DIARIA BRITANNICA:

OR, THE

BRITISH DIARY:

AN

ALMANACK,

FOR THE

Year of OUR LORD 1795.

BEING THE THIRD AFTER

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

EPHEMERIS,

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

By JOHN COTES and PATRICK HALL.

The Eighth Almanack published of this Kind.

Sweet Muses nine shew forth your learned lore,
To BRITISH YOUTH, all scientific store,
Of profound knowledge, teaching them to know,
Wisdom's true fount, where arts and science flow;
For learned works a monument will raise,
Be doubly crown'd with laurels and with bays.

BIRMINGHAM,

Printed and Sold by THOMAS PEARSON,

AT THE WHOLESALE ALMANACK WAREHOUSE, AND BY CHAMPANTE AND WHITROW, JEWRY-STREET, LONDON. (*Price One Shilling.*)

Chronological Notes for the Year 1795.

Julian Period	6508	Dominical Letter	D	Faster Day	April 5
World's Creation	5751	Epact — —	9	Whit Sunday	May 24
Roman Indiction	13	Numb. of Direction	15	Trinity Sund.	May 31
Solar Cycle —	12	Septuageſima S.	Feb. 1	Advent Sund.	Nov. 29
Golden Number	10	Shrove Sund.	Feb. 15	Milennium Years	144

Aſtronomical Characters uſed in this Diary.

Aries	♈	Virgo	♍	Aquarius	♒	Mars	♂
Taurus	♉	Libra	♎	Piſces	♓	Venus	♀
Gemini	♊	Scorpio	♏	G. Sidus	♅	Mercury	☿
Cancer	♋	Sagitary	♐	Saturn	♄	Sun	☉
Leo	♌	Capricorn	♑	Jupiter	♃	Moon	☽

N. Node	☊		
S. Node	☋		
Earth	♁		
Part. For.	⊕		

☌ Conjunction, when Planets are in the ſame ſign, degree, and minute.
✶ Sextile, when 2 ſigns diſtant — △ Trine, when 4 ſigns diſtant
□ Quartile, when 3 ſigns diſtant — ☍ Oppoſition, when 6 ſigns diſtant.

Of the Four Quarters of the Year.

Spring Qu. begins March 20, 2h. 53a. — Autumn Q. be. Sept. 22, 2h. 32m. m
Summer Qu. beg. June 21, oh. 45a. — Winter Qu. be. Dec. 21, 7h. 15m. af.

ECLIPSES for the Year 1795.

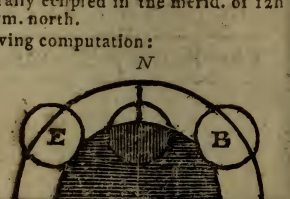
FOUR times this year will the two Luminaries be eclipſed, two of the Sun, and two of the Moon, according to the following order:

I. January 20, the Sun is eclipſed inviſible, ☌ at 12h. 9m. in ♒ 1°. 2m. ☽'s lat. 40m. 57ſ. north, the Sun is centrally eclipſed in the merid. of 12h 26m. in long. 173°. 31m. eaſt, lat. 25°. 17m. north.

II. February 3. according to the following computation:

	h.	m.
Beginning	10	59
Middle	12	25
End	13	51
Duration	2	52
Digits	7	27

	h.	m.	s.
from	10	50	11
M. S.	12	25	52
Tables	14	1	3
	3	10	42
On ſou. limb	8	52	54

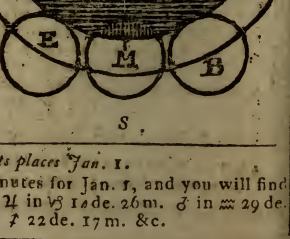


III. July 16, Sun eclipſed inviſible, ☌ at 7h. 31m. in the morning, centrally eclipſed on the meridian at 7h. 41m. in longitude 64°. 16m. eaſt, lat. 10°. 15m. ſouth.

IV. July 31, Moon eclipſed part viſible,

	h.	m.
Beginning	6	46
Middle	7	42
Moon riſes		
End	8	38
Duration	1	52
Digits	2	52

	h.	m.	s.
	6	49	14
M.S. tables	7	46	1
	8	42	48
	1	53	24
On nor. limb	2	44	31



An Ex. to find the Planets places Jan. 1.

Look into the calendar, and table of minutes for Jan. 1, and you will find ♄ in ♐ 3de. 4m. ♄ in ♉ 23de. 9m. ♃ in ♍ 1de. 26m. ♂ in ♒ 29de. 20m. ♀ in ♍ 12de. 19m. and ☿ in ♐ 22de. 17m. &c.

A TABLE *of the* MOON's fouthing *for the Year* 1795.

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

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

D	A. M.	A. M.	A. M.	A. M.	A. M.	M. M.	M. M.	M. M.	M. M.	M. M.	A. M.
1	8 42	6 31	4 42	2 51	0 59	10 56	8 52	6 48	4 52	3 51	1 8	11 1
7	8 1	6 7	4 2	2 12	0 36	10 31	8 27	6 25	4 31	3 30	1 43	10 34
13	7 51	5 43	3 59	2 0	0 12	10 6	8 3	6 2	4 9	3 9	1 20	10 8
19	7 28	5 20	3 36	1 44	11 48	9 41	7 39	5 40	3 47	2 46	1 58	9 42
25	7 c	4 57	3 15	1 21	11 24	9 17	7 15	5 18	3 23	2 26	1 35	9 16

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

EXAM. On Jan. 1ſt Moon ſouths at - 8 47 a.
Add for N. and F. Moon for London - 2 30

Time of High Water at London 11 17 a.
Add for next Low Water - - 5 49

Time of Low Water at London, 5 6 m.

Ex. 1.) On Jan. 1. Seven Stars ſouths at 8 43 a.
Semidiurnal arc. ſubtract and add - 8 17

Seven Stars riſes Jan. 1ſt at - - - 0 26 a.
Seven Stars ſets next morning Jan. 2, - 5 0 m.

Ex. 2.) Seven Stars ſouths Jan. 1 at - 8 43 a.
Sirius ſouths after the Seven Stars - 2 1

Sirius ſouth Jan. 1ſt afternoon - 11 44 a.
Semidiurnal arc ſubtract and add - 4 37

Sirius riſes Jan. 1ſt afternoon - - 7 7 a.
Sirius ſets Jan. 2d morning - - 4 21 m.

No. of Stars.	l. a.	l. d. a.
Aldebaran	0 40	7 29
Capella	1 26	——
Perſeleguſe	2 8	6 41
Alphord	5 42	5 24
Regulus	6 21	7 11
Upp. point.	7 15	——
Virg. ſpike	0 30	5 12
Arcturus	10 26	7 55
Antarus	12 41	3 34
Algethi	13 38	7 21
Lyra	14 52	——
Atair	16 4	6 46
Fomalhaut	19 8	2 52
Pole ſtar	21 12	——
Almack	22 16	——
Algol	23 10	——
Algenib	23 37	——

A TABLE of MINUTES, or the Residue of the Planets' Places.

January.

M D	☿	♄	♃	♂	♀	☽
1	4	9	26	20	19	17
3	2	5	54	52	7	6
5	59	1	22	25	55	59
7	56	57	50	58	44	55
9	53	54	18	31	40	52
11	49	51	46	3	44	53
13	46	48	14	36	55	55
15	42	46	42	9	14	59
17	38	45	10	41	45	6
19	34	43	37	13	27	15
21	30	43	5	46	18	26
23	26	43	33	18	18	40
25	21	43	0	50	26	56
27	17	44	28	22	42	15
29	12	45	55	54	9	36

February.

M D	☿	♄	♃	♂	♀	☽
1	4	47	36	10	8	44
3	59	49	3	42	57	13
5	54	52	31	14	50	44
7	49	55	58	45	49	19
9	44	58	25	17	54	57
11	39	2	51	48	6	36
13	34	7	17	18	24	17
15	29	12	43	49	47	59
17	24	17	8	20	14	40
19	19	22	33	50	43	19
21	13	28	58	20	16	53
23	8	35	23	50	53	17
25	3	42	48	20	34	29
27	57	49	13	50	17	24

March.

