a59	4 39	16	16	1	3	23	10	21 19	1 7
24	F	St. Matthew	☌ ☽ ♄	8 10	5 40	16	16	1	3	25	12	4♈49	0 ♑ 7
25	S	[P. Ad. F. b		9 19	6 40	16	16	1	2	26	13	17 57	1 18
26	A	☥ S. in Lent	☿ H ☿	10 26	7 40	16	16	1	2	27	15	0♉42	2 23
27	M	♂ riſ. 7. 15 a		11 29	8 40	16	16	1	2	28	16	13 8	3 20
28	T	Hare-h. en.		Morn	9 41	16	16	1	2	29	18	25 19	4 7
29	W	Emb. week		0 30	10 41	15	16	1	1	♒	19	7♊19	4 42

D	D.L beg:	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day inc.	Declination ☉	f.	♄	n.	♃	f.	♂	n.	♀	f.	☿	f.
1	5 32	7 27	4 33	6 28	9 6	1 23	17	5	3	23	10	38	1	0	21	11	22	21
7	5 23	7 17	4 43	6 37	9 26	1 43	15	18	3	36	10	41	1	4	21	27	22	14
13	5 14	7 6	4 54	6 46	9 48	2 5	13	21	3	50	10	41	1	19	21	21	22	16
19	5 3	6 55	5 5	6 57	10 10	2 27	11	16	4	4	10	40	1	44	20	55	22	24
25	4 50	6 42	5 18	7 10	10 36	2 53	9	4	4	20	10	36	2	18	20	8	22	35

Geocentric Latitude.

D	☽ n	☿ 1.	♃ n	♂ n	♀ n	☿ 1.
1	0 44	2 19	1 28	3 47	0 29	1 53
13	0 44	2 17	1 30	3 42	0 14	2 12
25	0 43	2 16	1 32	3 25	0 49	1 25

Full Moon 8 day, 7 night
Laſt Quart. 15 day, 7 night
New Moon 22 day, 6 night
Firſt Quar. 30 day, 4 aftern.

MARCH hath XXXI Days.

Heliocentric Longitude.

D	☉	☽	☿	♈	♃	♎	♂	♍	♀	☿	♐	♑
1	17	16	20	30	23	11	19	47	2	7	1	32
7	17	21	20	43	23	38	22	26	11	3	19	1
13	17	26	20	55	24	6	25	5	21	10	8	♒11
19	17	31	21	8	24	33	27	45	0	♍40	0	♓10
25	17	36	21	20	25	0	♎ 28		10	9	26	9

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ fets.	☉ ♓	☿ ♑	♃ ♍	♂ ♎	♀ ♒	♅ ♒	☽ ♊	☽ lat. ſouth
1	T	St. David	Seaſon-	1 26	11 41	15 16	1 1	2	21	19	12	5 5
2	F	Chad	able at	2 17	12 41	15 17	1 1	3	22	1♉	5	5 14
3	S	♀ riſ. 5. 6 m	the be-	3 2	13 41	15 17	1 0	4	24	13	0	5 11
4	G	2 S. in Lent	ginning	3 43	14 41	15 17	0 0	5	25	25	2	4 53
5	M	♃ riſ. 9. 38 a	♂ ☽ ☿	4 20	15 41	15 17	0 0	7	27	7♋	16	4 22
6	T	☿ ſo. 10. 0 a	wind	4 53	16 41	15 17	0 0	♍	28	19	42	3 38
7	W	Perpetua	△ ♃ ☿	5 23	17 41	15 17	0 29	9	♈	2♌	24	2. 43
8	T	♄ ſet 8. 18 a	and	☽ riſ.	18 40	15 17	0 29	10	2	15	21	1 38
9	F	♂ ſo. 0. 37 m	♂ ☽ ♂	7 a 0	19 40	15 17	0 28	11	3	28	33	0 27
10	S	♀ riſ. 5. 3 m.	rain	8 12	20 40	15 18	0 28	13	5	12	♌ 0	on 47
11	G	3 S. in Lent	with	9 24	21 40	15 18	0 28	14	7	25	39	2 0
12	M	Gregory	☿ H ♀	10 39	22 40	15 18	0 27	15	8	9♍	30	3 7
13	T	H ſo. 9. 34 a	hail and	11 49	23 39	15 18	0 27	16	10	23	29	4 3
14	W	♃ riſ. 9. 1 a	✱ ♄ ♀	Morn	24 39	15 18	0 26	17	12	7	♎ 35	4 45
15	T	♂ ſo. 0. 7 m	☿ ☉ ♂	0 57	25 39	15 18	0 26	19	14	21	45	5 10
16	F	♀ riſ. 4. 59 a	variable	1 57	26 38	15 18	0 26	20	15	5♎	58	5 17
17	S	St. Patrick	weather	2 51	27 38	15 18	0 25	21	17	20	11	5 4
18	G	4 S. in Lent		3 37	28 37	15 18	♎ 25	22	19	4♏	21	4 32
19	M	♃ riſ. 8. 40 a	♂ ☽ ♀	4 17	29 37	15 19	29	24	23	21	18	25 3 45
20	T	☿ ſo. 11. 42 a	☿ ☿ ☿	4 50	♈ 37	15 19	29	24	25	23	2♐	21 2 44
21	W	Benedict	♂ ☽ ☿	5 21	1 36	15 19	29	24	27	25	16	5 1 35
22	T	Cam. lat. act	note	☽ ſets	2 36	15 19	29	23	27	27	29	35 0 21
23	F	♃ riſ. 8. 23 a	△ ♃ ♀	7 a 8	3 35	15 19	29	23	28	29	12♑	50 of 52
24	S	♀ riſ. 4. 51 m	mild	8 15	4 34	15 19	29	23	29	♈	25	47 2 1
25	G	5 S. in Lent	Ladyda.	9 21	5 33	15 19	29	22	♈	3	8♑	27 3 2
26	M	♂ ſo. 11. 11 a	to the	10 23	6 33	15 19	29	22	2	5	20	52 3 54
27	T	H ſo. 8. 41 a	♂ ☉ ☿	11 23	7 32	15 20	29	21	3	7	3♊	3 4 34
28	W	♃ riſ. 8. 3 a	end.	Morn	8 31	15 20	28	21	4	9	15	4 5 1
29	T	♀ riſ. 4. 46 m		0 16	9 30	15 20	28	21	5	11	26	59 5 15
30	F	Cam. T. end	△ H ☿	1 3	10 29	15 20	28	20	7	13	8♋	51 5 15
31	S	Ox. T. ends		1 47	11 28	15 20	28	20	8	15	20	47 5 2

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Length of D.	Day inc.	Declination. ☉ f.	☉ n.	♄ n.	♃ f.	♂ n.	♀ 1.	☿ 1.
1	4 42	6 33	5 27	7 18	10 54	3 11	7 11	4 32	10 31	2 52	19 12	16 17	
7	4 29	6 21	5 39	7 31	11 18	3 35	4 53	4 49	10 23	3 39	17 47	13 21	
13	4 16	6 9	5 51	7 44	11 42	3 59	2 31	5 5	10 12	4 29	16 4	9 58	
19	4 3	5 57	6 3	7 57	12 6	4 23	0 9	5 22	10 0	5 19	14 5	5 11	
25	3 49	5 45	6 15	8 11	12 30	4 47	2n 13	5 30	9 47	6 4	11 52	0 2	

Geocentric Latitude.

D	Hn	♄ l.	♃ n	♂ n	☿ l.	☿ l.
1	0 43	2 16	1 32	3 10	1 6	0 23
13	0 43	2 16	1 33	2 40	1 27	1 47
25	0 42	2 16	1 32	2 8	1 38	2 45

Full Moon 7 day, 7 morn.
Laſt Quart. 14 day, 1 morn.
New Moon 21 day, 8 mor.
Firſt Quart. 29 day, 10 mor

APRIL hath XXX Days.

Heliocentric Longitude.

D	H	☊	♄	♈	♃	♎	♂	♎	☿	♑	☿	♉
1	17	40	21	35	25	38	3	34	21	22	2	59
7	17	45	21	47	25	59	6	17	♌	41	9	♊ 34
13	17	50	21	59	26	27	9	0	10	10	♊	♋ 59
19	17	55	22	12	26	54	11	44	19	30	20	☊ 41
25	17	59	22	24	27	21	14	20	20	0	18	♍ 40

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ ſets.	☉ ♈	☿ ☊	♄ ♈	♃ ♎	♂ ♍	♀ ♓	☿ ♈	☽ ☊	☽ lat. ſouth
1	G	6 S. in Lent	Palm S.	2 26	12 27	15	20	26	20	9	1	2 49	4 36
2	M	[All Fool's	☌ ♄ ☿	2 59	13 26	15	20	28	19	10	10	15 3	3 57
3	T	Richard	△ ☉ H	3 30	14 25	15	20	28	19	11	21	27 33	3 6
4	W	St. Ambroſe	☌ ☽ ☌	3 58	15 24	14	21	28	18	13	23	10 ♍ 22	2 5
5	T	Maundy	O. La. d.	4 26	16 23	14	21	27	19	14	25	23 31	0 55
6	F	Good Frid.	Wind	4 54	17 22	14	21	27	18	15	27	7 ♎ 1	on 20
7	S		and	☽ riſ.	18 21	14	21	27	18	16	29	20 50	1 35
8	G	Eaſter Day	rain,	8 a 30	19 20	14	21	27	18	18	8	4 ♏ 57	2 45
9	M	EaſterMon.	and ſo	9 46	20 19	14	21	27	18	19	3	19 17	3 47
10	T	EaſterTues	☌ ☉ ♄	10 56	21 17	14	21	27	17	20	5	3 ♐ 44	4 34
11	W	EaſterWed.	conti-	Morn	22 16	14	21	27	17	21	7	18 12	5 4
12	T	♃ ſo. o. 14 m	nueth	0 0	23 15	14	22	27	17	22	9	2 ♑ 38	5 15
13	F	☌ ſo. 9. 46 a	to the	0 58	24 13	14	22	26	17	24	10	16 55	5 6
14	S	☿ ri. 4. 25 m	☌ ☉ ♃	1 46	25 12	14	22	26	17	25	12	1 ♒ 4	4 39
15	G	1 S. aft. Eaſt.	□ H ☿	2 26	26 11	14	22	26	17	26	14	15 0	3 56
16	M	[Low S.	△ ☌ ☿	3 1	27 9	14	22	26	16	27	15	28 43	2 59
17	T	♃ ſo. 11. 56 a	new	3 31	28 8	14	22	26	16	28	17	12 ♓ 14	1 54
18	W	O. & C. T. b.	☌ ☽ ☿	3 59	29 6	14	22	26	16	♈	18	25 31	0 43
19	T	Alphege	noon.	4 26	♉ 5	14	22	26	16	1	19	8 ♈ 37	of 29
20	F	☿ riſ. 4. 17 m	☌ ☽ ♄	4 52	1 3	14	23	26	16	2	21	21 29	1 38
21	S	☿ ſet 9. 8 m		☽ ſets	2 2	14	23	25	16	3	22	4 ♉ 10	2 41
22	G	2 S. aft. Eaſt.	☌ ☽ ☿	8 a 19	3 0	D	23	25	16	4	23	16 38	3 35
23	M	1 return	Mild	9 19	3 58	14	23	25	16	6	24	28 51	4 18
24	T	[St. Geo.	and	10 14	4 57	14	23	25	16	7	25	11 ♊ 3	4 47
25	W	St. Mark	Prs. M. b	11 5	5 55	14	23	25	16	8	25	23 2	5 7
26	T	[Term b.	pleaſant	11 51	6 53	14	23	25	D	9	26	4 ♋ 56	5 11
27	F	St Walburg	to the	Morn	7 52	14	23	25	16	11	27	16 48	5 2
28	S	☿ ſet 9. 19 a	end.	0 30	8 50	14	24	25	16	12	27	28 42	4 49
29	G	3 S. aft. Eaſt.	☌ ☽ ♊	1 5	9 46	14	24	24	16	13	28	10 ☊ 42	4 6
30	M	2 return	△ H ☿	1 37	10 46	14	24	24	16	14	28	22 54	3 20

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Leng. of D.	Day inc.	Declination. ☉	n	☿	n	♃	ſ.	♂	n	♀	ſ.	☿	n
1	3 31	5 31	6 20	8. 29	12 58	5. 15	4 56		6 9		9 30		6 48		0 1		6 29	
7	3 16	5 20	6 40	8 44	13 20	5 37	7 12		6 15		9 13		7 13		6 25		12 2	
13	3 0	5 9	6 51	9 0	13 42	5 59	9 24		6 33		8 57		7 28		3 42		16 48	
19	2 43	4 57	7 3	9 17	14 6	6 23	11 31		6 50		8 41		7 32		0 55		20 9	
25	2 26	4 46	7 14	9 33	14 28	6 45	13 30		7 7		8 25		7 24		1 n 55		21 57	

MAY hath XXXI Days.

Geocentric Latitude.						
D	H n	♄ l.	♃ n	♂ n	♀ l.	☿ n
1	0 42	2 16	1 31	1 53	1 39	2 20
13	0 42	2 17	1 29	1 25	1 33	of 24
25	0 41	2 19	1 27	1 0	1 19	3 20

Full Moon 6 day, 5 night
Laſt Quart. 13 day, 8 mor.
New Moon 20 day, 10 nig.
Firſt Quart. 29 day, 2 mor.

Heliocentric Longitude.												
D	H	♌	♄	♈	♃	♎	♂	♎	♀	♓	☿	♎
1	18	3	22	38	27	48	17	15	8	39	12	7
7	18	8	22	51	28	16	20	2	18	10	2♏	4
13	18	13	23	3	28	43	22	51	27	42	19	56
19	18	17	23	16	29	11	25	41	7♈	15	6♐	43
25	18	22	23	29	29	38	28	32	16	48	23	13

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ ſets.	☉ ♉	H ♌	♄ ♈	♃ ♎	♂ ♍	♀ ♈	☿ ♉	☽ ♍	☽ lat. ſouth
1	T	St.Ph.&Jas.	☍ ♄ ♃	2 5	11 44	14	24	24	16	15	28	5 23	2 24
2	W	♃ ſet 10.51a	Windy	2 32	12 42	14	24	24	16	17	29	18 11	1 19
3	T	In.of the C.	with	2 59	13 40	14	24	24	16	18	29	1♎24	0 8
4	F	♂ ſet 3. 1m	□ ☉ H	3 26	14 38	14	24	24	1(	19	R	15 2	In 6
5	S	♄ riſ.3.56m	J.Port L	3 55	15 36	14	24	24	16	20	29	29 7	2 17
6	G	4 S.af. Eaſt.	ſhowers	☽ riſ.	16 34	14	25	24	16	21	28	13♏34	3 22
7	M	Duc.York b	☍ ♃ ♀	8a43	17 32	14	25	24	16	23	28	28 18	4 15
8	T	♃ ſo.10.25a	☌ ♄ ♀	9 52	18 30	15	25	23	17	24	28	13♐12	4 51
9	W	♀ ri.3. 43 m	of rain.	10 56	19 28	15	25	23	17	25	28	28 7	5 7
10	T	♄ riſ. 3. 39		11 47	20 26	15	25	23	17	26	27	12♑54	5 3
11	F	m		Morn	21 24	15	25	23	17	28	27	27 27	4 39
12	S	Old May d.	Some	0 31	22 21	15	25	23	17	29	26	11♒42	3 58
13	G	5 S.af.Eaſt.	Rog.Su.	1 7	23 19	15	25	23	17	♉	26	25 36	3 4
14	M	4 return	pleaſant	1 38	24 17	15	26	23	18	1	25	9♓11	2 1
15	T	♃ ſou.9.55a	☌ ☉ ☿	2 7	25 15	15	26	23	18	2	24	22 26	0 52
16	W	♄ ri.3. 17m	ſhowers	2 33	26 13	15	26	23	18	4	24	5♈26	of 17
17	T	Aſcen. day	☌ ☽ ♄	2 59	27 10	15	26	23	18	5	23	18 12	1 25
18	F	or Holy T.	☌ ☽ ♀	3 26	28 8	15	26	22	18	6	23	0♉45	2 27
19	S	Q.Charl. b.	☌ ☽ ☿	3 53	29 6	15	26	22	19	7	22	13 9	3 21
20	G	S.af.Aſcen.		☽ ſets	♊ 3	15	26	22	19	8	22	25 24	4 5
21	M	Faſte T.en		8 a 8	1 1	15	26	22	19	10	21	7♊31	4 37
22	T	Prs. Eliz. b.		9 1	1 59	15	26	22	19	11	21	19 32	4 57
23	W	♂ ſet 1.50m		9 48	2 56	15	27	22	20	12	21	1♋28	5 3
24	T	Oxf.T.ends	Windy	10 32	3 54	15	27	22	20	13	20	13 20	4 57
25	F	♃ ſou.9.12a	△ ♂ ☿	11 6	4 51	15	27	22	20	15	20	25 1	4 37
26	S	Aug.I.A Bp	□ H ♀	11 39	5 49	15	27	22	21	16	20	7♌ 4	4 6
27	G	WhitSund.	☌ ☽ H	Morn	6 46	15	27	22	21	17	D	19 3	3 23
28	M	Whit Mon.	with	0 8	7 44	15	27	22	21	18	20	1♍13	2 31
29	T	Whit Tueſ.	☌ ♀ ☿	0 34	8 41	15	27	22	22	1g	20	13 38	1 30
30	W	Ember We.	ſhowers	1 0	9 39	15	27	22	22	21	20	26 23	0 24
31	T	♄ ri.2. 21m	△ ♂ ♀	1 26	10 36	15	27	22	22	22	20	0♎32	on 46

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Leng. of D.	Day inc.	Declination. ☉ n	♄ n	♃ l.	♂ n	♀ n	☿ n
1	1 59	4 36	7 24	10 1	14 48	7 5	15 22	7 23	8 10	7 7	4 44	22 13
7	1 43	4 26	7 34	10 17	15 8	7 25	17 5	7 39	7 50	6 40	7 31	21 5
13	1 15	4 16	7 44	10 45	15 28	7 45	18 37	7 54	7 43	6 (	10 12	18 54
19	0 40	4 7	7 53	11 20	15 46	8 3	19 59	8 8	7 32	5 24	12 45	16 26
25	all	3 59	3 1	Day	16 2	8 10	21 8	8 22	7 24	4 34	15 7	14 41

Geocentric Latitude.

D	☽ n	☿ s.	♃ n	♂ n	☿ l.	☿ l.
1	0 41	2 20	1 25	0 48	1 6	3 56
13	0 41	2 22	1 22	0 28	0 41	3 9
25	0 41	2 24	1 18	0 11	0 13	1 1

Full Moon 5 day, 1 morn.
Laſt Quart. 11 day, 4 after.
New Moon 19 day, 1 after.
Firſt Quart. 27 day, 2 after.

JUNE hath XXX Days.

Heliocentric Longitude.

D	☿	♀	♁	♈	♃	♍	♂	♍	☿	♈	♅	♑
1	18	27	23	43	0	10	1	53	27	59	13	7
7	18	31	23	56	0	38	4	47	7	♉ 35	1	♒ 38
13	18	36	24	9	1	5	7	43	17	11	22	33
19	18	41	24	21	1	32	10	40	26	49	17	♓ 5
25	18	46	24	34	2	0	13	39	6	♊ 28	16	♈ 27

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ ſets.	☉ ♊	☿ ♋	♁ ♈	♃ ♎	♂ ♑	♀ ♉	☿ ♉	☽ ♎	☽ lat. north
1	F	Nicomede	Seaſon-	1 52	11 34	15	23	22	23	23	21	23 10	1 56
2	S	♂ ſet 1.12 m	able all	2 23	12 31	15	28	21	23	24	21	7 ♍ 17	3 0
3	G	Trinity Su.	the fore	2 57	13 28	15	28	21	23	26	21	21 52	3 56
4	M	K.G.III. b.	1 return	3 39	14 26	15	28	21	24	27	22	6 ♐ 49	4 36
5	T	P.Ern.A. b.	✶ ☉ ♄	☽ riſ.	15 23	15	28	21	24	28	23	22 0	4 53
6	W	Oxf.T. beg.	part of	9	36 16 21	15	28	21	24	29	23	7 ♑ 15	4 59
7	T	☿ riſ. 3.3 m	the	10 25	17 18	15	28	21	25	♊	24	22 22	4 39
8	F	Trin. T. beg	month.	11 6	18 15	15	28	21	25	2	25	7 ♒ 12	4 0
9	S	♃ ſet 1.35 m	△ ☌ ☿	11 40	19 12	15	28	21	25	3	26	21 40	3 7
10	G	S. aſt. Tri.	Ps Am. b	Morn	20 10	15	28	21	26	4	27	5 ♓ 41	2 4
11	M	St. Barnabas	△ ☉ ♃	0 9	21 7	15	29	21	26	5	28	19 17	0 55
12	T	[2 return		0 35	22 4	16	29	21	27	7	29	2 ♈ 28	of 1 4
13	W	☿ ri. 2.57 m		1 1	23 2	16	29	21	27	8	♊ 15	20	1 21
14	T	☿ ri. 2.49 m	☌ ☽ ♄	1 27	23 59	16	29	21	28	9	1	27 54	2 23
15	F	♃ ſet 1.10 m		1 55	24 56	16	29	21	28	10	2	10 ♉ 16	3 16
16	S	♂ ſet 0.21 m		2 24	25 53	16	29	21	28	11	3	22 28	4 0
17	G	S. aſt. Tri.	St. Alba.	2 5	26 51	16	29	D	29	13	5	4 ♊ 32	4 32
18	M	☿ return	Some	3 34	27 47	16	29	21	29	14	6	16 31	4 52
19	T	☿ ri. 2.47 m	✶ H ♀	☽ ſets	28 45	16	29	21	♎	15	7	28 26	4 53
20	W	Tranſ. Ed.	K.W.S.	8	25 29 43	16	29	21	0	16	0	10 ♋ 18	4 53
21	T	Longeſt day	□ ☉ ♂	9 4	♋ 40	16	29	21	1	18	11	22 10	4 35
22	F	☿ ri. 2.57 m	rain and	9 37	1 37	16	29	21	1	19	12	4 ♌ 2	4 4
23	S		☌ ☽ H	10 8	2 34	16	8	21	1	20	14	15 57	3 23
24	G	S. aſt. Tri.	✶ H ♅	10 34	3 32	16	0	21	2	21	15	27 53	2 32
25	M	4 return	thunder	11 0	4 29	16	0	21	2	22	17	10 ♍ 8	1 33
26	T	[St. J.C.E.	☌ ☽ ♂	11 24	5 26	16	0	21	3	24	19	22 32	0 29
27	W	Tr. T. ends	✶ ♃ ♅	11 50	6 23	16	0	21	3	25	21	5 ♎ 15	on 3 8
28	T	☿ riſ. 2. 49	☌ ☽ ♃	Morn	7 20	16	0	21	4	26	23	18 20	1 45
29	F	St. Pe. & P.		0 17	8 18	16	0	21	4	27	25	1 ♍ 52	2 49
30	S	Buck hun. b.		0 47	9 15	16	0	21	5	29	27	15 53	3 45
		Dog d. b.											

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Leng. of D.	Day inc.	Declination. ☉ n.	☽ n.	♃ l.	♂ n.	☿ n.	☿ n.
1		3 52	8 8		16 16	3 33	22 12	8 37	7 16	3 30	17 37	14 15
7		3 47	8 13		16 26	3 43	22 51	8 49	7 12	2 29	19 29	15 14
13	all	3 44	8 16	Day	16 32	3 49	23 17	9 0	7 11	1 23	21 2	17 8
19		3 43	8 17		16 34	3 51	23 27	9 10	7 12	0 14	22 14	19 31
25		3 43	8 17		16 34	8 51	23 23	9 10	7 15	of 50	23 4	21 53

Geocentric Latitude.

D	Hn	♄	4	♂	♀	☿
1	0 40	2 25	1 17	0 3	0 2	0 10
13	0 40	2 28	1 14	0 5	0 10	0 36	1 41
25	0 40	2 31	1 11	0 2	0 55	1 32

JULY hath XXXI Days.

Heliocentric Longitude.

D	H	☊	♄	♈	4	♍	♂	♍	♀	♊	☿	♉
1	18	50	24	47	2	27	16	40	16	8	21	3
7	18	55	24	59	2	55	19	43	25	50	28	11 41
13	18	59	25	12	3	22	22	47	5	♋ 32	4	☊ 42
19	19	4	25	25	3	50	25	53	15	15	5	♍ 36
25	19	9	25	38	4	18	29	1	24	59	1	♎ 8

Full Moon 4 day, 7 morn.
Laſt Quart. 11 day, 2 mor.
New Moon 19 day, 4 mor.
Firſt Quart. 26 day, midn.

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ fets.	☉ ♋	H ☊	♄ ♉	4 ♎	♂ ♎	♀ ♋	☿ ♊	☽ ♐	☽ lat. north
1	G	4 S. aſt. Tr.	✶ ♄ ♀	1 28	10 12	16	0 21	5	0 29	0	22	4	28
2	M	Viſit V. M.	♂ ♀ ☿	2 9	11 9	16	0 21	6	1 ♋	15	7	4	55
3	T	Cam. Com.	Windy	3 2	12 6	17	0 21	6	2 3	0	♑ 29	5	1
4	W	T. St. Mart.	with	☽ riſ.	13 3	17	0 22	7	3 5	15	49	4	46
5	T	Old Mid. d.	□ ♂ ☿	8a 54	14 1	17	0 22	7	5 7	1	♒ 6	4	11
6	F	Cam. T. en.	haſty	9 34	14 58	17	1 22	8	6 16	7	3	3	19
7	S	Th. a Beck.	ſhowers	10 6	15 55	17	1 22	8	7 11	0	♓ 46	2	14
8	G	5 S. aſt. Tri.	□ ♂ ♀	10 34	16 52	17	1 22	9	8 14	14	57	1	3
9	M	Oxford Act	and	11 2	17 49	17	1 22	9	10 16	28	29	of	9
10	T	4 ſet 11.28a	□ ☉ ☿	11 27	18 47	17	1 22	10	11 18	11	♈ 55	1	19
11	W	♂ ſet 10.55a	□ 4 ☿	11 54	19 44	17	1 22	10	12 20	24	46	2	22
12	T	♄ ri. 11.33a	thunder	Morn	20 41	17	1 22	11	13 22	7	♉ 18	3	17
13	F	♀ ri. 3.18 m		0 23	21 38	17	1 22	12	14 24	19	35	4	2
14	S	Oxf. T. ends	□ ☉ 4	0 54	22 35	17	1 22	12	16 26	1	♊ 41	4	35
15	G	6 S. aſt. Tr.	ſwithin	1 20	23 33	17	1 22	13	17 28	13	39	4	56
16	M	4 ſet 10.37a	□ ♄ ☿	2 10	24 30	17	1 22	13	18 ☊	25	33	5	3
17	T	♂ ſet 10.36a	3 rilk	2 57	25 27	17	1 22	14	19 3	7	♋ 24	4	53
18	W	♄ ri. 11.11a	♂ ☽ ♀	3 46	26 25	17	1 22	14	21 5	19	16	4	39
19	T	♀ ri. 3.32 m	□ 4 ♀	☽ ſet	27 22	17	1 23	15	22 7	1	☊ 9	4	9
20	F	Margaret	♂ ☽ H	8a 7	28 19	18	1 23	15	23 8	13	6	3	27
21	S	4 ſet 10.45a	gales,	8 37	29 17	18	1 23	16	24 10	25	7	2	36
22	G	7 S. aſt. Tr.	with	9 4	☊ 14	18	1 23	16	26 12	7	♍ 15	1	37
23	M	[Magdalen	cooling	9 27	1 11	18	1 23	17	27 14	19	33	0	32
24	T	Mag. Col. E.	✶ H ♂	9 52	2 9	18	1 23	18	28 16	2	♎ 2	0	☊ 35
25	W	St. James	♂ ☽ ♂	10 18	3 6	18	1 23	18	29 18	14	48	1	42
26	T	St. Ann	□ ♄ ♀	10 46	4 3	18	1 23	19	☊ 20	27	52	2	45
27	F	[M.V.M.	ſhowers	11 20	5 1	18	1 23	19	2 21	11	♏ 20	3	41
28	S	♀ ri. 3.41 m	✶ 4 ☿	11 59	5 58	18	2 23	20	3 23	25	12	4	26
29	G	8 S. aſt. Tr.		Morn	6 55	18	2 24	20	4 25	9	♐ 30	4	56
30	M	4 ſet 10.11a		0 47	7 53	18	2 24	21	5 26	24	11	5	8
31	T	♂ ſet 9. 53a		1 42	8 50	18	2 24	22	7 28	9	♑ 10	4	59

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day dec.	☉ n.	♄ n.	4 f.	♂ f.	♀ n.	☿ n.
1		3 40	8 14		16 28	0 6	23 4	9 27	7 21	2 15	23 30	23 37
7	all	3 40	8 11	Day	16 22	0 12	22 31	9 34	7 29	3 34	23 31	24 3
13		3 55	8 5		16 10	0 24	21 43	9 39	7 39	4 55	23 7	22 51
19		4 2	7 58		15 56	0 38	20 43	9 44	7 52	6 17	22 19	20 16
25	0 50	4 10	7 50	11 10	15 40	0 54	19 2(	9 47	8 6	7 40	21 7	16 49

AUGUST hath XXXI Days.

Geocentric Latitude.

D	Hn	♄ l.	♃ n	♂ l.	♀ n	☿ l.
1	0 40	2 33	1 9	0 29	1 6	0 52
13	0 40	2 36	1 6	0 39	1 20	0 s 50
25	0 40	2 39	1 4	0 48	1 25	2 27

Full Moon 2 day, 2 afternoon
Laſt Quart. 9 day, 3 afternoon
New Moon 17 day, 7 night
Firſt Quart. 25 day, 7 morn.
Full Moon 31 day, 10 night.

Heliocentric Longitude.