M D	☿	♄	♃	♂	♀	☽
1	52	57	38	19	3	57
3	47	5	2	49	52	3
5	42	12	26	19	42	41
7	37	22	49	47	33	44
9	32	30	12	16	28	13
11	27	40	34	45	23	5
13	22	50	56	13	22	26
15	17	0	18	41	22	18
17	13	10	39	9	24	48
19	8	21	0	37	26	5
21	4	32	20	5	30	18
23	0	43	40	32	34	36
25	56	55	0	59	40	3
27	52	7	20	26	46	49
29		19	39	53	54	57

April.

M D	☿	♄	♃	♂	♀	☽
1	42	38	7	4	9	19
3	37	51	24	31	20	22
5	32	4	41	57	31	46
7	27	17	58	23	42	30
9	23	30	14	49	54	30
11	18	43	30	15	7	48
13	13	56	45	40	21	20
15	8	25	57	45	40	21
17	3	22	11	59	6	35
19	59	25	13	31	50	5
21	54	18	39	26	6	5
23	49	16	53	38	21	21
25	44	7	50	46	37	2
27	39	14	22	1	53	39
29	35	25	14	17	9	25

May.

M D	☿	♄	♃	♂	♀	☽
1	11	7	33	33	44	21
3	10	22	41	47	2	31
5	10	37	49	10	20	51
7	10	53	56	33	40	16
9	10	8	2	56	59	49
11	11	23	8	19	18	31
13	12	39	14	42	37	20
15	13	54	19	4	57	16
17	14	10	23	27	17	22
19	15	25	25	49	37	32
21	16	41	28	11	57	48
23	18	56	29	33	17	10
25	20	12	29	54	38	32
27	22	27	29	16	59	56
29	24	43	28	38	20	18

June.

M D	☿	♄	♃	♂	♀	☽
1	28	6	24	41	52	43
3	31	21	21	3	14	53
5	34	37	17	24	36	53
7	37	53	13	45	58	46
9	41	8	7	5	20	30
11	45	23	1	26	42	4
13	49	39	55	46	5	27
15	53	54	47	6	28	41
17	57	9	39	26	51	46
19	1	23	31	46	14	39
21	5	38	21	6	37	22
23	9	53	11	25	0	55
25	14	7	1	44	24	16
27	19	22	50	4	47	25
29	25	36	38	24	11	22

July.

M D	☿	♄	♃	♂	♀	☽
1	30	51	26	43	35	6
3	35	5	13	2	59	37
5	41	19	1	21	23	49
7	47	32	47	39	47	48
9	53	46	32	58	11	31
11	59	59	19	16	35	54
13	5	12	4	35	1	56
15	11	25	49	53	26	41
17	17	37	34	12	52	7
19	23	50	19	30	17	15
21	31	2	4	48	43	7
23	38	14	48	6	8	47
25	45	25	32	24	33	21
27	52	36	17	42	59	54
29	59	47	2	0	25	30

August.

M D	☿	♄	♃	♂	♀	☽
1	9	4	38	55	4	51
3	16	14	23	12	31	8
5	24	27	7	30	57	48
7	30	34	53	47	24	54
9	37	44	39	4	51	29
11	45	53	25	21	18	30
13	52	2	11	38	45	1
15	59	11	58	55	12	57
17	7	19	45	12	39	19
19	14	27	33	29	7	4
21	22	35	21	46	34	9
23	29	42	9	2	2	31
25	36	48	58	18	30	5
27	44	54	48	35	58	48
29	52	0	38	52	26	41

September.

M D	☿	♄	♃	♂	♀	☽
1	4	9	24	46	9	28
3	11	14	16	2	38	20
5	18	19	9	18	6	15
7	26	23	3	33	35	2
9	33	27	57	49	4	46
11	41	30	52	5	33	29
13	48	33	47	21	2	6
15	55	35	43	37	31	39
17	3	37	40	52	0	8
19	10	39	38	8	30	33
21	18	40	37	24	59	54
23	25	41	37	39	28	11
25	32	41	37	55	58	24
27	39	41	38	10	27	34
29	46	40	40	25	57	41

October.

M D	☿	♄	♃	♂	♀	☽
1	52	39	42	40	27	44
3	59	38	46	56	57	43
5	6	36	50	11	27	40
7	12	34	54	26	57	33
9	18	31	0	46	27	22
11	24	28	7	51	57	7
13	30	24	15	1	28	49
15	36	20	23	26	58	27
17	42	16	31	41	28	58
19	48	11	41	56	59	25
21	53	6	51	10	29	44
23	58	0	1	25	59	54
25	3	54	13	39	29	55
27	8	48	25	54	0	43
29	13	41	38	8	30	15

November.

M D	☿	♄	♃	♂	♀	☽
1	20	30	59	59	16	56
3	24	23	14	13	46	31
5	28	15	29	27	17	34
7	32	7	44	41	48	1
9	36	59	0	55	18	48
11	40	50	17	9	49	59
13	43	41	34	23	20	35
15	46	32	52	37	50	52
17	49	23	10	51	21	20
19	52	13	29	4	52	3
21	55	4	49	18	22	26
23	57	54	9	31	53	38
25	57	54	29	44	23	33
27	59	44	49	57	54	8
29	1	35	50	57	54	8

December.

M D	☿	♄	♃	♂	♀	☽
1	5	15	33	23	55	56
3	6	5	56	36	26	55
5	7	55	18	49	56	10
7	8	45	41	2	27	36
9	9	35	4	15	57	12
11	9	25	27	27	28	54
13	9	16	51	39	58	42
15	9	6	15	51	29	34
17	9	57	40	3	0	27
19	8	48	5	15	30	24
21	7	39	31	27	0	23
23	7	30	57	38	41	23
25	5	22	23	49	1	25
27	4	14	50	0	31	28
29	2	6	18	11	2	32

JANUARY hath XXXI Days.

Geocentric Latitude.

D	☿ n	♄ f.	♃ f.	♂ f.	♀ n	♅ n
1	0 47	2 12	0 7	1 2	4 2	0 25
13	0 47	2 9	0 8	0 52	6 5	1 1.0
25	0 47	2 5	0 9	0 42	6 29	1 54

Full Moon 5 day, 10 morn.
Last Quart. 13 day, 5 mor.
New Moon 20 day, at mid.
First Quart. 27 day, 9 nig.

Heliocentric Longitude.

D	☿	♕	♄	♅	♃	♂	♈	♀	♎	♄	♓	☊	♌
1	0	38	27	45	15	31	0	10	44	5	15	9	55
7	0	42	28	0	15	33	4	43	20	28	23	49	9	35
13	0	47	28	13	16	4	8	25	0	♌ 13	10	♎ 28	9	10
19	0	52	28	26	16	34	12	5	9	58	27	0	8	57
25	0	57	28	39	17	4	15	44	19	43	14	♍ 11	8	38

M D	W D	Festival Days.	Aspects ☌ Wea.	☉ ♒	♄ ♒	♃ ♓	♂ ♐	♀ ♑	☿ ♑	☽ ♉	☽ lat sou.	☽ Dec north	☽ sets.
1	T	Circumcif.	♃ ☽ ♄	11	3	23	14	29	12	22	20 8	5 7	12 52	2 55
2	F	♄ set 8. 31 n	♂ ☽ ☉	12	3	23	14	♓	11	23	4 11	28 4 42	16 26	4 13
3	S	♂ set 8. 18 n	Cold	13	3	23	14	0	11	25	18 4	1 4 0	18 59	5 26
4	D	☽ S. aft. Chr.	☌ ☉ ♃	14	3	23	15	1	10	26	2♍	44 3 4	20 22	6 35
5	M	☿ ri. 6. 53 m	☌ ☿ ♂	15	2	23	15	2	9	27	16 3	2 1 58	20 29	☽ ris.
6	T	Epiphany	rain or	16	2	22	15	3	9	29	0♌ 1	0 46	19 25	5 ♍ 39
7	W	♑ so. 3. 3 m	snow, and tur-	17	2	22	15	3	8	♑	13 1	1 on 26	17 18	6 43
8	T	Lucian	bulent	18	2	22	16	4	8	2	26 0	1 35	14 21	7 48
9	F	♄ set 8. 0 n		19	2	22	16	5	7	3	8♍	31 2 38	10 50	8 54
10	S	☽ set 8. 19	☌ ♒ ☽	20	2	22	16	6	7	5	20 47	3 33	6 55	10 0
11	D	☽ S. aft. Eph.	☌ ♀ ☿	21	2	22	16	7	6	6	2♎	50 4 17	2 48	11 4
12	M	☿ ri. 7. 32 m	△ ☉ ♄	22	2	22	17	7	6	8	14 45	4 49	1 f 22	Morn
13	T	Hil. C. T. b.	ur.	23	2	22	17	8	5	9	26 37	5 9	5 28	0 7
14	W	Ox. T. beg.	Frosty.	24	2	22	17	9	5	11	8♍	31 5 16	9 22	1 10
15	T	♄ set 7. 33 n	S trong	25	2	22	17	10	5	12	20 32	5 9	12 56	2 13
16	F	♂ set 8. 21 n	wind,	26	2	22	17	10	4	14	2 ♐ 43	4 49	16 0	3 17
17	S	♒ so. 2. 18 m	(☌ ♃ ☿	27	2	22	18	11	4	16	15 8	4 14	18 25	4 21
18	D	☽ S. aft. Eph.	Qu. b. d	28	2	22	18	12	4	17	27 51	3 26	20 0	5 23
19	M	♄ so. 7. 16 n	☌ ☽	29	2	22	18	13	4	9	10♑	51 2 27	20 35	6 22
20	T	Fabian 1 ret.	☿ ♃	♈	2	22	18	13	4	20	24 11	1 18	20 1	☽ sets
21	W	Agnes	△ ♄ ☿	1	2	22	19	14	4	22	7♈	47 0 4	18 17	4 a 56
22	T	Vincent	with	2	2	22	19	15	D	24	21 39	1 f 13	15 27	6 11
23	F	Hil. T. beg.	☌ ☽ ♂	3	2	D	19	16	4	25	5♓	42 2 26	11 41	7 27
24	S	♂ set 8. 22 n	snow	4	2	22	19	17	4	27	19 54	3 30	7 14	8 44
25	D	☽ S. aft. Eph.	C. St-P.	5	2	22	20	17	4	28	4♈	10 4 22	2 23	10 1
26	M	♄ so. 6. 46 n	or rain.	6	2	22	20	18	4	♈	18 26	4 58	2 n 38	11 19
27	T	Prs. A. Fr. b	More	7	2	22	20	19	4	2	2 ♉	49 5 16	7 28	Morn
28	W	♒ set 1. 31 m	☌ ♂ ♄	8	2	22	20	20	4	3	16 5	5 5 14	11 52	0 38
29	T	♂ set 8. 20 n	mild to	9	2	22	20	20	5	5	0♊	51 4 53	15 34	1 52
30	F	K. Ch. I. M.	the end.	10	2	22	21	21	5	7	14 47	4 16	18 21	3 4
31	S	♄ so. 6. 26 n	✶ ♄ ♂	11	2	22	21	22	5	9	28 31	3 24	20 31	4 14

D	D. L. beg.	Sun rise	Sun set.	D. L. ends	leng. of D.	Day inc.
1	5 58	8 2	3 58	6 2	7 56	0 6
7	5 53	7 58	4 2	6 7	8 4	0 14
13	5 47	7 52	4 8	6 13	8 16	0 26
19	5 40	7 44	4 16	6 20	8 32	0 42
25	5 34	7 36	4 24	6 26	8 48	0 58

Declination.

☉	f.	☿	n	♄	n	♃	f.	♂	f.	♀	f.	♅	f.
23	0	11	7	16	27	22	48	12	41	18	53	22	49
22	21	11	11	16	26	22	39	10	56	17	56	23	48
21	26	11	15	16	25	22	29	9	10	17	15	24	5
20	17	11	19	16	25	22	19	7	20	16	56	23	36
18	53	11	24	16	27	22	8	5	28	16	54	22	15

Geocentric Latitude.

D	☿ n	☿ f.	♀ f.	♂ f.	♀ n	♃ f.
1	0 48	2 3	0 10	0 37	6 12	2 5
13	0 48	2 0	0 11	0 27	5 14	1 31
25	0 48	1 56	0 13	0 18	4 16	0 58

Full Moon 4 day, 1 morn.
Laft Quart. 12 day, 2 morn.
New Moon 19 day, 1 after.
Firft Quart. 26 day, 5 mor.

FEBRUARY hath XXVIII Days.

Heliocentric Longitude.

D	☿	♀	♁	♂	♃	♄	♅	♆
1	1 3	28 55	17 40	19 57	1 7	6 8	8 16	
7	1 7	29 8	18 10	23 32	10 52	27 45	7 57	
13	1. 12	29 22	18 41	27 5	20 37	23♓15	7 38	
19	1 17	29 35	19 11	0♉33	0♌20	23♈50	7 19	
25	1 21	29 48	19 41	4 6	10 2	29♓24	7 0	

M D	W D	Feftival days.	Afp. & weath.	☉ ♒	☽ ♍	♄ ♓	♃ ♈	♀ ♓	♆ ♒	☽ ♋	☽ lat fou.	☽ de. north	☽ fets.
1	D	Sept. Sun.	Froſty,	12	2	22	21	23	6	10	12 4	2 21	20 34	5 16
2	M	Cand. day	with	13	2	22	21	23	6	12	25 24	1 12	19 54	6 10
3	T	Blas. 3 ret.	♂ ☉ ☿	14	1	22	22	24	6	14	8♌31	0 n 0	18 10	☽ riſe
4	W	♄ ſo. 6. 10	new or	15	1	22	22	25	7	15	21 23	1 11	15 31	5a25
5	T	Agatha	rain.	16	1	22	22	26	7	17	4♍22	2 17	12 10	6 32
6	F	♅ ſo. 0.54 n	△ ♄ ♃	17	1	22	22	27	8	19	16 26	3 15	8 21	7 37
7	S	☽ ſets 8.26	□ ♄ ☿	18	1	22	22	27	9	21	28 39	4 3	4 16	8 43
8	D	Fex. Sund.	Windy,	19	1	22	23	28	9	23	10♎42	4 40	0 4	9 49
9	M	4 return	with	20	1	22	23	29	9	24	22. 87	5 4	4 16	10 50
10	T	♄ f. 5. 47 n	rain or	21	1	23	23	♈	10	26	4♎30	5 15	8 5	11 54
11	W	♅ ſo. 0.33 m	□ ☉ ♄	22	1	23	23	0	11	28	16 23	5 13	11 45	Morn
12	T	Collop Th.	Hil. T. e	23	1	23	24	1	11	♓	28 22	4 57	14 50	0 56
13	F	♂ ſets 8.28 n	(♅ ☿	24	1	23	24	2	12	2	10♐31	4 28	17 33	2 7
14	S	Valentine	Snow.	25	1	23	24	3	13	4	22 55	3 46	19 31	3 6
15	D	Quinquag.	Sh. Sn.	26	1	23	24	3	13	5	5♑38	2 51	20 29	4 4
16	M	♂ ſets 8.29 n	♂ ☽ ♃	27	1	23	24	4	14	7	18 43	1 47	20 24	5 0
17	T	Shrove Tu.		28	1	23	25	5	15	9	2♒11	0 34	19 8	5 43
18	W	Aſh W. C.	T. d. m	29	1	23	25	6	15	11	16 4	0♌42	16 42	☽ ſet
19	T	♄ ſo. 5. 13 n	☽ ☉ ♅	♓	1	23	25	6	16	13	0♑18	1 53	13 13	5 a 3
20	F	♃ ri. 5. 23 m	♂ ☽ ☿	1	1	23	25	7	17	15	14 40	3 7	8 52	6 21
21	S	♅ ſo. 11. 54 n	♂ ☽ ♂	2	1	23	25	8	18	16	29 30	4 5	3 56	7 41
22	D	1 Su. in Lent	More	3	1	23	26	9	19	18	14♈15	4 47	1 n 13	9 0
23	M		mild	4	1	23	26	9	19	20	28 55	5 9	6 17	10 24
24	T	St. Mat. Pr.	Ad F. b	5	1	23	26	10	20	21	13♉25	5 12	10 55	11 41
25	W	Emb. week	✶ ♄ ☿	6	1	23	26	11	21	23	27 41	4 55	14 51	Morn
26	T	♀ ri. 4. 25 m	to the	7	1	23	27	12	22	24	11♊40	4 21	17 53	0 56
27	F	♂ ſets 8. 35 n	△ ♄ ♀	8	0	23	27	12	23	26	25 22	3 33	19 50	2 7
28	S		end.	9	0	23	27	13	24	27	8♋48	2 34	20 36	3 11

VENUS is a morning ſtar till October 16, then an evening ſtar to the year's end.
JUPITER is a morning ſtar from the 4th day of January till July 25, then an evening ſtar to the end of the year.