D	H ♌	♄ ♈	♃ ♏	♂ ♐	♀ ♌	☿ ♎
1	19 14	25 52	4 40	2 43	6 22	25 50
7	19 19	26 5	5 17	5 56	16 7	14 ♏ 15
13	19 23	26 18	5 44	9 10	25 53	1 ♐ 16
19	19 28	26 30	6 11	12 26	5 ♍ 38	17 48
25	19 33	26 43	6 38	15 45	15 23	4 ♑ 32

M D	W D	Feſtival Days.	Aſpects & Wea.	☽ ſets.	☉ ♌	H ♌	♄ ♉	♃ ♎	♂ ♎	♀ ♌	☿ ♍	☽ ♑	☽ lat. north
1	W	Lammas	Showers	2 50	9 48	18	2	24	22	8	0	24 19	4 39
2	T	♄ ri. 10.14 a	△ ♄ ☿	☽ riſ.	10 45	18	2	24	23	9	1	9 ♒ 28	3 41
3	F	♃ ſet 9. 56 a	Thund.	8a 2	11 43	18	2	24	23	10	3	24 27	2 38
4	S	♂ ſet 9. 41 a	☌ ♃ ♂	8 33	12 40	18	2	24	24	12	4	9 ♓ 8	1 25
5	G	9 S. aft. Tr.	and	9 3	13 38	19	2	24	25	13	6	23 24	0 8
6	M	Tr. of God	☌ ☉ ♀	9 30	14 35	19	2	25	25	14	7	7 ♈ 12	1 ſ 6
7	T	then name	☌ ☽ ♄	9 50	15 33	19	2	25	26	15	9	20 34	2 15
8	W	of Jeſus	hail.	10 25	16 30	19	2	25	26	17	10	3 ♉ 30	3 14
9	T	♃ ſet 9. 34 a	☌ H ♀	10 58	17 28	19	2	25	27	18	12	16 5	4 3
10	F	St. Lawren.	Dog d. e.	11 32	18 25	19	2	25	28	19	13	28 22	4 39
11	S	Pr. Brunſ. b.	☌ ☉ H	Morn	19 23	19	2	25	28	20	14	10 ♊ 27	5 1
12	G	10 S. aft. T.	Old Lam.	0 10	20 21	19	2	25	29	21	16	22 24	5 11
13	M	[Pr. Wa. b.		0 54	21 18	19	℞	26	♏	23	17	4 ♋ 16	5 7
14	T	♂ ſet 9. 13 a	Showers	1 42	22 16	19	2	26	0	24	18	16 7	4 50
15	W	Aſ. B. V. M.	with	2 35	23 14	19	2	26	1	25	19	28 0	4 21
16	T	Du. York b.	☍ ♄ ♂	3 35	24 12	19	2	26	1	26	21	9 ♌ 58	3 39
17	F	♄ riſ. 9. 17 a	☌ ☽ ♀	☽ ſets	25 9	19	2	26	2	28	22	22 2	2 48
18	S	♃ ſet 9. 3 a	thunder	7a10	26 7	19	2	26	3	29	23	4 ♍ 14	1 48
19	G	11 S. aft. T.	☌ ☽ ☿	7 35	27 5	19	2	26	3	♍	24	16 35	0 43
20	M	B. G. ſh. beg.	△ ♄ ♀	8 1	28 3	19	2	27	4	1	25	29 6	0 n 26
21	T	D. Clarence		8 27	29 1	19	2	27	5	3	26	11 ♎ 50	1 34
22	W	[born	☌ ☽ ♃	8 56	29 59	20	2	27	5	4	27	24 47	2 39
23	T			9 26	♍ 57	20	2	27	6	5	28	8 ♏ 0	3 37
24	F	St. Barthol	Seaſon-	10 1	1 54	20	2	27	6	6	29	21 31	4 25
25	S	♄ riſe 8.48 a	able	10 44	2 52	20	2	27	7	8	29	5 ♐ 20	4 58
26	G	12 S. aft. T.	to the	11 36	3 50	20	2	28	8	9	♎	19 27	5 14
27	M	♃ ſet 8.32 a	end.	Morn	4 48	20	2	28	8	10	1	3 ♑ 51	5 11
28	T	St. Auſtin		0 35	5 46	20	2	28	9	11	1	18 20	4 48
29	W	St. John B.		1 46	6 44	20	2	28	10	13	2	3 ♒ 15	4 6
30	T	[beheaded		3 0	7 43	20	1	28	10	14	2	18 3	3 7
31	F			☽ riſe	8 41	20	1	28	11	15	2	2 ♓ 45	1 56

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day dec.	Declination. ☉ n	♄ n	♃ ſ.	♂ ſ	♀ n	☿ n
1	1 23	4 21	7 39	10 37	15 18	1 16	17 40	9 49	8 23	9 18	19 15	12 13
7	1 45	4 31	7 29	10 15	14 58	1 36	16 12	9 40	8 42	10 42	17 18	8 10
13	2 7	4 41	7 19	9 53	14 38	1 56	14 25	9 49	9 2	12 6	15 3	4 13
19	2 26	4 51	7 9	9 34	14 18	2 16	12 30	9 47	9 23	13 28	12 34	0 36
25	2 44	5 2	6 58	9 16	13 56	2 38	10 28	9 47	9 44	14 40	9 52	2 ſ 27

Geocentric Latitude.						
D	H n	♄ f	♃ n	♂ f.	♀ n	☿ f.
1	0 40	2 41	1 3	0 52	1 24	3 46
13	0 41	2 44	1 1	0 59	1 14	3 48
25	0 41	2 46	0 59	1 5	0 56	0 20

Laſt Quart. 8 day, 7 morn
New Moon 16 day, 9 mor.
Firſt Quart. 23 day, 2 aft.
Full Moon 30 day, 0 mor.

SEPTEMBER hath XXX Days.

Heliocentric Longitude.						
D	H ♌	♄ ♈	♃ ♏	♂ ♐	♀ ♍	☿ ♑
1	19 38	26 58	7 11	19 39	26 44	25 21
7	19 42	27 11	7 38	23 2	6 ♎ 26	15 ♒ 21
13	19 47	27 23	8 6	26 27	16 8	8 ♓ 32
19	19 52	27 36	8 33	29 54	25 47	6 ♈ 12
25	19 57	27 49	9 1	3 ♑ 23	5 ♏ 25	9 ♉ 9

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ riſes.	☉ ♍	H ♌	♄ ♉	♃ ♎	♂ ♏	♀ ♍	☿ ♎	☽ ♓	☽ lat. north
1	S	Giles	Part. ſh.	7 7	9 39	20	1	29	12	16	3	17 14	0 30
2	G	13 S. aft. T.	[beg.	7 36	10 37	20	1	29	12	17	3	1 ♈ 24	0 ſ 39
3	M	[Lon. burnt	Good	8 4	11 35	20	1	29	13	19	℞	15 11	1 53
4	T	♃ ſet 8. 6 a	☌ ☽ ♄	8 33	12 33	20	1	29	14	20	3	28 35	2 50
5	W	♂ ſet 8. 35 a	Harveſt	9 4	13 32	20	1	29	14	21	3	11 ♉ 35	3 53
6	T		weather	9 37	14 30	20	1	29	15	22	3	24 13	4 34
7	F	Enurchus		10 17	15 28	21	1	♏	16	24	2	6 ♊ 34	5 2
8	S	Na.B.V.M.		10 57	16 27	21	1	0	16	25	2	18 41	5 15
9	G	14 S. aft. T.	✱ ☉ ♂	11 44	17 25	21	1	0	17	26	1	0 ♋ 38	5 15
10	M	♄ riſ. 7. 48 a	Showers	Morn	18 23	21	1	0	18	27	1	12 30	5 1
11	T	♃ ſet 7. 43 a	☌ ♀ ☿	0 37	19 22	21	1	0	18	29	0	24 22	4 35
12	W		and	1 33	20 20	21	1	1	19	♎	♍	6 ♌ 18	3 56
13	T	♀ ſet 6. 46 a	☍ ♄ ♃	2 34	21 19	21	1	1	20	1	28	18 20	3 7
14	F	Holy Croſs	thunder	3 36	22 17	21	1	1	20	2	27	0 ♍ 32	2 8
15	S	Buck-hu. e.		4 40	23 16	21	1	1	21	4	26	12 57	1 3
16	G	15 S. aft. T.	☌ ☉ ☿	☽ ſets	24 15	21	1	1	22	5	25	25 34	0 n 7
17	M	Lambert	✱ ♂ ☿	6 a 39	25 13	21	1	2	22	6	24	8 ♎ 25	1 17
18	T	♄ riſ. 7. 20	☌ ☽ ♃	7 7	26 12	21	1	2	23	7	23	21 31	2 25
19	W	Ember We.		7 38	27 11	21	1	2	24	9	22	4 ♏ 50	3 26
20	T	♂ ſet 7. 52 a	☌ ☽ ♂	8 13	28 10	21	1	2	24	10	21	18 22	4 17
21	F	St. Matt.	Seaſon-	8 54	29 8	21	0	2	25	11	20	2 ♐ 6	4 54
22	S	K.G.III.cr.	able,	9 41	♎ 7	21	0	3	26	12	20	16 2	5 14
23	G	16 S. aft. T.	with	10 38	1 6	21	0	3	27	14	19	0 ♑ 7	5 15
24	M	♄ riſ. 6. 58	ſome	11 41	2 5	21	0	3	27	15	19	14 10	4 58
25	T	♂ ſet 7. 42 a	ſhowers	Morn	3 4	22	0	3	28	16	19	28 38	4 22
26	W	St. Cyprian	towards	0 53	4 3	22	0	3	29	17	18	12 ♒ 59	3 30
27	T		the end.	2 7	5 2	22	0	4	29	19	19	27 19	2 24
28	F	Sh. L. ſwor.		3 22	6 1	22	0	4	♐	20	19	11 ♓ 33	1 10
29	S	St. Michael	PsC. Ab	4 39	7 0	22	0	4	1	21	19	25 39	0 ſ 7
30	G	17 S. aft Tr.	St. Jero.	☽ riſ.	7 59	22	0	4	1	22	20	9 ♈ 31	1 23
		[Hare-h. b.											

D	D L beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day dec.	Declination. ☉ n.	♄ n.	♃ ſ.	♂ ſ.	♀ n.	☿ ſ.
1	3 5	5 16	6 44	8 55	13 28	3 6	7 58	9 33	10 11	16 20	6 32	4 45
7	3 21	5 27	6 33	8 39	13 6	3 28	5 44	9 32	10 34	17 35	3 32	5 0
13	3 35	5 39	6 21	8 21	12 42	3 52	3 27	9 25	10 59	18 46	0 29	2 50
19	3 40	5 50	6 10	8 11	12 20	4 14	1 7	9 17	11 23	19 53	2 ſ. 36	0 n 50
25	4 2	6 2	5 58	7 53	11 56	4 38	1 ſ. 13	9 8	11 48	20 54	5 30	4 3

Geocentric Latitude.						
D	H n	♄ ſ.	♃ n	♂ ſ.	♀ n	☿ n
1	0 41	2 46	0 59	1 7	0 45	1 11
13	0 41	2 47	0 58	1 11	0 17	1 57
25	0 42	2 47	0 57	1 14	0 14	1 3

OCTOBER hath XXXI Days.

Laſt Quart, 8 day, 2 morn,
New Moon 15 day, 11 night
Firſt Quart. 22 day, 8 night
Full Moon 29 day, 10 night

Heliocentric Longitude.						
D	H ♌	♄ ♈	♃ ♏	♂ ♑	♀ ♏	♉ ♊
1	20 1	28 2	9 29	6 54	15 1	16 13
7	20 6	28 14	9 56	10 27	24 36	23 ♋ 11
13	20 11	28 27	10 24	14 1	4 ♐ 9	26 ♌ 2
19	20 16	28 40	10 51	17 38	13 41	23 ♍ 13
25	20 20	28 53	11 19	21 16	23 12	15 ♎ 50

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ riſes.	☉ ♎	H ♌	♄ ♉	♃ ♏	♂ ♐	♀ ♎	☿ ♍	☽ ♈	☽ lat. ſouth
1	M	Remigius	☌ ☽ ♄	6 50	8 58	22	0	4	2	24	21	23 7	2 33
2	T	[Ph. ſh. be.	Seaſon-	7 11	9 57	22	0	5	3	25	22	6 ♉ 25	3 32
3	W	♂ ſet 7. 28 a	able	7 43	10 56	22	0	5	4	26	23	19 22	4 19
4	T		all the	8 21	11 55	22	0	5	4	27	24	2 ♊ 1	4 52
5	F		fore	9 1	12 55	22	♈	5	5	28	25	14 23	5 11
6	S	Faith	part.	9 46	13 54	22	29	5	6	♏	26	26 32	5 15
7	G	18 S. aft. T.		10 37	14 53	22	29	6	6	1	28	8 ♋ 30	5 5
8	M	♄ riſ. 6. 6 a		11 31	15 53	22	29	6	7	2	29	20 22	4 43
9	T	☿ riſ. 5. 6 m		Morn	16 52	22	29	6	8	3	♎	2 ♌ 14	4 8
10	W	O. & C. T. b.	☌ ☽ H	0 22	17 51	22	29	6	9	5	2	14 10	3 23
11	T	♄ riſ. 5. 54 a	☌ ♄ ♀	1 31	18 51	22	29	6	9	6	4	26 15	2 28
12	F	♀ ſet 6. 0 a		2 34	19 50	22	29	7	10	7	5	8 ♍ 32	1 25
13	S	Tr. K. Edw.	Showers	3 39	20 50	22	29	7	11	8	7	21 6	0 17
14	G	19 S. aft. T.	☌ ☽ ☿	4 47	21 50	22	29	7	12	10	9	3 ♎ 58	0 n 53
15	M	♂ ſet 7. 12 a	✱ ♂ ☿	☽ ſets	22 49	22	29	7	12	11	10	17 10	2 2
16	T		☌ ☽ ♃	5 a 45	23 49	22	29	8	13	12	12	0 ♏ 40	3 6
17	W	Ethel. Virg.	and	6 19	24 49	22	29	8	14	13	14	14 26	4 1
18	T	St. Luke	windy.	6 59	25 48	23	28	8	14	15	15	28 26	4 41
19	F	St. Frideſwi.		7 44	26 48	23	28	8	15	16	17	12 ♐ 35	5 6
20	S			8 39	27 48	23	28	8	16	17	19	26 50	5 11
21	G	20 S. aft. T.		9 40	28 48	23	28	9	17	18	21	11 ♑ 5	4 58
22	M	♄ riſ. 5. 11 a	✱ H ☿	10 50	29 47	23	28	9	17	20	22	25 17	4 26
23	T	☿ riſ. 6. 19 m	Wind,	Morn	♏ 47	23	28	9	18	21	24	9 ♒ 26	3 38
24	W	♀ ſet 5. 45 a	□ H ♀	0 1	1 47	23	28	9	19	22	26	23 29	2 38
25	T	K. G. III. ac.	Criſpin	1 15	2 47	23	28	10	20	23	27	7 ♓ 24	1 28
26	F	K. G. III. pr.	rain,	2 28	3 47	23	28	10	20	25	29	21 12	0 14
27	S		and	3 42	4 47	23	28	10	21	26	♏	4 ♈ 50	0 ſ 59
28	G	21 S. aft. T.		4 54	5 47	23	28	10	22	27	2	18 18	2 9
29	M	[Sim. & Ju.	△ H ♂	☽ riſ.	6 47	23	28	10	23	28	4	1 ♉ 33	3 10
30	T	♂ ſet 6. 56 a	(☌ ☽ ♄	5 a 45	7 47	23	27	11	23	♐	6	14 35	4 0
31	W	♀ ſet 5. 40 a	hail.	6 20	8 47	23	27	11	24	1	7	27 23	4 37

D	D. L. beg.	Sun riſe	Sun ſets	D. L. ends	leng. of D.	Day dec.	Declination. ☉ ſ.	♄ n	♃ ſ.	♂ ſ.	♀ ſ.	☿ n
1	4 15	6 14	5 46	7 45	11 32	5 2	3 33	8 59	12 14	21 50	8 38	4 36
7	4 28	6 26	5 34	7 32	11 8	5 26	5 52	8 49	12 40	22 39	11 30	2 29
13	4 41	6 38	5 22	7 19	10 44	5 50	8 8	8 39	13 6	23 20	14 13	1 ſ 13
19	4 53	6 50	5 10	7 7	10 20	6 14	10 21	8 29	13 31	23 54	16 43	5 28
25	5 3	7 4	4 50	6 57	9 58	6 36	12 27	8 19	13 56	24 20	18 58	9 44

Geocentric Latitude.

L	Hn	♄ l.	♅ n	♂ .	♀ l.	☿ n
1	0 42	2 47	0 56	1 15	0 33	0 17
13	0 43	2 45	0 56	1 17	1 2	1 f. 1
25	0 43	2 43	0 56	1 16	1 17	2 1

Laſt Quart. 6 day, 11 night
New Moon 14 day, 11 mor.
Firſt Quart. 21 day, 4 mor.
Full Moon 28 day, 2 after.

NOVEMBER hath XXX Days.

Heliocentric Longitude.

D	H	☌	♄	♈	♅	☌	♂	♉	♀	♍	☿	☌
1	20	25	29	7	11	51	25	35	4	17	8	22
7	20	30	29	20	12	19	29	14	13	46	25	46
13	20	35	29	33	12	46	2♒	57	23	15	12 ♐	22
19	20	39	29	46	13	14	6	42	2♒	44	28	57
25	20	44	29	50	13	42	10	27	12	13	16♍	15

M D	W D	Feſtival Days.	Aſpects & Weat.	☽ riſes.	☉ ☌	H ♎	♄ ♈	♅ ☌	♂ ♐	♀ ♑	☿ ☌	☽ ♏	☽ lat. ſouth
1	T	All Saints	☍ ☉ ☿	6a58	9 47	23	27	11	25	2	0	9 56	4 59
2	F	All Souls	Pr. E. b.	7 41	10 48	23	27	11	26	3	10	22 15	5 7
3	S	1 return	Allſ. C. c	8 30	11 48	23	27	11	26	5	12	4♐22	5 1
4	G	22 S. aft. T.	Re. 1688	9 23	12 48	23	27	12	27	6	14	16 19	4 42
5	M	Powd. plot	Wind &	10 16	13 48	23	27	12	28	7	15	28 11	4 11
6	T	Mic. T. beg.	rain.	11 16	14 49	23	27	12	29	8	17	10♑ 1	3 30
7	W		☍ ☽ H	Mon 15	15 49	23	27	12	29	9	18	21 55	2 36
8	T	Ps. A. So. b.		0 19	16 49	23	27	13	♑	11	20	3♒56	1 40
9	F	L. M. D. Lo.	□ H ☿	1 23	17 50	23	27	13	1	12	22	16 16	0 36
10	S	♄ ſo. ic. 36 a		2 27	18 50	23	27	13	2	13	23	28 53	0 0 32
11	G	23 S. aft. T.	St. Mar.	3 36	19 51	23	27	13	3	14	25	11♑52	1 40
12	M	2 return	Some	4 48	20 51	23	27	13	3	16	26	25 16	2 44
13	T	Britius	☍ ☽ ♅	6 1	21 52	23	26	14	4	17	28	9♒ 5	3 41
14	W	♀ ſet 5. 39 a	□ ☉ H	☽ ſet	22 52	23	26	14	5	18	29	23 17	4 25
15	T	Machutus	☍ ☽ ♀	5a36	23 53	23	26	14	5	19	♐	7♐45	4 54
16	F	♂ ſet 6. 44 a	ſhowers	6 28	24 54	23	26	14	6	21	3	22 24	5 3
17	S	Hu. B. Linc.	☍ ☽ ♂	7 30	25 54	23	26	15	7	22	4	7♑ 6	4 53
18	G	24 S. aft. T.	△ H ♀	8 37	26 55	23	26	15	8	23	6	21 42	4 24
19	M	3 return		9 50	27 55	23	26	15	8	24	7	6♒ 9	3 38
20	T	Edm. K. M.	Seaſon-	11 2	28 56	23	26	15	9	26	9	20 21	2 39
21	W	♀ ſet 5. 40 a	able	Morn	29 57	23	26	15	10	27	10	4♑19	1 32
22	T	Cecilia	to the	0 16	♐ 58	23	26	16	11	28	12	18 1	0 20
23	F	St. Clement	end.	1 28	1 58	23	26	16	12	29	13	1♑30	0 51
24	S	♄ ſo. 9. 36 a		2 40	2 59	23	26	16	12	♑	15	14 46	1 59
25	G	25 S. aft. T.		3 50	4 0	23	26	16	13	2	16	27 50	2 59
26	M	4 return		4 56	5 1	23	26	17	14	3	18	10♒43	3 48
27	T	♂ ſet 6. 40 a		6 2	6 2	23	26	17	15	4	19	23 26	4 26
28	W	Mic. T. en.		☽ riſ.	7 2	♓	26	17	15	5	21	5♓59	4 50
29	T	B. Col. elec.	△ H ☿	5a31	8 3	23	26	17	16	7	22	18 20	5 0
30	F	St. Andrew	✶ ♅ ♂	6 16	9 4	23	25	17	17	8	24	0♈32	4 56
		[Anni. me	Roy. So.										

D	D. L. beg.	Sun riſe	Sun ſet.	D. l. ends	leng. of D.	Day dec.	Declination. ☉	♄	♅	♂	♀	☿
1	5 15	7 14	4 46	6 45	9 32	7 2	14 46	8 7	14 25	24 38	21 24	14 21
7	5 22	7 24	4 36	6 38	9 12	7 22	16 35	7 59	14 40	24 44	22 45	17 51
13	5 31	7 34	4 26	6 29	8 52	7 42	18 15	7 50	15 13	24 40	23 54	20 49
19	5 38	7 43	4 17	6 22	8 39	8 0	19 43	7 43	15 37	24 26	24 37	23 11
25	5 51	7 44	4 9	6 16	8 16	8 16	20 58	7 38	15 56	24 2	24 54	24 50

Geocentric Latitude.

DECEMBER hath XXXI Days.

L	☿ l.	♀ l.	♂ l.	♃ l.	♄ l.	♅ l.
1	0 44	2 42	0 55	1 16	1 37	2 17
13	0 44	2 38	0 56	1 14	1 50	1 57
25	0 45	2 35	0 56	1 11	1 52	0 ♌ 35

Last Quart. 6 day, 7 night
New moon 13 day, 10 ni.
First Quart. 20 day, 2 after.
Full Moon 28 day, 8 mor.

Heliocentric Longitude.

D	H	☉	☿	♀	♂	♃	♄	♅
1	20	48	0 11	14 9	14 13	21 42	5 7	
7	20	53	0 24	14 37	18 1	1 ♓ 13	26 35	
13	20	57	0 37	15 5	21 48	10 43	21 ♓ 53	
19	21	2	0 50	15 32	25 37	20 15	22 ♈ 12	
25	21	7	1 3	16 0	29 25	29 47	27 ♉ 36	

M D	W D	Festival Days.	Aſpects &Weat.	☽ riſes.	☉ ♐	☿ ♑	♄ ♑	♃ ♍	♂ ♍	♀ ♍	♅ ♐	☽ ♋	☽ lat. ſouth
1	S	♄ ſou. 9. 5 a	△ ♄ ♅	7 9	10 5	23	25	18	18	9	25	21 24	4 39
2	G	Advent Su.	Windy	8 1	11 6	23	25	18	18	10	27	24 29	4 9
3	M	♂ ſet 6. 38 a	at the	8 58	12 7	23	25	18	19	12	28	6♌18	3 29
4	T	♀ ſet 5. 57 a	♂ ☽ H	9 58	13 8	23	25	18	20	13	♍	18 7	2 40
5	W	♃ ri. 5. 43 m	begin-	11 0	14 9	23	25	18	21	14	1	29 59	1 44
6	T	Nicholas	ning.	Morn	15 10	23	25	19	22	15	3	11 ♍ 59	0 43
7	F	♅ ſet 5. 2 a		0 3	16 11	23	25	19	22	17	4	24 13	0 n 22
8	S	Co. B. V. M.	Showers	1 10	17 12	23	25	19	23	18	5	6♎47	1 27
9	G	2 S. in Adv	✱ ♃ ♀	2 16	18 13	23	25	10	24	19	7	19 44	2 30
10	M	♄ ſo. 8. 25 a	□ ♄ ♂	3 26	19 14	23	25	19	25	20	8	3♏ 9	3 27
11	T	♃ rif. 5. 17 m	☽ ♄ ♃	4 40	20 15	23	25	20	25	22	9	17 4	4 13
12	W	♂ ſet 6. 36 a	of rain.	5 52	21 16	23	25	20	26	23	11	1♐27	4 45
13	T	Lucy	□ ♄ ♀	☽ ſets	22 17	23	25	20	27	24	12	16 13	5 0
14	F	♅ ſet 5. 9 a	△ ☉ H	5 a 3	23 18	23	25	20	28	25	13	1♑15	4 54
15	S	♀ ſet 6. 21 a	△ ☉ ♄	6 6	24 20	23	25	20	29	26	14	16 22	4 27
16	G	3 S. in Adv.	Ca. T. en	7 19	25 21	23	25	21	29	28	15	1♒23	3 42
17	M	Oxf. T. end	△ ☉ ♄	8 36	26 22	23	25	21	♒	29	16	16 12	2 43
18	T	♄ ſo. 7. 48 a	Froſty	9 52	27 23	23	25	21	1	♒	17	0♓40	1 34
19	W	Ember We.	with	11 5	28 24	23	25	21	2	1	17	14 47	0 21
20	T	♃ rif. 4. 45 m	☽ ♂ ♀	Morn	29 25	23	25	21	3	3	18	28 30	0 ſ 52
21	F	St. Thomas	ſnow	0 17	♑ 27	23	25	22	3	4	18	11♈53	1 59
22	S	♂ ſet 6. 35 a	or	1 28	1 28	23	25	22	4	5	19	24 58	2 59
23	G	4 S. in Adv.	♂ ☽ ♄	2 35	2 29	23	25	22	5	6	℞	7♉47	3 49
24	M	♀ ſet 6. 43 a	rain.	3 42	3 30	23	25	22	6	8	19	20 24	4 26
25	T	Chriſtmas d.	Trou-	4 44	4 31	23	25	22	6	9	18	2♊59	4 50
26	W	St. Stephen	bled air,	5 43	5 32	23	25	23	7	10	18	15 6	5 0
27	T	St. John	□ H ♃	6 38	6 34	23	D	23	8	11	17	27 15	4 57
28	F	Innocents	with	☽ rif.	7 35	23	25	23	9	12	16	9♋17	4 40
29	S	♄ ſou. 6. 58 a	rain or	5 a 39	8 36	23	25	23	10	14	15	21 14	4 11
30	G	Su. aft. Chr.	ſnow	6 35	9 37	23	25	23	10	15	14	3♌53	3 31
31	M	Silveſter	♂ ☽ H	7 35	10 38	23	25	24	11	16	13	14 54	2 42

D	D. L. beg.	Sun riſe	Sun ſet.	D. L ends	leng. of D.	Day dec.	Declination. ☉	☿	♄ n	♃	♂	♀	♅	☽	☽
1	5 50	7 58	4 2	6 10	8 4	8 30	21 59	7 31	16 21	23 29	24 44	25 41			
7	5 53	8 3	3 57	6 7	7 54	8 40	22 45	7 27	16 41	22 46	24 7	25 42			
13	5 55	8 7	3 53	6 5	7 46	8 46	23 14	7 25	17 1	21 54	23 3	24 50			
19	5 57	8 8	3 52	6 3	7 44	8 50	23 27	7 24	17 20	20 52	21 36	23 1			
25	5 57	8 8	3 52	6 3	7 48	8 50	23 23	7 24	17 38	19 41	19 46	21 3			

Answers to the ENIGMAS, REBUSES, CHARADES, &c.

Enigmas.

I. Sign.
II. O.
III. Black-Pudding.
IV. Bees.
V. Fan.
VI. Advice.
VII. Walking-ſtick.
VIII. Money.
IX. Winter.
X. Love.
XI. Attraction.
XII. or Prize. Heart.

Rebuſſes.

I. *Mansfield.*
II. *Tongue.*
III. *EſtherLee.*
IV. *Fox.*
V. *Livan.*
VI. *Heath.*

Charades.

I. *Sapcoat.*
II. *Birdlime.*
III. *Dice-box.*
IV. *Milldew.*
V. *Sackcloth.*
VI. *Whalebone.*
VII. *Honeymoon.*
VIII. *Heirloom.*
IX. *Sandbed.*

Anſwers to the PRIZE ENIGMA.

1. By Mr. John Fildes, Schoolmaſter, in Liverpool.

Near Merſey's ſtream, Elander, hapleſs man,
In plaintive ſtrains his ſorrows thus began:
And muſt I ſee Alena's face no more?
Then all my hopes of earthly bliſs are o'er!
For tho' compell'd from her I love to part,
Nought can efface her image from my *Heart.*
Still will ſhe be to me for ever dear,
And thoughts of her will oft excite a tear:
For her in ſecret will I ſigh till death,
And her dear name ſhall ſhare my dying breath.
May ſhe ſweet woman, every bleſſing know,
That heav'n itſelf, on mortals can beſtow.
Form'd to my wiſh, with every charm to pleaſe,
Soon did ſhe rob my boſom of that eaſe,
Which time and abſence never can reſtore,
For each new day afflicts me more and more.
Then ſince on earth I can no comfort find,
Oh may that pow'r who form'd the tender mind;
In kind compaſſion for my wretched ſtate,
Take me to where more happy ſcenes await;
Then with Alena may I meet above,
Where all is perfect harmony and love.

There where no fear the raptur'd ſoul alarms,
May we be happy in each other's arms;
That bliſs enjoy deny'd to us below,
Nor ever feel one pang of grief and woe;
But of each joy, and of each wiſh poſſeſt,
Each other bleſſing, live for ever bleſt.
Thus mourned Elander, poor unhappy ſwain;
And wept, and call'd on heav'n to end his pain.

2. *By Mr. Patrick Hall, Denby.*

Ye Britiſh fair your *Heart* pray keep,
In virtue's cauſe be wiſe,
And endleſs bliſs at the laſt day,
Will be th' important prize.

3. On Hope. *By Mr. John Savage, Coventry.*

Come thou dear comfort of mankind,
Sweet ſoother of a troubled mind,
And bid our ſorrows reſt;
'Tis thee kind hope that cheers us through,
This wilderneſs of tears and woe;
Come, ſooth each troubl'd *Breaſt*.

4. *To Mr. Waring, by Mr. Samuel Beaſtall.*

A *Heart*'s what you mean Sir, if I judge aright;
Your whole ſeat of knowledge is now brought to light.

5. *By Mr. James Froſt, of Morley-Park.*

Adam and Eve, in Paradiſe we find
Were righteous made, to evil not inclin'd,
Till Satan's proud deceitful *Heart* at laſt
Inveigh'd Eve, forbidden fruit to taſte.

6. *By Mr. Thomas Neild, of Hawarden, North-Wales. Addreſs'd to his Pupils.*

Behold by dear boys, who are under my care,
Of pride and ambition, I'd have you beware:
They'll poiſon your principles, make you a fool,
No maſter can teach you, in college or ſchool;
Their lectures, and time, will be quite thrown away,
On all who to pride and ambition give way;
Be faithful, and juſt, in whatever you do;
Be ſober, religious, and virtuous too;

Let

Let your *Heart* rule your passions, whatever they be,
And all your intentions first thoroughly weigh;
Desire no more than is needful for life;
Keep company with none who encourages strife;
And be not deluded, but learn and be wise,---
Let reason and justice, be ever your prize.

Other ingenious answers were given to the Prize Enigma by the following gentlemen, viz. Rob. Allwood, Autodidactus, John Bower, Benj. Burn, Tho. Clark, Samuel Eaton, Tho. Fox, John Fletcher, Tho. Garton, Jonathan Hornby, William Salter, jun. Abraham Sapcoat, and John Smith.

General Answers to the Enigmas.

1. *By Mr. John Fildes, Liverpool.*

How blest the pair, whose youthful Breasts
With mutual passion burn;
But wretched is that lover's fate,
Who meets with n*O* return. 2.
Yet all that slighted lover's feel,
The woes which they endure;
Some have *Been* known to joke and say, 4.
Cold *Pudding* soon will cure. 3.
But vain such talk; for time itself,
Sometimes can ne'er remove,
The fond *Attraction* that inclines 11.
A tender *Heart* to *Love*. 12. 10.
Arlindo in the bloom of youth,
By Laro was addrest:
With every *Sign* of love sincere, 1.
He vow'd to make her blest.
The fair one's easy faith he won,
Then left her to dispair.
And oh! can *Fancy* paint the woes, 5.
She now is doom'd to bear.
Grief keener than a *Winter*'s wind, 9.
Sticks to this drooping rose; 7.
No kind *Advice*, nor *Money* now,
Can give her soul repose.

 2. Be-

2. Belinda's Deſpair. *By Daniel Sheridan.*

Coerſive ſilence rules the ſable night,
Save from the covert of yon ample thorn,
Where Philomel her tuneful vigils keeps,
In ſoftly ſoothing notes almoſt divine.
Beſide this tinkling brook, I'll ſit me down,
Whoſe purling rills oft lull'd me to repoſe;
Upon whoſe flow'ry banks where erſt I lay
Reclin'd ſupinely on my Collin's breaſt,
Diſſolv'd in raptures of endearing love,
Once more I'll lie ———
And in the direful anguiſh of my ſoul
Decant the ſardles of my woe-fraught *Heart*; 12.
Cathetic echo, aid my languid voice,
Repeat my dirges to the Steller ſpheres,
And they'll reverberate the penſive lay
To endleſs ſpace, where worlds unnumber'd roll;
All *Sign* of contemplation is no more. 1. 2.
The *Brumal* air congeals the limpid ſtream; 9.
Diverts gay nature of her vernal hue,
Confines *Bees* to *Fan* their *Golden* ſtore, 4. 5. 8.
Where vile ambition's enterprizing ſchemes
Has no *Attraction* for the buſy tribe. 11.
Deſiſt wild fancy, bare your mazy flight,
And thoſe few moments in reflection ſpend,
That fate allows thee in this vale of tears;
O partial fate! ſhall I and I alone,
Ne'er boaſt the pleaſure of one gracious ſmile,
Till theſe dim orbs are clos'd in endleſs night.
My ebbing veins in ſlow pulſations move;
My *Love*-wreck'd brain grows giddy as I gaze, 10.
My aching heart drops blood from every pore,
And ghaſtly horror fills my ſoul,
My conſcience raves as *Suck*-ler 'gainſt my will 7.
Alas I die—deluſive world farewell——

3. *The 14th Chapter of the book of Judges., by John Elliott, of Malton.*

When Sampſon's will led him aſtray,
He ſlew a lion in the way,
Without a *Weapon* in his hand; 7 E.
A *Sign* it was by God's command. 1 E.
In Timnath he then found a *Wife*, 10 alluding to love.
The *Snare* which caus'd his future ſtrife; 2nd Ch.