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Leng. of D.	Day inc.
1	5 26	7 24	4 36	6 34	9 12	1 22
7	5 13	7 14	4 46	6 42	9 32	1 42
13	5 8	7 3	4 57	6 52	9 54	2 4
19	4 57	6 52	5 8	7 3	10 16	2 26
25	4 46	6 40	5 20	7 14	10 40	2 50

Declination.

☉ f.	☿ n	♄ n	♃ f.	♂ f.	♀ f.	♆ f.
17 1	11 29	16 30	21 54	3 17	17 8	19 34
15 13	11 34	16 34	21 41	1 23	17 26	16 15
13 15	11 40	16 39	21 29	0n30	17 41	12 6
11 10	11 45	16 44	21 15	2 22	17 50	7 3n
8 58	11 51	16 50	21 2	4 13	17 48	2 9

Geocentric Latitude.

D	☿ n	♄ n	♃ n	♂ n	♀ n	☽ n
1	0 48	1 55	0 15	0 15	3 34	1 24
13	0 48	1 52	0 15	0 6	2 17	3 31
25	0 48	1 50	0 17	0 n 2	1 5	2 7

Full Moon 5 day, 5 aftern.
Last Quart. 13 day, 9 night
New Moon 20 day, at mid.
First Quart. 27 day, 2 aft.

MARCH hath XXXI Days.

Heliocentric Longitude.

D	☿	♀	♄	♃	♅	♂	♇	☽	♎	♄	♏	♌	☊
1	1	24	29	57	20	3	6	24	16	30	24	35	6	47
7	1	28	0	♏10	20	33	9	50	26	9	♐	0	6	28
13	1	33	0	24	21	4	13	14	5	♑48	2	♑32	6	9
19	1	38	0	37	21	34	16	39	15	24	28	35	5	50
25	1	43	0	50	22	5	19	55	24	58	20	♒23	5	31

M D	W D	Festival days.	Asp. & weath.	☉ ♈	☽ ♍	♄ ♉	♃ ♈	♂ ♈	♀ ♓	☽ ♌	☽ lat sou.	☽ dec. north	☽ sets.
1	D	2 S. in Lent	David	10	0	23	27	14	25	28	21 58	1 28	20 13	4 7
2	M	Chad	Mild	11	0	24	27	15	25	♈	4 ♑54	0 18	18 46	4 54
3	T	☿ set 7. 18 n	and	12	0	24	28	15	26	1	17 37	0n 51	16 23	5 31
4	W	♄ 0. 4. 27 n	☌ ♃ ☿	13	0	24	28	16	27	1	0♍10	1 57	13 15	6 4
5	T	☿ ri. 4. 22 m.	pleasant	14	0	24	28	17	28	2	12 33	2 56	9 34	☽ rii.
6	F	♅ 0. 11. 2 n	for the	15	0	24	28	18	29	3	24 47	3 46	5 32	6a 34
7	S	Perpetua	season.	16	0	24	28	18	♈	3	6 ♎53	4 25	1 20	7 37
8	D	3 S. in Lent		17	0	24	29	19	1	4	18 52	4 52	2f 53	8 40
9	M		Brisk	18	0	24	29	20	2	℞	0♏46	5 7	6 58	9 43
10	T	☌ set 8. 41 n	✱ ☿ ♀	19	0	24	29	21	3	4	12 38	5 8	10 45	10 52
11	W	♅ 0. 10. 43 n	gales,	20	0	24	29	21	4	4	24. 30	4 55	14 8	11 54
12	T	Gregory	with	21	0	24	29	22	5	3	6 ♐27	4 30	16 58	Morn
13	F	♄ set 11. 34 n	showers	22	0	24	29	23	6	3	18 33	3 53	19 6	0 56
14	S	☿ set 7. 22 n	The	23	0	24	♈	23	7	2	0♑53	3 4	20 24	1 56
15	D	4 S. in Lent	✱ ☉ ♄	24	0	25	0	24	8	2	13 31	2 5	20 42	2 53
16	M	♅ 0. 10. 24 n	☌ ☽ ♃	25	0	25	0	25	9	1	26 32	0 58	19 55	3 44
17	T	St. Patrick	month	26	0	25	0	26	10	♓	9♈59	0f 14	17 59	4 26
18	W	Ed. K. W. S.	pleasant	27	0	25	0	26	11	29	23 55	1 28	14 57	5 8
19	T	Jol. HVM.		28	0	25	1	27	12	29	8♓17	2 38	10 55	5 53
20	F	☿ ri. 4. 18 m	Cam.	29	0	25	1	28	13	28	23 4	3 40	6 7	☽ sets
21	S	Benedict.	L. act.	♈	0	25	1	29	14	27	8♈ 0	4 28	0 53	6a 42
22	D	5 S. in Lent	in gen.	1	0	25	1	29	15	26	23 15	4 57	4n 27	8 6
23	M		✱ ☉ ♅	2	♌	25	1	8	16	25	8♉20	5 5	9 28	9 30
24	T	♅ ri. 3. 42 m	(☌ ☽ ☌	3	29	25	1	1	17	24	23 12	4 53	13 52	10 48
25	W	Ann. V. M.	□ ♄ ☌	4	29	25	2	1	18	24	7♊44	4 22	17 19	Morn
26	T	☿ ri. 4. 12	L dy-d.	5	29	26	2	2	19	23	21 52	3 35	19 38	0 5
27	F	Cam T. end	Turbu-	6	29	26	2	3	20	22	5♋35	2 38	20 43	1 13
28	S	Ox. T. ends	lent,	7	29	26	2	4	21	22	18 54	1 33	20 30	2 13
29	D	6 S. in Lent	and	8	29	26	2	4	22	21	1♌54	0 25	19 21	3 2
30	M		perhaps	9	29	26	2	5	23	21	14 35	0n 43	17 9	3 43
31	T		thun-	10	29	26	2	6	25	21	27 31	1 47	14 11	4 17

D	D. L. beg.	Sun rife	Sun fet.	D. L. ends	leng. of D.	Day inc.
1	4 38	6 33	5 27	7 22	10 54	3 4
7	4 26	6 21	5 39	7 34	11 18	3 28
13	4 13	6 9	5 51	7 47	11 42	3 52
19	4 1	5 57	6 3	7 59	12 6	4 16
25	3 49	5 45	6 15	8 11	12 30	4 40

Declination.

☉	f.	☿	n	♄	n	♃	f.	♂	n	♀	f.	♅	n
7	28	11	55	16	55	20	52	5	25	17	38	0	52
13	10	12	0	17	3	20	39	7	12	17	12	3	59
19	2	49	12	5	17	11	20	26	8	56	16	29	4	36
25	0	27	12	10	17	20	20	13	10	36	15	29	2	41
	1n	55	12	14	17	29	20	0	12	13	14	12	0	25

APRIL hath XXX Days.

Geocentric Latitude.

D	☿ n	♀ n	♂ n	♃ n	♄ n	♅ n
1	0 47	1 48	0 18	0 7	0 27	0 18
13	0 47	1 46	0 19	0 15	0 29	2 f. 2
25	0 47	1 45	0 22	0 22	1 12	2 50

Full Moon 4 day, 10 morn.
Laſt Quart. 12 day, 1 after
New Moon 19 day, 8 mor.
Firſt Quart. 26 day, 1 morn.

Heliocentric Longitude.