For

For she was of that ill-*Tongu'd* race, 2 R.
Who bring mankind into disgrace.
When he return'd to take his bride,
To view the carcase, turn'd aside;
A swarm of *Bees*, he did behold, 4 E.
But to no one the secret told;
He of the comb and honey took,
And then the *Heath* or plain forsook. 6 R.
Next for his foes he made a feast,
Of fowls and *Puddings* of some beast; 3 E.
Instead of *Dice-box*, *Fan*, or fiddle, 3 Ch. 5 E.
He did put forth a certain riddle;
Which *Lee*, nor *Sapcoat* could expound, 3 R. 1 Ch.
Nor any *Fox*, on *Mansfield Ground*. 4 and 1 R. 9 Ch.
His bride in *Sackcloth* sore did weep, 5 Ch
And oft her *Breast* and *Stays* did beat, alluding to a heart. 6 Ch.
Thinking like rush lights burnt they be;
Their *Looms* destroy'd, and family. 8 Ch.
With *Icy* looks, and *Mildew'd* eyes, 9 E. 4 Ch.
She caus'd him to disclose the prize,
Which she impatient, *Truly* told, 6 Ch.
The dull *Tyros*, and sav'd their *Gold*. 11 and 8 E.

4. *The Enigmas, and 4th Query, by Autodidactus.*

For *Wealth* alone, we ne'er should wed, 8. money
Or feather-*Fan*ned beauty; 5.
By emulating hope, if led,
By learning *Taught* our duty. 6.

The *Staff* of bread should solely prize, 7.
Nor yet slaves to *Dainties be*; 3. 4. pig's-pudding and bees.
'Tis here our *Friendly* something lies, 10.
Our center of gravity. 11.

To know vain self, your bible read,
Therewith compare our actions;
And not on *Sign*s and shad*O*ws feed, 1. 2.
Which only breed distractions.

Ingenious answers were also given by Messrs. R. Allwood, J. Bower, Benjamin Burn, T. Clark, S. Eaton, J. Flitcher, T. Fox, J. Griffith, Jonathan Hornby, P. Hall, T. Neild, and W. Salter, junior; Mr. John Cartledge answered the 6th enigma.

Anſwers to the Rebusses and Charades.

1. *To the Rebuſſes, by T. Fox, of Norton.*

T. *Fox* preſents his compliments
To all diarian friends;
To *Eſther Lee* ſo gay and free,
His humble ſervice ſends.

Livan, good faith, nor *Mansfield*, *Heath*,
Shall e'er employ his *Tongue*;
But truth and love, ſhall always prove
The ſubject of his ſong.

The Charades anſwered by T. Fox.

Sapcoat! behold the flutt'ring *Bird*
Entangl'd with the *Lime*;
An emblem of yond coxcomb who
On *Dicebox* ſpends his time:
May not he on a *Sandbed* lie,
With *Mildew* cover'd o'er;
Or in a goal in *Sackcloth* clad,
His fortune ſad, explore:

An *Hierloom* of his gloomy cell,
Let him the wax torch want;
Without a *Coat*, on boiled *Peas*, 1. 2. an.
Pray keep him hard and ſcant;
Or with a whip of whalebone ſtout,
Correct his follies paſt;
Or elſe tranſport him to the *Poles*, 1. P.
To keep a half year's faſt.

2. *By Mr. John Fildes, Liverpool.*

At *Heath* or in *Mansfield* how glad I ſhould be,
In wedlock to join with the fam'd *Eſther Lee:*
Whoſe *Tongue* to talk ſcandal is never inclin'd,
And whoſe lovely waiſt is with *Whalebone* confin'd.
Good heav'n! with what bliſs would the *Honeymoon* paſs,
In th' arms of ſo ſweet, and ſo charming a laſs!
And if 'tis my lot with this maid to be bleſt,
No *Hierloom* nor *Sackcloth* ſhall trouble my breaſt.
No *Livan* with *Birdlime* I'll ever trepan,
For freedom as dear is, to birds as to man.
As ſeamen do *Sandbeds*, the *Dicebox* I'll ſhun,
Which more than the *Mildew* perhaps has undone.
Both *Sapcoat* and *Fox* ſhall my nuptials attend,
And likewiſe T. Neild my poetical friend.

3. *By Autodidactus.*

If *Eſther Lee* of Coventry	3 R.
Will pleaſe to viſit *Mansfield* fair,	1 R.
And Mr. *Fox*, with his *Dicebox*,	4 R. 3 Ch.
To them *Sapcoat* and I'll repair,	1 Ch.
With half-a-ſcore (from *Heath*) or more,	6 R.
Sprightly lads and blooming laſſes,	
Dreſs'd in new *Coats*, and London boots,	1 An.
The girls, in balloons and faſhes.	

Soon

Soon tir'd of dice, we'll in a trice,
To ſome dreſs'd maypole then repair ;
Each chuſe a bride, and ſail with th' *Tide*. 3. An.
In mirth and muſic, drown fell care.
Yet in our glee, let's harmleſs be,
And keep within due bounds the *Tongue* ; 2. R.
No dull *Heirloom* ſend crying home, 8. Ch.
Nor him, of's *Whip*, or *Birdlime*, wrong : 6. 2. Ch.
For ſoon to *Duſt*, return we muſt, 9. Ch.
And like *Peas* bloom, go to decay ; 2. An.
Some noxious *Dew* may blaſt our hue, 4. Ch.
And unto *Sackcloth* pave the way. 5 Ch.

IV. *The Dream, by Mr. W. Salter, Jun. Bilſton.*

One eve as I ſaunter'd along the green mead,
Where th' ewes and their lambkins delight for to feed,
Being weary, for reſt on a *Sand-bank* reclin'd,
I lay, when a dream enter'd into my mind ;
Me thought the ſhrill *Tongues* of the warbling choir,
With ſonorous echoes, the grove did inſpire,
And th' bells in ſweet melody rung from the ſpire ;
The lads and the laſſes, with rapturous joy,
Inform'd me ſoon after a wedding was nigh ;
The fam'd *Eſther Lee*, the delight of the place,
I had agreed to ſurrender to *Fox*'s embrace ;
To *Mansfield* were gone, ſtrait the nuptials to join,
Where *Sapcoat* and I were invited to dine :
The table with dainties was plenteouſly ſtor'd,
And ale, wine, and brandy, were ſet on the board ;
A health to the bride and the bridegroom went round,
While Hymen and Bacchus with joy the feaſt crown'd :
No mourning in *Sackcloth* was ſeen at the feaſt,
Nor *Mildew*, nor *Birdlime*, diſgrac'd the fair gueſt ;
But th' bloom of fair Hebe was in their faces,
And tight *Whalebone* ſtays exalted their graces.
No *Dice-box* admitted, but innocent ſport,
Which far did excel the delights of a court ;
Nor *Hierlooms* of envious malice or ſpleen,
To annoy the refulgent *Honey-moon*'s reign ;
But extaſy all wrapt in joys moſt refin'd,
Exalting with pleaſure each loyal gueſt's mind ;
But oh ! what a damp, when a noiſe and confuſion
Awoke me, and all was merely deluſion.

Anſwers were alſo given by Meſſrs. J. Elliott, J. Griffith, Jonathan Hornby, D. Sheridan, James Stevenſon, John Smith, and Thomas Smith.

I. PARADOX, *anſwered by Mr. Jonathan Hornby.*

The propoſer muſt have been near the pole where the ſun continues for a great time above the horizon, without ever ſetting.

Anſwers were alſo given by Mr. J. Fildes, J. Griffith, and Mr. D. Sheridan.

II. PARADOX, *anſwered by Mr. D. Sheridan.*

IV ſum and V—I or 5—1=4, W. W. D.

Nearly as above, the Anſwer was given by Mr. Fildes; otherwiſe by Mr. J. Hornby, and Mr. Griffith.

Any two quantities with different ſigns, that is the one plus, the other minus, by the rules of Algebra their difference is the ſum.

QUERIES ANSWERED.

I. *By Mr. John Elliott, of Malton.*

The Full Moon in May 27, 1798, will produce an Eclipſe, but not ſtrictly total. See Ferguſon's Aſtronomy, p. 219; a full explanation.

Mr. J. Griffith, and Mr. T. Whiting, alſo anſwered it.

II. *By Mr T. Cock, of Greenwich, Kent.*

The air in dales is often denſe enough to bear up the vapours and exhalations at a conſiderable height, but always at the height of the tops of ſome hills, on which the ſpecific gravity of the air is not always equal to that of thoſe groſs vapours which exhale from low lands; and 'tis known that ſuch vapours can be ſuſpended at no greater height than that where the air is of the ſame ſpecific gravity.

Anſwers were alſo given by Meſſrs. Elliott, Hornby, Griffith, and Whiting.

III. *By Mr. T. Whiting, Lambeth.*

I am inclined to think that the lover is the ſooneſt reconciled, as it will wear off by company and freſh connections.

The ſame by Mr. Jonathan Hornby.

As love is generally allowed to be the ſtrongeſt of all paſſions; ſo the miſer would certainly be reconciled ſooner.

Anſwers were given by Meſſrs. J. Elliott, T. Fox, and J. Griffith.

IV. *By Mr. John Cartledge, of Cheſterfield.*

Although it is the gift of God for man to have a true knowledge of himſelf, yet it is not attained without the uſe of means; and

and in the proper uſe of thoſe means that God hath appointed, it is attainable. The careful reading of the Holy Scriptures, will bring to our view the ſtate that man is in by nature, and the ſtate that he is in by grace. And I believe this knowledge to be quite eſſential, both to man's preſent and future happineſs.

Anſwers were given by Meſſrs. Autodidactus, Elliott, Griffith, Hornby, and Whiting.

New Enigmas.

I. Enigma (47) *by Mr William Salter, Junior.*

When blooming ſpring renews her pleaſant reign,
And cloaths with verdure gay each fertile plain;
Harmonious ſongſters warble forth their joy,
Which hills re-echo with ſweet extaſy.
With what delight the happy ſwains behold,
Returning ſpring its choiceſt gifts unfold;
The amb'ent fields ambros'al herbage grace,
And laviſh nature ſhews her lovely face.
'Tis then that I a little pleaſure find,
And live in peace, unenvy'd by mankind;
But oh! how ſhort and tranſcient is the time,
I live ſecure, for ere I've reach'd my prime;
By cruel, unrelenting hands I'm ſought,
And ſoon my life is to a per'd brought;
With weapons dire they me around beſet,
And lay me proſtrate at their tyrant feet;
Thus fall'n, I'm hurry'd to freſh ſcenes of woe,
And tortures dreadful, doom'd to undergo;
Into a cavern drear, with ſpeed I'm ſent,
And back am toſt ere yet their rage is ſpent.
Rapacious iron tears my vitals thro',
And mortal wounds all o'er my body ſtrew;
Then caſt me in where boiling torrents range,
And there, O mortals! I receive a change:
Regenerated I all fears diſpel,
And find a refuge in an hermit's cell;
Where, unmoleſted, I in peace remain,
'Till act'al ſervice calls me forth again;
Then I'm the darling of the human race,
And in their boſoms find an hiding place.
To king and country, I'm a truſty friend,
My ſervice faithful to the crown I rend.
Thouſands on me depend for firm ſupport,
And thouſands more my kind aſſiſtance court;

E'en

E'en thoſe that mē ſo cruel us'd of late,
Without my aid would curſe their bitter fate ;
But I relenting, former faults forgive,
And, deigning ſuccour, bid the traitors live.

II. ENIGMA (48) *by Mr. William Swift, of Stow.*

Kind gents, my parentage I will reveal,
And nought from you I wiſh for to conceal ;
My parents they were ſlaves unto mankind,
As, by the ſequel, you'll hereafter find.
But firſt my ſhape—I'm round when belly's full,
When I am empty—oblong, flat, and dull ;
I cannot walk (for ſloth is all my pride)
So on my parents' back I ſometimes ride.
The Mansfield Miller knoweth me full well,
And many ſtories 'bout me he will tell ;
Tells you I am neither fleſh, blood, nor bone,
I am compos'd of nought but ſkin alone.
A friend in want unto both rich and poor,
All do careſs me—what can I ſay more.

III. ENIGMA (49) *by Autodidactus.*

In days of yore, full great was my renown,
Honour'd by old and young of each degree ;
I was clad in a plain white morning gown,
And far and near, all own'd my deity.
Winter and ſummer, ſounded forth my praiſe
Thro' life, and at the gates of death rever'd ;
All nature's voice agreed my fame to raiſe,
Becauſe men's drooping ſpirits I oft chear'd.
The world without me is a mere deſert,
A miſerable ſolitude indeed ;
Life wretched is, where I don't poliſh th' heart,
And, like the ſun, the plants of virtue feed.
I leſſen griefs—true pleaſures do increaſe,
And ſolid joys reflect from eye to eye ;
Tempers and manners I refine and eaſe,
And comfort thoſe who on their death-beds lie.
The young I introduce to real life,
And guide them into prudent courſes too ;
I kindle in the mind a noble ſtrife,
And raiſe the joys of all the honeſt few.
A gen'rous emulation I do raiſe,
The knowledge of the mind for to improve ;
I crown the mem'ry of the juſt with bays,
Compleat the bleſs of ſweet conjugal love.

IV. ENIGMA

IV. ENIGMA (50) *by Mr. Thomas Nield, Maſter of a Boarding School, Hawarden, North Wales.*

Sing, gentle Muſe, O ſing my mournful tale,
In moving ſtrains, nor leave no part untold ;
A pitying tear it from each eye will ſteal,
The matrons, prudes, and e'en the victors bold.
Behold with languid eyes, ye tender fair,
My brothers, ſiſters, and my deareſt friends ;
All ſcatter'd here and there, with haggard hair,
And no kind mortal them aſſiſtance lends.
Yet without me no mortals can be made,
Nor cou'd you ſee the charms of rural ſport ;
I yield aſſiſtance to your ſhy comrade,
And am conſpicuous in each princely court.
But ſtill unpitied, I am forced to lie
In woods, and groves, and lofty mountains too ;
Hard hearted wretches ! not one pitying eye,
Relieves my wants, tho' ſuch a friend to you.
What ſhall I ſay, or whither ſhall I go,
To hide my face from every mortal's ſight ;
I'll live in ſorrow in the world below,
Nor even to their pleaſures yield delight.
Ah ! fortune why wilt thou neglect me ſo,
Or ſee me thus in ſilent ſorrow moan,
For ſhou'd I quit thee, whither wou'dſt thou go,
What wou'dſt thou ſay to make thyſelf be known.