D	☿	♀	♁	♂	♃	♄	♅	♆
1	1 49	1 6	22 41	23 46	6 7	12 21	5 9	
7	1 53	1 19	23 11	27 2	15 38	29 30	4 50	
13	1 57	1 32	23 42	0 ♊ 15	25 9	16 ♐ 24	4 30	
19	2 2	1 45	24 12	3 26	4 ♑ 39	2 ♑ 42	4 11	
25	2 7	1 59	24 43	6 35	14 8	20 15	3 52	

M D	W D	Feſtival Days.	Aſp.& weath.	☉ ♈	☿ ♌	♀ ♉	♂ ♉	♃ ♓	♄ ♐	☽ ♍	☽ la. nor.	☽ dec north	☽ ſets
1	W	All Fools d.	Tem-	11	29	26	3	7	26	21 9	21	2 45	10 37	4 45
2	T	Maundy	perate	12	29	26	3	7	27	D 21	30	3 35	6 40	5 8
3	F	Good Frid.	ſhowers	13	29	26	3	8	28	21 3	♎ 33	4 15	2 29	5 30
4	S	St. Ambroſe	8 ☿ ♀	14	29	26	3	9	29	21 15	31	4 43	1 f. 46	☽ riſ.
5	D	Eaſter day	O.L.d	15	29	27	3	9	♓	21 27	26	4 58	5 56	7a44
6	M	Eaſter Mon	of rain,	16	29	27	3	10	1	22 9	♍ 19	5 0	9 52	8 48
7	T	Eaſter Tueſ	with	17	29	27	3	11	2	22 21	11	4 50	13 25	9 52
8	W	♄ ſ. 10. 15m	plea-	18	29	27	4	12	3	22 3	♐ 54	4 27	16 26	10 56
9	T	♃ riſ 2.49m	ſant	19	29	27	4	12	4	23 15	3	3 52	18 47	11 57
10	F	♀ M.3.59m	weather	20	29	27	4	13	♂	24 27	♎ 3	♂	20 20	Morn
11	S	☿ ſo. 8. 46m	for the	21	29	27	4	14	7	24 9	♑ 52	2 10	20 57	0 55
12	D	S.aſt.Eaſt.	moſt	22	29	27	4	14	♂	25 22	♎	1 8	20 33	1 47
13	M		part.	23	29	27	4	15	♎	26	4 ♒ 55	0 ſ. 0	19 3	2 32
14	T			24	29	28	4	16	10	♎ 7	18 16	1 10	16 29	3 12
15	W	Dx.&Ca.t.b	☌ ☽ ♀	25	29	28	4	17	11	28	2 ♓ 52	1 19	12 54	3 46
16	T		☌ ☽ ☿	26	29	28	5	17	12	29	16 23	3 21	8 28	4 16
17	F	♃ ri. 2. 22m	Show-	27	29	28	5	18	13	♈	1 ♈ 8	4 11	3 23	4 45
18	S	♀ ri. 3. 49m	△ ☉ ☿	28	29	28	5	19	14	1	16 15	4 46	2 no	☽ ſets
19	D	2S.aſt.Eaſt.	Alphe.	29	29	28	5	19	15	2	1 ♉ 34	5 0	7 20	7a ♎
20	M	1 return	☌ ☽ ♂	30	29	28	5	20	17	3	16 52	4 53	12 12	8 30
21	T	♓ ſo. 8. 9m	ers and	1	29	28	5	21	18	4	2 ♊ 0	4 26	16 15	9 52
22	W	EaſterTe.b.	thunder	2	29	29	5	22	19	5	16 47	3 41	19 9	11 ♎
23	T	St. George		3	29	29	5	22	20	7	1 ♋ 8	2 43	20 44	Morn
24	F		□ ☿ ♄	4	29	29	5	23	21	♎ 5	0	1 37	21 0	0 12
25	S	St. Mark	PrsMb	5	29	29	♎	24	22	6	28 24	0 28	20 2	1 7
26	D	3 S.aſt.Eaſt.	Mild	♎	29	29	♎	25	24	11	11 ♌ 23	♋ 41	18 2	1 50
27	M	2 return	to the	7	29	29	♎	25	25	12	24 2	1 45	15 11	2 25
28	T		✶ ♄ ♀	8	29	29	♎	26	26	13	6 ♍ 23	2 43	11 42	2 56
29	W		end	9	29	29	♎	26	27	15	18 33	3 33	7 48	3 21
30	T			10	29	29	♎	27	28	16	0 ♎ 35	4 13	3 38	3 44

D	D. L. beg.	Sun riſe	Sun ſet.	D. L ends	Leng. of D.	Day inc.
1	3 33	5 31	6 29	8 27	12 58	5 8
7	3 15	5 19	6 41	8 45	13 22	5 32
13	2 59	5 8	6 52	9 1	13 44	5 54
19	2 46	4 56	7 4	9 14	14 8	6 18
25	2 23	4 45	7 15	9 37	14 30	6 40

Declination.

☉	n	☿	n	♀	n	♁	ſ.	♂	n	♃	ſ.	♄	ſ.
4	3°	12	19	17	40	19	46	14	0	12	24	3	9
10	56	12	22	17	50	19	35	15	26	10	34	3	57
16	9	8	12	25	18	0	19	25	16	47	8	31	3	19
22	11	16	12	27	18	10	19	16	18	2	6	18	1	30
28	13	16	12	20	18	20	19	8	19	11	3	56	1	13

MAY hath XXXI Days.

Geocentric Latitude.

D	☿ n	♃.	♅.	♂ n	♀ ι.	♄ ι.
1	0 46	1 44	0 23	0 25	1 28	2 42
13	0 46	1 43	0 25	0 32	1 50	1 28
25	0 45	1 42	0 28	0 38	1 58	on 34

Full Moon 4 day, 3 morn.
Laſt Quart. 12 day, 1 mor.
New Moon 18 day, 4 after.
Firſt Quart. 25 day, 3 after.

Heliocentric Longitude.

D	☿	♀	♄	♃	♅	♆	♂	♇	♀	☿	♐	♌	♎	☊
1	2	12	2	12	25	13	9	43	23	37	9	35	3	33
7	2	17	2	26	25	44	12	48	3♐	5	1♓	46	3	14
13	2	21	2	39	26	14	15	52	12	34	28	4	2	55
19	2	25	2	52	26	45	18	54	22	4	29♈	33	2	36
25	2	30	3	6	27	16	21	54	1♓	34	5♊	47	2	17

M D	W D	Feſtival Days.	Aſp. & weath.	☉ ♉	☿ ♊	♄ ♊	♅ ♋	♂ ♉	♀ ♈	♆ ♈	☽ ♎	☽ lat nor.	☽ dec ſouth	☽ ſets.
1	F	St.Ph.&Jas.	✶ ♄ ♀	11	29	0	6	28	29	18	12 31	4 41	0 38	4 7
2	S		□ ☿ ♂	12	29	0	6	29	♈	19	24 24	4 56	4 52	4 25
3	D	4 S.aft.Eaſt.	In.Cr.	12	29	0	6	29	2	21	♎m	16	4 59	8 55	☽ riſ.
4	M	3 return	☿ ♄ ♂	13	29	0	6	♊	3	23	18 9	4 49	12 37	7a50
5	T	♅ri.1.21 m	Showers and thunder	14	29	0	6	1	4	24	0♐	4 4	4 26	15 51	8 54
6	W	♀ ri. 3.20m		15	D	0	6	1	5	26	12 33	5 1	8 18	26	9 55
7	T	☿ riſ. 4.3 m		16	29	0	6	2	6	28	24 7	3 6	20 14	10 54
8	F			17	29	1	6	3	7	♉	6♑	18	2 11	21 7	11 48
9	S			18	29	1	7	3	8	1	18 40	1 10	21 1	Morn
10	D	5 S.aft.Eaſt.	Wind and thunder	19	29	1	7	4	10	3	1♒	16	0 4	19 51	0 36
11	M	4 return		20	29	1	7	5	11	5	14 10	1 f 5	17 38	1 18
12	T	♅ri.0.57 m		21	29	1	7	6	12	7	27 27	2 11	14 26	1 50
13	W	♀ ri. 3. 7 m		22	29	1	7	6	13	9	11♓	8	3 12	10 22	2 22
14	T	Aſ.d.H.Th.		23	29	1	7	7	14	11	25 16	4 4	5 37	2 49
15	F	5 return		24	29	1	7	8	15	13	9♈	50	4 41	0 25	3 16
16	S			25	29	2	7	8	17	15	24 45	5 1	4n	50	3 41
17	D	6 S.af.Aſ.d.		26	29	2	7	9	18	17	9 ♉	56	5 0	10 4	4 10
18	M	7 EaſterT.en		27	29	2	7	10	19	19	25 11	4 38	14 35	☽ ſets
19	T	Dunſtan		28	29	2	7	10	20	21	10♊	19	3 56	18 8	8a44
20	W	♅ri.0.26 m	showers.	29	♌	2	7	11	21	23	25 11	2	59	20 24	9 57
21	T	Oxf.T.ends		♊	29	2	7	12	22	25	♌♋	39	1 51	21 15	10 59
22	F	Prs. Eliz. b.	□ ♉ ♅	1	29	2	7	12	24	27	23 39	0 39	20 45	11 49
23	S	☿ ri. 2.50m	☌ ☉	2	29	2	7	13	25	♊	7♎	10	on 33	19 2	Morn
24	D	Whit Sund.	♄ ☿	3	29	3	7	14	26	2	20 15	1 41	16 21	0 36
25	M	Whit Mon.	AB.C.	4	29	3	♑	14	27	4	2♒	56	2 42	12 58	1 3
26	T	Whit Tueſ.	△ ♅ ♅	5	29	3	7	15	28	6	15 19	3 34	9 5	1 29
27	W	Ven. Bede	Em. w	6	29	3	7	16	29	8	27 28	4 16	4 55	1 51
28	T	[C.T.d.m.	△ ☉ ♅	7	29	3	7	16	♉	11	9♌	27	4 45	0 37	2 11
29	F	☿ ri.2.42 m		8	29	3	7	17	2	13	21 21	5 2	3f 40	2 32
30	S			8	29	3	7	18	3	15	3♊	13	5 5	7 48	2 51
31	D	Trinity Su.	Clear & pleaſant	9	29	3	7	19	4	17	15 54	4 56	11 39	3 12

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Leng. of D.	Day inc.
1	2 4	4 35	7 25	9 56	14 50	7 0
7	1 42	4 24	7 36	10 18	15 12	7 22
13	1 15	4 15	7 45	10 45	15 30	7 40
19	0 42	4 6	7 54	11 18	15 48	7 58
25	all	3 58	8 2	Day	16 4	8 14

Declination.