V. ENIGMA (51) *by Mr. Daniel Sheridan.*

Come heav'nly Muſe, in dulcet numbers greet,
My dear lov'd theme, in ſtrains ſuperbly ſweet ;
Aſſiſt ye florid ſeats of attic rhyme,
Ye lonely coverts of the tuneful nine.
From Carmels flow'ry verge, to Pindus rove ;
From great Olympus to Dodona's grove ;
From fam'd Helicon's airy ſummit ſtray,
To gay Parnaſſus, and the milky-way ;
Where gorg'ous luſtre blend in lucid floods,
To light the ſtarry palace of the Gods ;
Deſcend and taſte Caſtalia's limpid ſpring,
That makes each gueſt melodiouſly to ſing.
Fraught with theſe ſcenes, my voice I'll humbly raiſe,
Inoper'd by Sol's clear tranſlucid blaze,
Whilſt Flora's train, is note-book to my lays.
Ye female bards, that mentally poſſeſs,
Minerva's lore, with Sapho's flowing verſe,

gay

Gay Hebe's bloom, with Paphia's lovely mien,
Beyond the bounds of weak romance to feign,
Attend whilſt I pourtray a rival gueſt,
That ne'er once taſted of Diaria's feaſt.
Know then, ye fair, in Eden's bliſsful grove,
Where warbling birds induce the heart to love,
Amid the buxom, gay, vivacious ſhades,
Sweet purling rills, and green enamel'd meads.
With Adam erſt I ſtray'd, e'er Eve he knew,
On vernal lawns replete with pearly dew;
But when that fair angelic form he'd ſeen,
In ſolar ſplendour, and ſeraphic mien,
He thank'd that gracious great omnific GOD,
That fram'd this charmer for his deft abode;
With mandate ſtern, expell'd me from his home,
O! never, never there again to come.
In plaintive dirges, and condoling ſtrains,
I bid adieu to thoſe prolific plains;
Long time I wander'd, till Diana fair,
With chaſe embrace, call'd me her only dear;
Auſpicious hour! for ever ſacred be,
In pious annals to poſterity.
Prophetic Paul extols my ample worth,
From climes antartic to the frozen north.
Fair maids, whene'er in altitude of bloom,
Deteſt my preſence as the torrid ſun;
Tho' moſtly roſeate youth compoſe my train,
And truly charming is my tranquil reign;
In frantic joy ſhe quickly bounds from me,
To try the charms of darling novelty;
E'er Luna fills her pale cuſpated face,
And deck'd her o'er with each lucific grace;
E'er ſhe (by varying excavation) proves
The hate of mankind, ſhe ſo dearly loves;
The weeping fair one does my abſence mourn,
Thoſe pleaſing ſcenes, ah! never to return.
When great Jehovah, from his lucent throne,
To mortals ſent his amiable ſon;
The circumambient ſyſtems hail'd his flight,
With rare effulgence of ecſtatic light.
All nature hail'd the vivifying ray,
That burſt the confines of eternal day;
The thunder ſhrinks, the forky light'nings ceaſe,
While angels laud the harbinger of peace.
Thro' all viciſſitudes of earthly care,
In torrid, temp'rate, frigid, denſe, or rare,

I was

I was his consort in this vale of woe,
As pure and spotless as descending snow.
I still attend the splendid choirs on high,
Dissolv'd in sweet celestial harmony.

VI. ENIGMA (52) PRIZE ENIGMA. *By Mr. John Fildes, School-master, in Liverpool.*

When heav'n-born peace forsakes a guilty land,
And front to front contending armies stand;
I then appear among the warlike train,
And fearless march across th' embattled plain.
But soon I quit these scenes of martial strife,
And deck'd with plumes I lead a country life,
Near cooling streams, and in the rural shade,
I may be found in sable garb array'd.
When spring returns and clothes the trees with green,
Among the leaves I always may be seen;
Both plants and flow'rs, that in the gardens grow,
Do oft to me their beauteous order owe.
In artful schemes my willing aid I lend,
And learned men I very much befriend.
Great Newton many properties did find,
Respecting me, and taught them to mankind.
The architect does much on me rely;
And with the chemist I may surely vie;
For sometimes I without the smallest heat,
Do diff'rent kinds of metals separate.
The fam'd musician has recourse to me,
Whene'er he writes a merry catch or glee.
The seaman too can tell what deeds I've done,
In northern seas from him I swiftly run.
From clime to clime, I wander to and fro,
I cross the ocean, round the world I go;
And ev'ry land and kingdom do surround,
That Cook himself, or Anson ever found.
I near the table constantly attend,
And laundry nymphs all own me for their friend.
A well known guide I am to thoughtless youth,
And serve to lead them in the paths of truth.
With me the swain intrusts his hapless fate,
When doom'd to bear some cruel fair one's hate;
But vain my pow'r to give his soul relief,
For oft I more and more increase his grief.
Some prying wit amongst the critic throng,
Perhaps may say in some things I am wrong;
But to convince him, place me in his sight,
When straight he'll own, that I am always RIGHT.

NEW

New Rebuses, Charades, &c.

I. Rebus (29) *By Autodidactus.*

To one of the cardinal points be pleaſed to add,
What Hagar, in her dire diſtreſs, once ſaw and was glad;
And an ancient town, of ſome note, you'll ſee rightly nam'
Which is, for its moſt beautiful cathedral, much fam'd.

II. Rebus (30) *By Mr. William Swift, of Stow.*

Four letters will explain my fair one's name,
Backward, or forward read, 'tis all the ſame;
Verſe, or reverſe, you need not mind which way,
She's th' flower of England, and queen of th' May.

III. Rebus (31) *By Mr. John Fildes.*

To two fifths of a cardinal point, if you join
Juſt two ſixths of a thing often filled with wine;
And two fourths of a man who can turn white to black,
They will ſhew you who carry'd all Rome on his back.

IV. Rebus (31) *By Mr. Daniel Sheridan.*

Firſt take a glorious queen divinely fair,
Majeſtic empreſs of the heav'nly ſphere.
A nymph reſiding on fair Ida's node,
Endu'd with knowledge by the Delphian God.
A fount beneath Helicon's flow'ry verge,
Pegaſus foot, bade flow the limpid ſurge;
A comely youth, chang'd to a Daffodil,
For loving's ſelf reflected in a rill.
A nymph conſum'd by Jupiter's embrace,
For wiſhing that extravagant careſs.
A prieſt that erſt in prophecy was ſkill'd,
And rode his arrow through the ſtellar field.
A river plac'd near the infernal coaſt,
By taſting which all recollection's loſt.
A famous pilot that embark'd from Greece,
Eſcorting Jaſon for the Golden Fleece.
A muſe preſiding o'er the dulcet notes
Of heavenly muſic, charmer of the gods.
A martial hero great, that firſt began
The ample glories of majeſtic Rome.
Th' initials, ſirs, a youth to you imparts,
Profoundly ſkill'd in the ſublimer arts.

I. Charade

I. CHARADE (29) *By Mr. John Smith, Schoolmaſter.*

My firſt for induſtry fam'd,
My ſecond's well known to the fair,
For keeping apparel ſecure,
Preſerving it from rent or tear.

My whole amongſt muſical friends,
Performed with judgment and care,
Enlivens and raptures the ſoul,
Delightfully proves to the ear.

II. CHARADE (30) *By Mr. James Froſt, Morley Park.*

Upon your back, my firſt you may behold,
Look at your door, my next I've plainly told;
My whole at mercers' ſhops you'll quickly find,
A guide and ſtatute to content your mind.

III. CHARADE (31) *By Mr. Thomas Smith.*

To ſit o'er my firſt, what numbers combine,
My next is a ſervant at Bacchus's ſhrine;
My whole with true courage is known t'abound,
Above other beings on earth to be found.

IV. CHARADE (32) *By Mr. William Salter, jun.*

My firſt to welcome joyful nymphs and ſwains,
Cull flow'ry chaplets from the neighbouring plains;
My next behold does Herrald's page adorn,
By noble lords on their eſcutcheons borne;
My whole in many Britiſh towns you'll find,
A ſtation of the moſt exalted kind.

V. CHARADE (33) *By Mr. William Smith, of Stow.*

My firſt bears great burthens to France and to Spain,
My next what moſt ſportſmen do chiefly at aim;
My whole's an inſtructor on th' ocean wide,
To bold jolly tars who on ſhip-board do ride.

VI. CHARADE (34) *By Mr. John Fildes, Schoolmaſter.*

My firſt is met with near each river's ſide,
And near cool brooks that through the vallies glide;
When warbling ſongſters fly from ſpray to ſpray,
My ſecond always leads them on their way:
My whole to him that is with want oppreſt,
Without a doubt would be a welcome gueſt.

VII. CHARADE (35) *By Mr. Daniel Sheridan.*

My firſt in vernal majeſty ſurveys,
The flow'ry ſuburbs of the vocal grove;
My next old Gripus' favourite diſplays,
That regal Phœnix from which ſprung his love:
My whole implies that ample drear domain,
Where charming Polly wiſh'd her darling ſwain.

I. ANA-

I. ANAGRAM (8) *By Mr. John Smith.*

Tranſpoſe aright, a garment worn
In days of yore, by th' Britiſh fair;
What's then in reputation held,
By Bacchus' ſons will plain appear.

Then if you will the trouble take,
Of this friend a tranſpoſing make,
Tho'highly priz'd'tis plain and clear,
What's t' them a thouſand times more dear.

PARADOXICAL PROBLEM (6) *By Mr. John Smith.*

Aſſiſt me kind artiſts in planting a bower,
The trees muſt in number be juſt twenty-four,
T' form it compleat fifteen rows will be wanted,
Four trees in each row—my ſuit will be granted.

NEW QUERIES.

I. QUERY (24) *By Mr. T. White, of Barwel.*

Ye Bards who in the Britiſh Diary ſhine,
Tell me by whom, and alſo when the time,
That Engliſh ladies firſt were taught to ride,
On ſaddles which we term by name of Side.

II. QUERY (25) *By Mr. John Smith, Schoolmaſter.*

In the 11 chap. of Hebrews we read of the fruits,
Produced by faith in the hearts of the ancient patriarchs,
And prophets, who, according to the 33 verſe of that chap.
Subdued kingdoms, wrought righteouſneſs, obtained
Promiſes, &c. to verſe the 39; theſe all having obtained a
Good report, through faith, received not the promiſe; a proper
Explanation is requeſted?

III. QUERY (26) *By Mr. John Cartlidge, of Cheſterfield.*

As GOD is the firſt cauſe, the ultimate, the end of
All things; how ſhall we be employed to bring the
Moſt glory to him?

IV. QUERY (27) *By a falſe Swearer.*

What is the conſequence of a falſe oath?

ANSWERS

Answers to the Mathematical Questions.

I. Question (46) *Anſwered by Mr. John Salter, Bilſton.*

Divide the 2 equation by $z^2 + zy + y^2$ and you will have $-y = 1$, or $z = y + 1$, this ſubſtituted for z in the 1ſt equa. it becomes $2y^2 - 3y = 2$; whence by compleating the ſquare and extracting the root, you will have $y = 2$ years, and $z = 3$ months, the time ſhe intends to live ſingle longer.

The ſame by Mr. A. Buchanan, jun.

It is well known (ſee Bonnycaſtle's Arith. prep. 16, page 205) that $\frac{z^3 - y^3}{z - y} = z^2 + 2y + y^2 = z^3 - y^3$ per queſtion, hence (dividing both ſides by $z^3 - y^3$, &c.) $z - y = 1$, or $z = 1 + y$ which being put inſtead of z in the 1ſt equation, we have (after reduction, &c.) $y^2 - \frac{3}{2}y = 1$; hence $y = 2$, and $z = 3$; hence it appears the fair one intends to live ſingle 2 years and 3 months longer.

Solutions were given by Meſſrs. S. Beaſtall, T. Whiting, Wm. Salter, jun. R. Wilkinſon, S. Banyard, W. Hulland, J. Aſhton, D. Sheridan, J. Elliot, T. Fox, J. Griffith, J. Hornby, and P. Hall.

II. Question (47) *anſwered by Mr. James Aſhton, Harrington, near Liverpool.*

Given $xy = 460 = a$, and $y^x = 320 = b$. From the firſt equation $y x \log. x = \log. a$, and from the ſecond $x \times \log. y = \log b$; but by the firſt $x = a^{\frac{1}{y}}$, which ſubſtituted in the ſecond, gives $a^{\frac{1}{y}} \times \log. y = \log. b$; whence $\overline{\log. y}^2 = \frac{1}{\log. \frac{a}{\log. b.}}$; then $\log. y = \sqrt{\frac{1}{\log. \frac{a}{\log. b.}}} = .6646133$, the natural number of which is $4.6197 = y$ nearly; then $x = \frac{\log. b}{\log. y} = 3{,}77$ nearly.

Other ingenious anſwers were given by Meſſrs. T. Whiting, J. Salter, R. Wilkinſon, S. Banyard, D. Sheridan, J. Elliot, J. Griffith, J. Hornby, and P. Hall.

III. Question (48) *anſwered by Mr. Wm. Hulland, of Newborough.*

Put $x =$ one leg, $y =$ ſum of the two legs, and $z =$ half the ſum of the three ſides of the right angled $\triangle$ $2a = 4050$, $b = 30$; then $y - z =$ the other leg, and $2z - y =$ the hypothenuſe.

Alſo per queſt. $\left\{\begin{array}{ll} 1 & 3yx^2 - 3y^2x - 12yz^2 + 6y^2z + 8z^3 = 2a. \\ 2 & 2x^2 - 2xy = 4z^2 - 4zy. \\ 3 & xy - x^2 = 2b. \end{array}\right.$

3×2 4 $2xy - 2x^2 = 4b.$

$2 + 4$ 5 $4zy - 4z^2 = 4b$, and $zy - z^2 = b$, alſo $y = z + \frac{b}{z}$.

$5 \times 2z$ 6 $8z^2y - 8z^3 = 8bz.$

$1 + 6$ 7 $3yx^2 - 3y^2x - 4yz^2 + 6y^2z = 2a + 8bz.$

7×2 8 $6yx^2 - 6y^2x - 8yz^2 + 12y^2z = 4a + 16bz.$

$2 \times 3y$ 9 $6yx^2 - 6y^2x = 12z^2y - 12y^2z.$

$8 - 9$ 10 $4yz^2 = 4a + 16bz$, the value of y found in 5 ſtep, and ſubſt. 10 11 $4bz + 4z^3 = 4a + 16bz$ and $z^3 - 3bz = a.$

Aſſume $\left\{\begin{array}{ll} 12 & v + w = z \\ 13 & vw = b \end{array}\right\}$ put theſe values of z and b in the 11 14 $v^3 + w^3 = a.$

$14 \odot^2$ 15 $v^6 + 2v^3w^3 + w^6 = a^2$

$13 \odot^3 \times 4$ 16 $4v^3w^3 = 4b^3$

$15 - 16$ 17 $v^6 - 2v^3w^3 + w^6 = a^2 - 4b^3$, and $v^3 - w^3 = \sqrt{a^3 - 4b^3} = C$

$14 + 17$ 18 $2v^3 = a + c$, and $v = \overline{\frac{a+c}{2}}^{\frac{1}{3}} = d$, put this value v in the 13 19 $w = \frac{b}{d}$

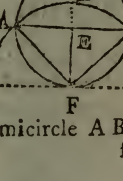
$18 + 19$ 20 $v + w = d + \frac{b}{d} = z = 15$, and by 5 ſtep $y = 17$

3 ſolved 21 $x - \frac{y}{2} = \sqrt{\frac{y^2}{4} - 2b}$, and $x = \frac{y}{2} \pm \sqrt{\frac{y^2}{4} - 2b} = \left\{\begin{array}{l} 12 \\ \text{or } 5 \end{array}\right.$

hence the ſides of the triangle are 5, 12, and 13, W. W. R.

Ingenious anſwers were given by Meſſrs. S. Beaſtall, T. Whiting, Wm. Salter, R. Wilkinſon, S. Banyard, J. Aſhton, D. Sheridan, J. Elliot, T. Fox, J. Griffith, and P. Hall.

IV. QUESTION (49) *anſwered by Mr. Robert Wilkinſon, North Shields.*

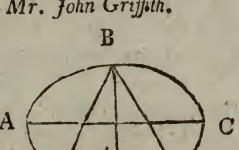


Put x = diameter AC; then $x^2 \times .3927$ = area ſemicircle ABC. The triangle ACF being iſoceles and in a ſemicircle, the $\angle$ F = 90°, and the $\angle$ A and C each = 45°. Put Rad. = 1, Sine $45° = \sqrt{\frac{1}{2}}$, then $1 : x :: \sqrt{\frac{1}{2}} : x\sqrt{\frac{1}{2}} = AF$; $\therefore \overline{2x\sqrt{\frac{1}{2}}}^2 \times .19635 = 2x^2 \times .19635 =$ area of the quadrant ADCFA, which is equal to the ſemicircle ABCA from

from the above; therefore the Δ ACF muſt be equal the lune ABCDA. Now $x\sqrt{\frac{1}{2}} \times \frac{x\sqrt{\frac{1}{2}}}{2} = \frac{x^2}{4}$ = area of ACF = area of the lune = 43560 feet per 2. $x^2 = 174240 \therefore x = 417.4206 = AC \therefore x\sqrt{\frac{1}{2}} = 295.1609 = AF$; therefore the ſemidiameters of the two circles are in feet = AF = 295.1609, and AE = 208.7103 reſpectively. W. W. R.

Other ingenious ſolutions were given by Meſſrs. T. Whiting, Wm. Salter, A. Buchanan, J. Salter, S. Banyard, W. Hulland, J. Aſhton, D. Sheridan, J. Elliot, J. Griffith, J. Hornby, and P. Hall.

V. QUESTION (50) *anſwered by Mr. John Griffith.*

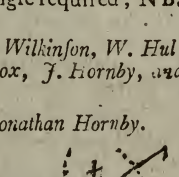


Firſt, $\overline{4840 \div 8 \times 5 \times .7854}^{\frac{1}{2}} = 12.4121 \times 8 = 99.297 = AC$, and $12.4121 \times 5 = 62.061 = BE$, the diameters acquired, which call t, and c; the true method of finding the periphery of an ellipſis is by ſumming up a ſeries (Hutton's Menſur. p. 233 gives this rule) $\frac{p}{2} \times \frac{t+c}{2}\sqrt{\frac{1^2+c^2}{2}}$ = the periphery, and in this caſe gives 255.2775124, which at 18s. per yard amounts to 229l. 15s.

Again, let $\overline{3}^{\frac{1}{2}} = a$, and the ordinate $= x = \frac{1}{2}$ the ſide of the Δ; then will the $\perp$ height thereof be ax, and the other part of the diameter $= c - ax$, then by the properties of the ellipſe, which in this caſe is the ſame as a circle, $c : t :: \overline{cax - a^2x^2}^{\frac{1}{2}} : x$, by multiplying and ſquaring both ſides, $c^2 x^2 = t^2 cax - t^2 a^2 x^2$, by tranſpoſition and diviſion, $x = \frac{t^2 ca}{c^2 + t^2 a^2} = 31.7028 \times 2 = 63.4056$, the ſide of the triangle required; NB. the $\perp$ muſt be in conj. di.

Meſſrs. T. Whiting, W. Salter, J. Salter, R. Wilkinſon, W. Hulland, J. Aſhton, D. Sheridan, J. Elliot, T. Fox, J. Hornby, and P. Hall, anſwered alſo.

VI. QUESTION (51) *anſwered by Mr. Jonathan Hornby.*



Let t = tan. of the required arc, d = given diff. then $(r^2 + t^2 =$ ſec. ſq.) $1 + t^2 = d^2 + 2dt + t^2$, that is $d^2 + 2dt = 1$, and $t = \frac{1 - d^2}{2d} = .75 =$ tan. $36^\circ.52.12''$; hence $\frac{1 - d^2}{2d}$ is a general theo. for the tangent.

Solutions were alſo given by Meſſrs. W. Salter, J. Salter, R. Wilkinſon, D. Sheridan, J. Elliot, J. Griffith, and P. Hall the Propoſer.

VII. QUESTION (52) *anſwered by Mr. John Salter.*

There is given, per queſtion, in a right $\angle$ ° ſpherical Δ the hypothenuſe = 22°. 50′ the ſun's declination, and the baſe (= azimuth) double the perpendicular (= altitude) to find the $\angle$ at the baſe, the which to obtain, Put x = the co-ſine of the altitude, then will $2x^2 - 1$ = the co-ſine of the azimuth, and per ſpherics $\overline{2x^2 - 1} \times x$ = co-ſine, 22°. 33′ from which equation x will be found = co-ſine of 10°. 16′, then as ſine 22°. 50′ : rad. :: ſine 10°. 16′ : 27°. 20′ the latitude required.

The ſame by Mr. John Griffith, Agent to Whitehead and Co. Wheelock Salt-Works.

This queſtion may be anſwered by an algebra proceſs; but, and will, produce complex equations: I, therefore, chuſe the method of trial and error, and ſhall call the ſine of the lat. S, its co-ſine C, the tan. of the declination 22°. 50′ t, and its ſine f, and ſuppoſe the lat 30°. the ſun's alt. (by ſphe.) is found by the following proportion R : S :: f : ſine 11°. 11′. the ſun's altit. and as R : C :: t : tan. 20°. 2′. the azimuth; the error 2°. 20′. Again, ſuppoſe the lat. 25°. then R : S :: f : ſine of the ſun's alt. 9°. 26′. and R : S :: t : tan. 20°. 53′. the az. from which take 18°. 52′. remains 2°. 1′. error; then 2°. × 5 ÷ 2°. 20′. = 2°. 30′. + 25 gives 27°. 30′. for the lat. required; and by repeating the operation, the azimuth is found to be 20°. 30′. and the ⊙'s altitude 10° 15′. proves it to be right.

Anſwers were alſo given by Meſſrs. T. Whiting, R. Wilkinſon, J. Aſhton, J. Elliot, and others.

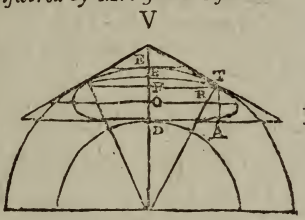
VIII. QUESTION (53) *anſwered by Mr. A. Buchanan.*

All the chances on ten dice are $6^{10} = 60466176$; and (by p. 55, Simpſon's Laws of Chance) the chances for throwing 35. 36. 37. or 38 points, are reſpectively 4395456, 4325310, 4121260, and 3801535, the ſum of theſe is 16643561, ∴ the probability of throwing 35, 36, 37, or 38 points preciſely at one trial is $\frac{16643561}{60466176}$ and conſequently the probability of not throwing them preciſely is $\frac{43822615}{60466176}$ hence (by prob. 5, p. 12, of the ſame laws of chance, or prob. iv. p. 7, Em. Miſ.) the probability of not throwing the ſame points once in three trials is $\frac{\overline{3.16643561}^{2}\ 43822615}{\overline{60466176}^{3}}$ and conſequently the odds as $\overline{3.16643561}^{2}$. 43822615

$43822615 : \overline{.0466176}^{3} - 3.\overline{166435}61^{2} :: 43822615$, or as $3642 : 18468$ nearly, i. e. as $1 : 5$ nearly.

Anſwers were alſo given by Meſſrs. Whiting, Griffith, and others.

IX. Question (54) *anſwered by Mr. James Aſhton.*

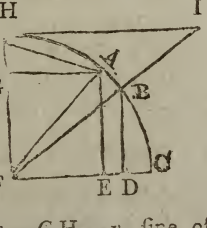


The ſolution of this queſtion depends, principally, on inſcribing the greateſt rectangle ADFT in the curve ET or in the curve BT; for the line VTK being a tangent to both curves the greateſt rectangle will be the ſame with reſpect to each curve; and it is known that the rectangle will be greateſt poſſible, when the ſubtangent AK is equal to the baſe AD of the rectangle; and when $DF = AT = FV$.

Put $a = OE = OT$, $b = OD$, and $x = DF = AT = FV$ $\therefore b + x = OF$, $b + 2x = OV$; and $\frac{a^2}{b+x} = OV$; whence $\frac{a^2}{b+x} = b + 2x$; then will $x^2 + 30x = 250$; and $x = 6.7944947$. Put $DF = d$ and $c = DV = 13.5889894$; and $x = Do = oB$, the ſemi-conjugate, then $c - x = ov$, and $d - x = oF$; but, by a property of the ellipſis, $oF \times ov = \overline{oR}^2$, then $\overline{d - x} \times \overline{c - x} = x^2$; then $x = \frac{cd}{c+d} = 4.5296631$.

Now OF and ov being given, we have $\sqrt{oF \times ov} = 15.580118$ = the ſemi-tranſverſe, and the two axis are 31.160236 and 9.0593262 reſpectively.

X. Question (55) *anſwered by Mr. Daniel Sheridan.*

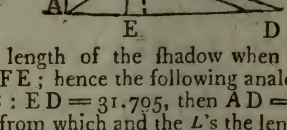


Put $.814637 = a$, $548776 = b$, x & y = ſine of A and B's courſes reſpectively ($R = 1$) then $\sqrt{1 - x^2} = AG$ = co-ſine of A's courſe, and $\sqrt{1 - y^2}$ = co-ſine of B's courſe, and as $y : \sqrt{1 - y^2} :: 1 : \frac{\sqrt{1-y^2}}{y} = HI$ = co-tan of B's courſe, which ſquared and $\times$ by x gives $\frac{x - xy^2}{y} = a$ (per queſt.) Again $1 - x = GH = v$. ſine of

A's courſe, which ſquared, and added to the ſquare of co-ſine of A's courſe, gives the ſquare of AH, which × by y, gives $2y - 2xy = b$, and $y = \frac{b}{2-2a}$ which ſquared and ſubſtituted in the 1 equa. becomes $4x^3 - 8x^2 + 4x - b^2 x = ab^2$, hence (by converging ſeries) $x = .6427876 = 40°$. and $y = 5735764 = 35°$. the courſes required. Alſo as the diff. of the co-ſines of A & B's courſe : 12.45 : : 1 : 178.885 = miles ſailed. W.W.R.

Ingenious anſwers were given by Meſſrs. T. Whiting, J. Salter, J. Griffiths, P. Hall, and others.

XI. Question (56) *anſwered by Mr. T. Whiting.*



Let AB be the cane in the ⊥ poſition AF its poſition in its inclined ſtate, and let ⊙ C, & ⊙ D be rays coming from the ſupreme point of the ſun; then AC = 60 = the length of the ſhadow when upright, and AD = 50 = the length of the ſhadow when inclined; alſo let fall the perp. FE; hence the following analogy as rad. : ſine ∠ FAE : : AC : ED = 31.795, then AD = 50 − 31.795 = AE = 18.205, from which and the ∠'s the length of the cane is found = 21.477 inches, from which and its ſhade the ſun's altitude (after deducting the ſemi-diameter and refraction) is = 19°. 23′. 23″. hence we have the altitude of the ſun = 19°. 23′. 23″. declination 23°. 28′. and lat. = 53°. 6′. to find the hour from midnight = 76°. 28′. = 5h. 5′. 52″. and the time the ſun ſets on the given day is = 3h. 41′. before midnight; hence the anſwer is 2h. 24′. 52″.

Other ſolutions were given by Meſſrs. A. Buchanan, and Mr. Hall the Propoſer.

XII. Question (57) *anſwered by Mr. Patrick Hall.*

Put x = radius of the cone's baſe; $32 = a$; $2000 = b$, $.7854 = n$. and s & c = ſine and co-ſ. rad 1, the alt. of the ſun's upper limb (for the given time per ſph. trig.) is found 45°. 21′. nearly; then (per plain trig.) $c : x + a : : s : \frac{s}{c}.x + a$ = cone's altitude; and $\overline{2x}^2 \times \frac{s}{3c}.x + a.h$ = ſolidity of the cone = b

$\therefore x^3 + ax^2 = \frac{3cb}{4sn}$, ſolved $x = 19.195$; the perpendicular height of the cone = 51.8243 feet, which make = d, and put $s =$

16 7/8

$16\frac{1}{12}$ feet, then it is evident, that the velocity of a body deſcending on any plane, from the ſame height to the ſame horizontal line, are equal ∴ as $\sqrt{s} : 2s :: \sqrt{d} : 2\sqrt{sd}$, the uniform velocity down the ſlant $= 57.741$ feet, which × by the weight of the ball will give the force when it leaves the cone; and as it then runs or moves in a non-reſiſting medium on a tangent to the earth, the ball will, in courſe, run *ad infinitum*.

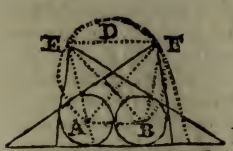
The ſame by Mr. T. Whiting.

Firſt, there is given the lat. $= 51°$. the declination anſwering to the given time, and longitude $= 22°. 23'. 58''$. and hour angle $= 45°$. to find the altitude $= 45°. 3'$. to which add the ſemidiameter, refraction and parallax gives $45°. 20'$. for the apparent altitude of the ſun's upper limb. Let $d = .7112$ = nat-ſine $45°. 20'$. $C = .7021$ its nat-co-ſine $b = 32$, $x =$ ſemid. of the cone's baſe $g = .7854$ then as $c : x + b :: b : \frac{dx + db}{c} =$ the height of the cone, $4x^2 g =$ the area of the baſe and $\frac{4dgx^3 + 4dbgx^2}{3c} = 2000$ reduced gives $x = 19.19$, hence the perpendicular is $= 51.85$. By the laws of falling bodies, the celerity acquired in falling down the ſlant height is equal to that of falling down the perpendicular, hence $16\frac{1}{12} : 1 :: 51.85 : \frac{\sqrt{51.85}}{16\frac{1}{12}} = 1'.778$ the time of deſcent through the perpendicular; conſequently $\frac{51.85 \times 2}{1.778} = 58.389$ feet, the velocity at the end of the fall. And as the ball moves in an unreſiſting medium without friction, it will never ſtop.

XIII. Queſtion (58) *anſwered by Mancunienſis the Propoſer.*

Conſt. Having made AB = the ſum of the given radii, on A and B reſpectively as centers, with the rad. deſcribe the two given circles, alſo draw the indefinite tan. IH on AB (by Euc. iii. 33) deſcribe the ſegment of a circle AEFB capable of containing the given angle at the vertex at any point C in IH make the ∠ ICD = the given ∠ made by the line drawn from the vertical angle with the baſe; make CD = this given line, through D draw EF ‖ IH to interſect the circle in E and F, from

E and F draw the tangents E G, F I and E H. F K cutting the indefinite tan. I H in G I and H K; ſo ſhall the triangle G E H or I F K be the required one.



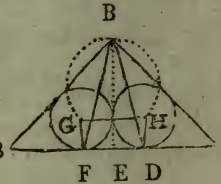
Demon. Becauſe the lines E G, G H, and F I, I K and H E, K F, are tangents to the given circles A and B, they are inſcribed in the triangle G E H and I F K; from E and F, draw E L and F M ‖ D C; then, becauſe E L and F M is parallel to D C, and E F to I H; E L and F M is = D C, and the ∠ E L G, F M I is eq. the given angle, made (by the line drawn from the vertical angle) with the baſe. Q. E. D.

Schol. If C D be drawn through the center of the circular ſegment, and D falls in its circumference; E, and F, will coincide in D, and D C will be a max. (Euc. iii. 8) but when D falls without the ſegment, the problem is impoſſible.

Ingenious conſtructions were given by Meſſrs. W. Salter, J. Salter, S. Banyard, D. Sheridan.

XIV. Question (59) *anſwered by Mr. Samuel Banyard, Great Yarmouth.*

Conſtruction. Take F E = E D = radii of the circles, and draw E B ⊥ A C; draw G F, and H D each perpendicular to A C, and = the radii; join G and H; upon G H, let a ſegment of a circle (capable of containing the given angle) be deſcribed, cutting the perpendicular E B in B, lines drawn from the point B to touch the circles, and terminate in A C, will form the triangle required; becauſe G F = H D, A B = B C; therefore, the triangle A B C is Iſoſceles, and the angle F B D a minimum (by Theo. 7. p. 199. Simp. Geo.)



Good conſtructions were alſo given by Meſſrs. J. Salter, D. Sheridan, J. Griffith, and Mancunienſis the propoſer.

XV. Ques-

XV. QUESTION (60) *anſwered by Mr. Patrick Hall, Schoolmaſter, of Denby, Derbyſhire.*

It is manifeſt (at p. 218 of Simpſon's algebra) that the ſum of the ſeries $\frac{1}{p.p\times 1}+\frac{1}{p\times 1\,.\,p+2}$ &c. carried on ad infinitum, will fall under the ſeries

$$\frac{m}{1+m+2}+\frac{m\,.\,m+1}{m+2\,.\,m+3}+\frac{m\,.\,m+1}{m+3\,.\,m+4}+\frac{m\,.\,m+1}{m+4\,.\,m+5}\ \&c.$$

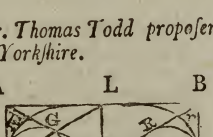
$= m+1$; the derivation of which, and many others of a ſimilar kind, may be there ſeen; put $m = p$, and divide the whole ſeries by $p\,.\,p+1$, and we then obtain,

$$\frac{1}{p\,.\,p+1}+\frac{1}{p+1\,.\,p+2}+\frac{1}{p+2\,.\,p+3}+\frac{1}{p+3\,.\,p+4}+\frac{1}{p+4\,.\,p+5}\ \&c.$$

ad infinitum $= \frac{p+1}{p+1\,.\,p} = \frac{1}{p}$ the ſum required.