☉	n	☿	n	♄	n	♅	f.	♂	n	♀	f.	♆	n
15	9	12	29	18	31	19	2	20	14	1	27	4	43
16	53	12	29	18	40	18	57	21	10	1	16	8	47
18	27	12	29	18	50	18	54	21	59	3	41	13	13
19	49	12	28	19	0	18	52	22	40	6	16	17	42
21	0	12	26	19	9	18	52	23	14	8	49	21	38

JUNE hath XXX Days.

Geocentric Latitude.

D	☿ n	♄ l.	♃ f.	♂ n	♀ f.	♅ n
1	0 45	1 42	0 29	0 41	1 57	1 33
13	0 45	1 41	0 32	0 46	1 45	1 59
25	0 44	1 41	0 34	0 51	1 24	0 45

Full Moon 2 day, 6 after.
Laſt Quart. 10 day, 9 morn
New Moon 16 day, 11 night
Firſt Quart. 24 day, 5 morn

Heliocentric Longitude.

D	☿	♈	♄	♊	♃	♍	♂	♊	♀	♓	♅	♋	♁	♌
1	2	35	3	21	27	52	25	22	12	39	19	25	1	55
7	2	40	3	34	28	23	28	19	22	11	22	♑47	1	39
13	2	45	3	48	28	54	1♋	14	1♈	43	20♈	33	1	17
19	2	50	4	1	29	25	4	8	11	16	13♎	30	☉	58
25	2	54	4	15	29	56	6	59	20	50	3♏	23	0	39

M D	W D	Feſtival days.	Aſp. & weath.	☉ ♊	☿ ♊	♄ ♒	♃ ♊	♂ ♉	♀ ♉	♅ ♊	☽ ♏	☽ lat nor.	☽ de. ſouth	☽ ſets.
1	M	Nic. 1 ret.	♂ ☌ ☿	10	29	4	7	19	5	19	27 1	4 34	15 4	3 35
2	T	♃ri.11.31n	Show-	11	29	4	7	20	7	21	9♐ 2	3 59	17 53	☽ ris.
3	W	☿ri. 2.31 m	ers at	12	29	4	7	21	8	23	21 9	3 13	19 57	8a49
4	T	K.G.III. b.	the be-	13	29	4	7	21	9	25	3♑23	2 18	21 7	9 44
5	F	P.Ern.Æ.b.	T.T.b	14	29	4	7	22	10	27	15 47	1 16	21 17	10 34
6	S	[Bon.	✶ ☿ ☿	15	29	4	7	23	11	29	28 21	0 8	20 22	11 15
7	D	1 S. aft. Tr.	☾☌ ☽ ♃	16	29	4	7	23	12	♋	11♒ 8	1 ſ. 1	18 25	11 51
8	M	a return	gin-	17	29	5	7	24	14	3	24 10	2 8	15 29	Morn
9	T		ning,	18	29	5	7	25	15	5	7♓30	3 10	11 42	0 24
10	W		with	19	29	5	7	25	16	7	21 10	4 2	7 13	0 51
11	T	♃ri.11.19m	thunder	20	29	5	7	26	17	9	5♈10	4 42	2 16	1 17
12	F	☿ri.2.16 m	and	21	29	5	6	27	18	10	19 30	5 5	2n55	1 43
13	S	☿ſet 8.51 n	hail,	22	29	5	6	27	20	12	4♉ 8	5 10	8 3	2 0
14	D	2 S. aft. Tr.	☌ ☽ ☿	23	29	5	6	28	21	14	18 50	4 53	12 46	2 34
15	M	3 return	☌ ☽ ♄	24	29	5	6	29	22	15	3♊55	4 17	16 45	3 5
16	T		☌ ☽ ☌	25	29	6	6	29	23	17	18 48	3 24	19 37	☽ ſets
17	W	St. Alban	☾✶☿☌	26	29	6	6	♋	24	18	3♋29	2 17	21 8	8a36
18	T		☌ ☽ ☿	27	29	6	6	1	26	20	17 52	1 3	21 14	9 36
19	F	☿ſet 10.0 n	△ ♄ ♃	28	♍	6	6	1	27	21	1♌51	on13	19 59	10 20
20	S	Tr.K.W.S.	yet the	29	0	6	6	2	28	23	15 24	1 20	17 36	10 56
21	D	3 S. aft. Tr.	✶ ☉ ♅	29	0	6	6	3	29	24	28 33	2 32	14 23	11 26
22	M	4 return	□ ♅ ☿	♋	0	6	6	3	♊	25	11♍13	3 29	10 34	11 50
23	T			1	0	6	6	4	2	26	23 44	4 15	6 23	Morn
24	W	St. John B.	T.T.e	2	0	7	6	5	3	28	5♎56	4 48	2 3	0 13
25	T	☿ riſ. 2.2 m		3	0	7	6	5	4	29	17 56	5 7	2ſ 18	0 33
26	F	♃ri. 9. 49 n	month	4	0	7	5	6	5	♌	29 50	5 14	6 32	0 52
27	S	☿ſet 9. 46 n	mild	5	0	7	5	7	6	1	11♏43	5 7	10 30	1 13
28	D	4 S. aft. Tr.	and pleaſant	6	0	7	5	7	7	2	23 38	4 46	14 4	1 33
29	M	St. Pe. & Pa.	in	7	0	7	5	8	9	3	5♐37	4 13	17 6	2 0
30	T	Buck h. b. Dog days b.	general.	8	0	7	5	9	10	4	17 45	3 29	19 26	2 31

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Leng. of D.	Day inc.
1		3 51	8 9		16 18	8 28
7		3 46	8 14		16 28	8 33
13	all	3 42	8 18	Day	16 36	8 40
19		3 41	8 19		16 38	8 48
25		3 41	8 19		16 38	8 48

Declination.

☉ n	☿ n	♄ n	♃ ſ.	♂ .	♀ n	♅ n
22 6	12 22	19 20	18 55	23 45	11 40	24 37
22 47	12 19	19 29	18 59	24 3	13 58	25 27
23 15	12 15	19 37	19 5	24 13	16 6	24 52
23 27	12 10	19 44	19 12	24 16	18 1	23 16
23 25	12 5	19 52	19 21	24 12	19 40	21 4

Geocentric Latitude.

D	☿ n	♄ l.	♃ l.	♂ n	♀ l.	♅ l.
1	0 44	1 41	0 35	0 53	1 11	0 22
13	0 44	1 42	0 37	0 57	0 42	3 11
25	0 44	1 42	0 39	1 1	0 10	4 57

Full Moon 2 day, 8 morn.
Laſt Quarter 9 day, 2 aftern.
New Moon 16 day, 8 morn.
Firſt Quarter 23 day, 10 night
Full Moon 31 day, 8 night.

JULY hath XXXI Days.

Heliocentric Longitude.

D	☿ ♍	♄ ♊	♃ ♒	♂ ♋	♀ ♉	♅ ♍	♆ ♌
1	2 59	4 28	0 25	9 50	0 25	21 9	0 19
7	3 4	4 41	0 57	12 40	10 1	7 ♑ 53	0 0
13	3 8	4 55	1 28	15 28	19 38	24 24	29 ♏ 41
19	3 13	5 8	1 59	18 15	29 16	11 ♑ 25	29 22
25	3 18	5 21	2 30	21 1	8 ♊ 56	29 46	29 3

M D	W D	Feſtival days.	Aſp. & weath.	☉ ♋	☿ ♍	♄ ♊	♃ ♒	♂ ♋	♀ ♊	♅ ♌	☽ ♑	☽ lat nor.	☽ de. ſouth	☽ ſet.
1	W	♀ rif. 1.58m	☌ ☉ ☌	9	0	7	5	9	11	5	0 2	2 34	20 54	3 9
2	T	Viſit. V. M.	☌ ♃ ♅	10	0	7	5	10	12	5	12 31	1 31	21 22	☽ riſ.
3	F	♄ riſ. 3.31m	Thun-	11	0	8	5	11	13	6	25 11	0 22	20 45	9 a 14
4	S	Tr. St. Mar.	der at	12	0	8	5	11	15	7	8 ♒ 4	0 ☊ 49	19 3	9 52
5	D	5 Su. aft. T.	the be-	13	0	8	5	12	16	7	21 10	1 58	16 20	10 22
6	M	♃ lo. 1.26m	✶ ♄ ♅	14	0	8	4	13	17	8	4 ♓ 30	3 3	12 42	10 51
7	T	Cam. Com.	gin-	15	0	8	4	13	18	8	18 4	3 58	8 23	11 15
8	W	[T. Beck.	ning.	16	0	8	4	14	19	9	1 ♈ 51	4 41	3 33	11 40
9	T	♀ riſ. 1.58m	More	17	0	8	4	14	21	9	15 52	5 8	1 m 31	Morn
10	F	♄ riſ. 1.13m	mild	18	0	8	4	15	22	9	0 ♉ 45	16 6	34	0 4
11	S	♅ ſet 8.48 n	and	19	0	8	4	16	23	9	14 26	5 5	11 19	0 30
12	D	6 Su. aft. T.	plea-	19	1	9	4	16	24	℞ 28	54	4 35	15 27	1 0
13	M	Oxford act	ſant.	20	1	9	4	17	26	9	13 ♊ 25	3 47	18 40	1 36
14	T	♃ lo. 0.48m	☌ ☽ ♀	21	1	9	3	18	27	9	27 52	2 45	20 42	2 17
15	W	Swithin	☌ ☽ ☌	22	1	9	3	18	28	9	12 ♋ 10	1 33	21 22	☽ ſet
16	T	♀ riſ. 2.6m	✶ ♄ ♅	23	1	9	3	19	29	9	26 15	0 16	20 39	8 a 5
17	F	♄ riſ. 0.47m	☌ ☽ ♅	24	1	9	3	20	♋	9	10 ♌ 2	1 m 0	18 43	8 46
18	S	Oxf. T. ends	☌ ☽ ♃	25	1	9	3	20	2	8	23 29	2 11	15 45	9 20
19	D	7 Su. aft. T.		26	1	9	3	21	3	8	6 ♍ 34	3 13	12 6	9 48
20	M	Margaret	To-	27	1	9	3	22	4	7	19 20	4 3	7 57	10 11
21	T		wards	28	1	10	3	22	5	7	1 ♎ 48	4 42	3 35	10 33
22	W	Magdalen	the end	29	1	10	2	23	6	6	14 0	5 6	of 50	10 52
23	T	Mag. Co. E.	chun-	♌	1	10	2	24	8	5	26 2	5 17	5 9	11 12
24	F		der	1	1	10	2	24	9	5	7 m 57	5 13	9 14	11 35
25	S	St. James	☌ ☉ ♃	2	1	10	2	25	10	4	19 50	4 57	12 57	11 59
26	D	8 Su. aft. T.	St Ann	3	1	10	2	26	11	3	1 ♐ 46	4 27	16 10	Morn
27	M	♃ lo. 11.50n	☌ ☉ ♅	4	1	10	2	26	12	2	13 49	3 46	18 44	0 25
28	T	♀ riſ. 2.23m	and	5	1	10	2	27	14	2	26 1	2 54	20 30	1 1
29	W	♄ riſ. 0.4m	rain.	6	1	10	2	28	15	1	8 ♑ 28	1 53	21 19	1 43
30	T			7	2	10	1	28	16	0	21 0	0 45	21 3	2 34
31	F			8	2	10	1	29	17	0	4 ♒ 8	0 ☋ 27	19 40	☽ riſ.

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day dec.
1		3 43	8 17		16 34	0 4
7	all	3 47	8 13	Day	16 26	0 12
13		3 52	8 8		16 16	0 22
19		3 59	8 1		16 2	0 36
25	♀ 47	4 7	7 53	11 13	15 46	0 52

Declination.

☉ n	☿ n	♄ n	♃ f.	♂ n	♀ n	♅ n
23 7	12 0	19 58	19 30	24 0	21 1	18 39
22 36	11 54	20 5	19 41	23 41	22 8	16 25
21 50	11 47	20 11	19 52	23 16	22 43	14 43
20 51	11 39	20 16	20 3	22 44	23 0	13 58
19 39	11 32	20 21	20 15	22 5	22 53	14 23

AUGUST hath XXXI Days.

Geocentric Latitude.

D	☿ n	♄ f.	♃ f.	♂ n	♀ n	♅ f.
1	0 43	1 43	0 40	1 3	0 9	4 18
13	0 43	1 44	0 41	1 6	0 38	1 13
25	0 43	1 46	0 42	1 9	1 1	1 18

Laſt Quart. 7 day, 7 night
New Moon 14 day, 6 night
Firſt Quart. 22 day, 3 after.
Full Moon 30 day, 7 morn.

Heliocentric Longitude.

D	☿	♀	♁	♄	♅	♃	♂	♇	☉	♅	☽	♆	♇
1	3♍	24	5	37	3	7	24	13	29	13	24	7	28 41
7	3	28	5	50	3	38	26	57	29	54	18♓	56	28 3
13	3	32	6	4	4	10	29	40	9♎	37	18♈	39	27 25
19	3	37	6	17	4	41	2♏	22	19	21	23♉	33	
25	3	42	6	30	5	12	5	3	29	5	1♐	13	

M D	W D	Feſtival days.	Aſp. & weath.	☉ ♌	☿ ♍	♄ II	♃ ♒	♂ ♑	♀ ♑	☿ ♑	☽ ♒	☽ lat ſou.	☽ lat. ſouth	☽ riſes.
1	S	Lammas	Thun-	9	2	11	1	29	19	29	17 23	1 39	17 12	8a21
2	D	☌ S. aft. T.	der and	10	2	11	1	♌	20	29	0♓54	2 46	13 45	8 52
3	M	♃ ſo. 11. 23n	☿ ♃ ♂	11	2	11	1	1	21	29	14 39	3 45	9 31	9 20
4	T	♄ ri. 11. 41n	lighten-	11	2	11	1	22	28	28	36	4 32	4 44	9 45
5	W		ing,	12	2	11	1	23	28	12♈	41	5 3	on22	10 8
6	T	Tr. of GOD	with	13	2	11	1	3	25	D 26	52	5 16	5 28	10 34
7	F	then name	heavy	14	2	11	0	3	26	28	11♉	6 5	9 10	16 11 2
8	S	of Jeſus.	(☌ ☽ ♄	15	2	11	0	4	27	29	25 19	4 44	14 31	11 33
9	D	☌ S. aft. T.	♂ ♀ ☿	16	2	11	0	5	28	29	9♊30	4 1	17 56	Morn
10	M	St. Lawren.	dog d.e	17	2	11	0	5	♌	29	23 37	3 4	20 15	o 13
11	T	Prs. Brun. b.	ſhowers,	18	2	11	0	6	1	♌	7♍37	1 56	21 19	o 59
12	W	Pr. Wales b.	then	19	2	11	0	6	2	1	21 28	o 43	21 3	1 55
13	T	♀ ri. 2. 59. m	pleaſant	20	2	12	0	7	3	2	5♌ 7	on32	19 32	2 59
14	F	☿ riſ. 2. 59m	for ſome	21	2	12	♍	8	4	2	18 34	1 44	16 56	☽ ſets
15	S	Aſ. B. V. M.	☌ ☽ ♅	22	2	12	29	8	6	3	1♍45	2 49	13 30	7a40
16	D	☌ S. aft. T.	days.	23	3	12	29	9	7	5	14 40	3 44	9 29	8 15
17	M	D. York b.		24	3	12	29	10	8	6	27 20	4 27	5 8	8 37
18	T	♀ ri. 3. 16m	Rain,	25	3	12	29	10	9	7	9♎44	4 56	o 40	8 57
19	W	☿ ri. 3. 10m	☌ ☌ ♀	26	3	12	29	11	11	9	21 55	5 11	3♏44	9 17
20	T	♄ ri. 10. 47n	✶ ☊ ☌	27	3	12	29	12	12	10	3♍56	5 12	7 57	9 40
21	F	Du. Clar. b.	and	28	3	12	29	12	13	12	15 51	4 59	11 49	10 5
22	S		perhaps	29	3	12	29	13	14	13	27 43	4 34	15 13	10 30
23	D	☌ S. aft. T.	thunder	♍	3	12	29	14	16	15	9♐38	3 57	18 o	11 3
24	M	St. Barthol.	☌ ♀ ☿	1	3	12	29	14	17	17	21 40	3 10	20 3	11 38
25	T	♃ ſo. 9. 47n		2	3	12	28	15	18	19	3♑54	2 12	21 12	Morn
26	W	♀ ri. 3. 40m	☌ ☉ ♅	3	3	12	28	15	19	20	16 24	1 8	21 20	o 26
27	T	☿ ri. 3. 56		4	3	12	28	16	20	22	29 14	o[illegible] 2	20 22	1 21
28	F	♄ ri. 10. 18	Showers	5	3	12	28	17	22	24	12♏26	1 13	18 16	2 26
29	S	St. John beh	at the	6	3	13	28	17	23	26	26 1	2 22	15 5	3 36
30	D	☌ S. aft. T.	end.	7	3	13	28	18	24	28	9♐56	3 24	11 o	☽ riſe
31	M			7	4	13	28	19	25	♍	24 8	4 15	6 14	7a53