XVI. QUESTION (61) *anſwered by Mr. Thomas Todd propoſer, Scorton, near Catterick, Yorkſhire.*

By Simpſon's Fluxions, p. 18, the leaſt Iſoſceles triangle, AMD, that can circumſcribe the circle, EGIE, will be when $AM = AD = 2r\sqrt{3}$, then $EH = HK = KM = r$, the radii of the circle, hence $EM = 3r$ the ſemi-axis, and $EA = r\sqrt{3}$ (perpendic. to EM) = the ſemi-conjugate axis LM, and (by Simp. Geom. p. 201) the leaſt elliptic quadrant MFEV that will circumſcribe the circle will be, when $MG = GA = r\sqrt{3}$ (EL ‖ DB). Moreover (by pages 21 and 36 Em. Conics) $MG \times GA = GA \times GL = r\sqrt{3}\times 2r\sqrt{3} = \overline{MF}^2 = br^2 \therefore MF = r\sqrt{b}$ each ſemi-conjugate diameter $\therefore$ the diameters FO, VT are each $= 2r\sqrt{b}$, and conjugate to each other, and the angle AMD $= 60°$, angle AML $= 60°$, whoſe nat. ſine of 60°, or of $120° = \frac{\sqrt{3}}{2}$; therefore the area of each



elliptic quadrant $= r\sqrt{b}\times r\sqrt{b}\times\frac{\sqrt{3}}{2}\times .7854$, or of

120°

$120^{\circ} = \frac{\sqrt{3}}{2}$ therefore the area of each elliptic quadrant $= r\sqrt{b} \times r\sqrt{b} \times \frac{\sqrt{3}}{2} \times .7854, = 3r^2\sqrt{3} \times .7854$, but only the two oppoſite quadrants (as per fig.) that will circumſcribe the circle, and the area of the whole ellipſis $= 12r^2\sqrt{3} \times .7854$.

Scholium. It is impoſſible to find "the leaſt ellipſis ſuch, that a circle may be the greateſt that can be inſcribed in any one quadrant thereof," for then they become quadrants of a circle.

The ſame anſwered by Mr. Daniel Sheridan, of Wednesfield, near Bilſton.

XVII. QUESTION (62) PRIZE, *anſwered by Mancunienſis, the propoſer.*

Put $a = 4''$ the time of deſcent, $s = 32\frac{1}{6}$ feet the velocity acquired in vacuo in 1″, $e = 1$ foot the diameter of the ball, $m = 1000$ its ſpecific gravity, $n = 1$ the ſpecific gravity of the air, $x =$ the ſpace deſcribed from the commencement of motion in any variable time t, v the velocity at the beginning, and z the velocity at the end of that time; now it being proved by experiments, that the reſiſtance of a ball moving in a reſiſting medium, is to the force by which its motion may be generated in the time of deſcribing $2\frac{2}{3}$ of its diameter as the ſpecific gravity of the medium, to that of the ball nearly; and the force being as the velocity divided by the ſpace uniformly deſcribed in a given time, by putting w the weight of the ball, we have $\frac{s}{n} : w :: \frac{3v}{8e} : \frac{3wv^2}{8se}$, the force that will generate the balls motion in deſcribing $2\frac{2}{3}$ its diameter, and $m : n :: \frac{3wv^2}{8se} : \frac{3wv^2n}{8sem}$ the reſiſtance of the ball moving with velocity v, and $\frac{3wz^2n}{8sem}$ its reſiſtance moving with velocity z; but $\frac{mw-nw}{m}$, is the weight of the ball in the medium, ∴

$m-n$

$\frac{m-n-3z^2n}{m\ \ 8sem} \times w$, is the force drawing the ball towards the earth as it deſcends; now $1 : s : : \dot{t} : s\dot{t}$ the fluxion of the velocity generated by gravity in the time t; but the fluxion of the time multiplied by the force, being conſtantly as the fluxion of the velocity we have $s\dot{t} : w\dot{t} : : \dot{z} : \frac{m-n}{m} - \frac{3z^2n}{8sem} \times w\dot{t}$ $\left(=\frac{w\dot{z}}{s}\right) \therefore \dot{t} = \frac{8em\dot{z}}{8sem-8sen-3z^2n}$, the fluent of which (when $v = a$) is $t = \frac{2em}{6emns-6en^2s^{\frac{1}{2}}} \times h.\ \log. \frac{8sem-8sen)^{\frac{1}{2}} + \sqrt{3}z^2n}{8sem-8sen)^{\frac{1}{2}} - \sqrt{3}z^2n}$, conſequently (when $t = a$) $z = 120.8673$ feet the velocity per ſecond in the medium; alſo $\dot{x} = z\dot{t} = \frac{8emz\dot{z}}{8sem-8sen-3z^2n}$, the corrected fluent of which (when $v = o$) gives $x = \frac{4em}{3n} \times h.\ \log. \frac{8sem-8sen}{8sem-8sen-3z^2n}$ $= 249.21032$ feet, the length of the plane. But the perpendicular deſcent in vacuo, in the ſame time, will be expreſſed by $\frac{sa^2}{2} = 257\frac{1}{3}$ feet, and the velocity per ſecond, by $sa = 128\frac{2}{3}$ feet, hence becauſe the diſtance deſcribed, or velocity acquired by moving down an inclined plane (in a given time) is to the perpendicular deſcent, or velocity acquired thereby (in the ſame time) as the co-ſine of the angle of inclination is to radius, we have $257\frac{1}{3}$ feet : 249.21032 feet : : rad. : co-ſine of $14°.\ 26'.\ 4''$. the inclination required, and rad. : co-ſine of $14°.\ 26'.\ 4''$: : $128\frac{2}{3}$ feet : 124.60516 feet the velocity per ſecond acquired by moving down the inclined plane.

The ſame was anſwered by Mr. John Griffith.

Mr. Thomas Todd's Anſwer to the Prize Queſtion laſt year, which was omitted by the Compoſitor.

Suppoſe the right angled triangle A D B to circumſcribe both the circle and ſemi-parabola, and $p\ e$ a tangent to the curve in the point e, putting $q = 2000$ yards $= C\ E = C\ P = N\ F = r$

$= r$ I, the radius of the given circle, and x = nat. ſine of C E N, or E P F, and y its co-ſine; then, by the circle, E B = B F D E = D B, and, by trig. rad. 1 : C E (r) : : y : E N $= ry$ ∴ E F $= r + ry$; and rad. 1 : cr (r) : : x : N C = F r $= rx$; alſo y : E F $(r + ry)$: : x : $\frac{rx}{y} \times \sqrt{y+1} =$ F I $= \frac{1}{2}$ the parameter, ∴ $\frac{2rx}{y} \times \sqrt{y+1}$ = parameter; alſo, x : E F $(ry + r)$: : y : F B $= 2$ F G $= \frac{ry}{x} \times \sqrt{y+1}$ ∴ F G $= \frac{\text{BF}}{2} = \frac{ry}{2a}$ $\times \sqrt{y+1}$, and thence the abſciſſa A G = G F + F r + r A = $\frac{ry}{2a} \times \sqrt{y+1} + rx + y =$ A H, by queſtion, and, by the parabola, A G × by the parometer 2 F I $\left(\frac{2rx}{y} \cdot \sqrt{y+1}\right) =$ $\overline{\text{A H}}^2 = \overline{\text{A G}}^2$, by queſt. $= \frac{ry}{2x} = \sqrt{y+1} + rx + r^2$ ∴ becauſe A H = A G, we have, $\frac{2x}{y} \times \sqrt{y+1} = \frac{y}{2x} \times \sqrt{y+1} + x + 1$ or $\frac{4x}{y} \times \sqrt{y+1} = y^2 + y + 2x^2 + 2x$, or $4x^2y + 4x^2 = y^3 + y^2 + 2x^2y + 2xy$, ∴ $2xy + 4x^2 = y^3 + y^2 + 2xy$ $(x^2 = 1 - y^2)$ ∴ $2y - 2y^3 + 4 - 4y^2 = y^3 + y^2 + 2y\sqrt{1-y^2}$ ∴ $4 = 3y^3 + 5y^2 - 2y + 2y\sqrt{1-y^2}$, which ſolved y = .7910896 33, and thence, x = .611700247 ∴ A G = A H = 2.769375715 r = 2 F I, and therefore the area of the ſemi-parabola A H E G = 5.11480759 r^2 = 20459230.36 ſqu. yards; and A D = $1 + y + x \cdot \frac{x}{y} = 3.03731685\,r$, and A B = $1 + y + x \times \frac{r}{x} = 3.92805118\,r$ the legs of the required triangle. Moreover the area of the leaſt right angled ſemi-parabola that can circumſcribe the given circle, by Ladies Diary 1788, p. 38, is $\frac{3r^2}{2}\sqrt{3} + r^2\sqrt{b} = 5.047565954\,r^2 = 20190263.81$ ſq. yards, therefore, the firſt area is greater than the laſt, by 268966.55 ſquare yards. I ſent this queſtion and ſolution to the Ladies Diary in the year 1787, which they would not publiſh, becauſe the perſon that diſputed with me was their correſpondent, *John Jackſon*.

Now

New QUESTIONS to be anſwered in next Year's DIARY.

I. QUESTION (63) *by Mr. William Swift, of Stow.*

In company the other night,
With Miſs A. B. a lady bright,
Miſs' age upon the ſtage was brought,
If it by figures could be wrought.
By theſe equations here* below,
She'd give her hand to Swift of Stow,
And fifteen hundred pounds in gold;
Kind Sirs this ſecret pray unfold
In Britiſh Diary next year,
And you'll oblige your ſerviteur.

* $450 = 2x^3 - x^2 + 35x - 35 + x^2 + x$, whence x repreſents her age in whole numbers?

II. QUESTION (64) *by Mr. James Stevenſon.*

Given $\left\{ \begin{array}{l} x^2 - 671 = y^2 \\ \dfrac{x^3 - y^3 - 1331}{3} = x^2 y - x y^2 \end{array} \right\}$ Quere x and y?

III. QUESTION (65) *by Mr. Hinderſon, of Weſterdale.*

There is a foot race for a mile to be run upon two acres of ground, in form of a long ſquare, once about; I demand the length and breadth?

IV. QUESTION (66) *by Mr. Thomas Nield, Maſter of a Boarding School, Hawarden.*

A Gentleman hath in his garden a fiſh-pond, in form of a parallelogram, the ſum of whoſe ſides is 42, and diagonal from corner to corner = 15 yards; now he deſires to have round the ſaid pond, a walk of 4 yards broad; the area, or content, of the walk is required?

V. QUESTION (67) *by Mr. Joſeph Waters, of Graves lane.*

Given the common diagonal of two different rectangles (the area of each, equally exceeding the ſquare of its end) = $\sqrt{20}$, and the difference of the cubes of their areas = 296; to determine their dimenſions?

VI. QUESTION (68) *by Mr. William Hulland, of Nearborough, Staffordſhire.*

Required the ſolidity of a prolate ſpheroid, the ſolidity of the greateſt cube which can be cut out of the ſaid ſpheroid, being 7077.888 inches, and the product of the ſquare of its tranverſe

tranverſe axis, by the ſquare of the diagonal of a parallelogram, whoſe ends are the parameters of the ſpheroids generating ellipſis = 790528 inches ?

VII. Question (69) *by Mr. Patrick Hall, Schoolmaſter.*

There is an erect cone ſtanding perpendicular to the horizon, and two balls, at the ſame moment, begin to move on down the ſlant ſide, and the other on an inclined plane, drawn from the center of gravity, the two balls ſtrike each other the ſame inſtant they arrive at the horizon ; required the dimenſions of the cone, when the content thereof meaſures to 240 ſolid feet ?

VIII. Question (70) *Philalethes Cleaſtyenſis,*

Having ſeen the following queſtion taken out of Clares' introduction to trade and buſineſs, put into two late books of arithmetic, and falſe ſolutions given in each book ; after this, ſent it to the Ladies Diary, which alſo ſolved it falſe (in p. 110, Clares' Trade). Q. of Rotterdam, remits to R. of Paris, 2000 crowns, at 91d. Flem. per crown, at double uſance, or two months, and pays $\frac{3}{4}$ per cent. brokerage, with orders to remit him again the value, at 93d. per crown, allowing, at the ſame time, $\frac{1}{2}$ per cent. for proviſion. What is gained per annum by a remittance thus managed ?

IX. Question (71) *by Mr. Jonathan Hornby, of Weſterdale.*

Let the breadth of a ſtreet be 100 feet, in which are two houſes oppoſite, as A and B ; now, two ladders being placed to reach the top of each houſe, met in the middle of the ſtreet, and it was found, that the ſines of the two angles, made by the ladders and ſtreet, were in proportion as 2 to 3, and their tan. as 4 to 7 ; required the heights of the houſes (the houſe A. being the higheſt) and the lengths of the ladders ?

X. Question (72) *by Mr. Daniel Sheridan, of Wednesfield.*

Required the ratio of the centrefugal, to the centrepetal of a ſtone turned round in a ſling, whoſe length in feet, number of rounds, and the time in ſeconds it was performing thoſe rounds, make .10, when the rectangle of the ſling's length, and number of rounds, added to the ſquare of the time is a min.

XI. Ques-

XI. QUESTION (73) *by Mr. Thomas Leybourn.*

The perpendicular of any plain triangle, the vertical angle, and the angle formed by two right lines drawn from the extremities of the baſe to the middle of the perpendicular, being given; to determine the triangle?

XII. QUESTION (74) *by the ſame.*

Two right lines meeting in a point, being both in poſition and length, to draw a right line through the point of concourſe, ſo that if perpendicular be let fall thereon from the ends of the two given lines, the two triangles formed thereby ſhall be equal?

XIII. QUESTION (75) *by Mr. Robert Carliſle.*

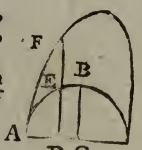
Required a general theorem for the ſum of the ſeries, $\frac{1}{1.2.3\,\&c.\,to\,r} + \frac{1}{2.3\ldots r+1} + \frac{1}{2.3.4\ldots r+2}$ &c. continued ad infinitum?

XIV. QUESTION (76) *by Mr. James Aſhton, of Harrington, near Liverpool.*

At the front of gentleman's hall, in the country, there is a a ſemi-circular gravel walk, of two yards broad, and 6 yards radius, on the inner ſide, which is to be enlightened by two lamps (of equal ſize and quality) to be fixed on the front of the hall, and perpendicular over the centre of the walk; it is required to find the two points, the one two yards higher than the other, where the ſaid lamps muſt be fixed, ſo that the aggregate of the light, on the ſaid walk may be the greateſt?

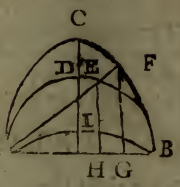
XV. QUESTION (77) *by Mr. A. Buchanan, Sedgefield.*

A B V is a given ſemi-circle, C the centre, in which there is drawn any ordinate D E, and then upon D E produced, there is taken E F always equal to the correſponding abſiſſa A D; required the locus, and quadrature of the whole curve deſcribed by the point F, and alſo the quadrature of the ſegment, when the ordinate is a maximum?



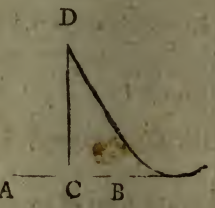
XVI. QUES-

XVI. Question (78) *by Mr. John Salter, Bilſton.*



Let A C B be a ſemi-ellipſis, A D B a ſemi-circle, and ſuppoſe a right line be drawn from A to any point, as F, in the periphery A C B, cutting the ſemi-circle alſo in E; let alſo the perpendiculars E H, and F G be drawn; on E H, take H I always = H G, then will the point I be always in the curve A I B; required the area of the ſaid curve; alſo the content of the ſolid generated by the rotation of the curve round its axis A B?

XVII. Prize Question (79) *by Mr. T. Cock, of Greenwich, Teacher of the Mathematics and Natural Philoſophy.*



At a point C, in a given right line A B produced, let a perpendicular be erected, in which take C D a third proportional to n times A B, and the nth power of A B + B C; required the value of C B, and C D, when the area of the curve, which is the locus of D, is equal to a given quantity b. And give an exam. when $n = 1$, A B = 9, and $b = 64$?

All letters for the uſe of this Diary, are deſired to be directed thus, "For Meſſrs. Cotes and Taylor, to be left with Mr. Joſeph Peet, High-pavement, Nottingham (Poſt-paid)" to come to hand by the firſt of May.

FINIS.