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day dec.
1	1 21	4 17	7 43	10 39	15 26	1 12
7	1 48	4 27	7 33	10 12	15 6	1 32
13	2 8	4 37	7 23	9 52	14 46	1 52
19	2 28	4 48	7 12	9 32	14 24	2 14
25	2 45	4 59	7 1	9 15	14 2	2 36

Declination.

☉	n	☿	n	♄	n	♃	f.	♂	n	♀	n	☿	n
18	o	11	24	20	26	20	28	21	13	22	15	16	o
16	24	11	16	20	29	20	39	20	22	21	17	17	34
14	38	11	8	20	32	20	48	19	27	19	57	18	33
12	44	11	o	20	35	20	57	18	27	18	16	18	17
10	43	10	51	20	37	21	4	17	22	16	16	16	21

Geocentric Latitude.

D	♅ n	♄ f.	♃ f.	♂ n	☿ n	♀ n	♄ n
1	0 43	1 46	0 42	1 10	1 12	1 46	
13	0 43	1 48	0 42	1 12	1 23	1 17	
25	0 43	1 49	0 42	1 14	1 25	0 1	

Laſt Quar. 5 day, at midn.
New Moon 13 day, 7 morn.
Firſt Quart. 21 day, 10 mor.
Full Moon 28 day, 4 aftern.

SEPTEMBER hath XXX Days.

Heliocentric Longitude.

D	♅	♈	♄	♊	♃	♒	♂	♌	☿	♍	♄	♌	♋	♉
1	3	48	6	46	5	48	8	10	10	27	12	27	27	2
7	3	52	6	59	6	20	10	50	20	13	12	♈ 2	26	24
13	3	57	7	13	6	51	13	29	29	58	6	♎ 28	25	46
19	4	2	7	26	7	22	16	8	9	♈ 43	27	9		
25	4	7	7	39	7	54	18	46	19	28	15	♈ 27		

M D	W D	Feſtival days.	Aſp. & weath.	☉ ♈	♅ ♈	♄ ♑	♃ ♑	♂ ♌	♀ ♌	☿ ♈	☽ ♈	☽ lat ſou.	☽ dec ſouth	☽ riſes.
1	T	Giles. Par.	ſh. beg.	8	4	13	28	19	27	2	8 33	4 51	1 3	8 a 22
2	W	Lond. burnt	☌ ♅ ☿	9	4	13	28	20	28	4	23 4	5 8	4 n 12	8 45
3	T	♀ ri. 4. 10 m	Briſk	10	4	13	28	21	29	6	7 ♉ 35	5 5	9 14	9 12
4	F	♄ riſ. 9. 54 n	wind.	11	4	13	28	21	♈	8	22 0	4 43	13 43	9 42
5	S	♃ ſo. 9. 4 n	□ ☉ ♄	12	4	13	28	22	2	10	6 ♊ 16	4 4	17 22	10 19
6	D	14 S. aft. T.	☌ ♅ ☿	13	4	13	28	22	3	12	20 21	3 11	19 57	11 3
7	M		☌ ☉ ☿	14	4	13	28	23	4	14	4 ♎ 12	2 7	21 17	11 57
8	T	Na. B. V. M.	with	15	4	13	28	24	5	15	17 52	0 56	21 20	Morn
9	W	♀ ri. 4. 30 m	thunder	16	4	13	27	24	7	17	1 ♌ 18	on 16	20 9	0 54
10	T	♄ ri. 9. 33 n	☌ ☽ ☌	17	4	13	27	25	8	19	14 33	1 26	17 52	2 3
11	F	♃ ſo. 8. 41 n	Showers	18	4	13	27	26	9	21	27 37	2 31	14 40	3 16
12	S		☌ ☽ ♀	19	4	13	27	26	10	23	10 ♍ 28	3 26	10 50	☽ ſets
13	D	15 S. aft. T.	☌ ☽ ☿	20	4	13	27	27	12	25	23 8	4 11	6 34	6 a 48
14	M	Holy Croſs	□ ♄ ♀	21	4	13	27	27	13	26	5 ♎ 36	4 42	2 5	7 10
15	T	♃ ſo. 8. 24	of rain.	22	4	13	27	28	14	28	17 53	5 0	2 ſ 24	7 31
16	W	Ember We.	Good	23	4	13	27	29	15	♎	0 ♍ 0	5 5	6 44	7 51
17	T	Lambert	harveſt	24	5	13	27	29	17	2	11 57	4 55	10 45	8 14
18	F	♀ ri. 7. 1 m	wea-	25	5	13	27	♍	18	3	23 5	0 4 33	14 20	8 39
19	S	♄ riſ. 9. 1 n	ther.	26	5	13	27	1	19	5	5 ♐ 39	3 59	17 20	9 9
20	D	16 S. aft. T.	△ ☉ ♃	27	5	13	27	1	20	7	17 31	3 15	19 38	9 40
21	M	St. Matthew		28	5	13	27	2	21	8	29 31	2 22	21 6	10 23
22	T	K. G. III. c.	Wind,	29	5	13	27	3	23	10	11 ♑ 42	1 22	21 35	11 16
23	W	♃ ſo. 7. 57 n	☌ ☽ ♃	♎	5	13	D	3	24	12	24 10	0 16	21 2	Morn
24	T	♄ riſ. 8. 43 n	△ ♄ ☿	1	5	13	27	4	25	13	7 ♒ 1	0 ſ 52	19 23	0 15
25	F		△ ♃ ♀	2	5	℞	27	4	26	15	20 18	2 0	16 38	1 22
26	S	St. Cyprian	☌ ♅ ☌	3	5	13	27	5	28	16	4 ♓ 2	3 3	12 53	2 36
27	D	17 S. aft. T.	with	4	5	13	27	6	29	18	18 12	3 56	8 18	3 52
28	M		ſome	5	5	13	27	6	♎	20	2 ♈ 46	4 36	3 7	☽ riſ.
29	T	St. Mic. Ps.	Roy. b.	6	5	13	27	7	1	21	17 36	4 58	2 n 19	6 a 43
30	W	St. Jerome	ſhowers.	7	5	13	27	8	3	23	2 ♉ 33	5 0	7 40	7 22
		[Hare-h. b.												

D	D L. beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day dec.
1	3 5	5 12	6 48	8 55	13 36	3 2
7	3 22	5 24	6 36	8 38	13 12	3 26
13	3 38	5 36	6 24	8 22	12 48	3 50
19	3 53	5 48	6 12	8 7	12 24	4 14
25	4 4	6 0	6 0	7 56	12 0	4 38

Declination.

☉	n	♅	n	♄	n	♃	f.	♂	n	♀	n	☿	n
8	14	10	42	20	39	21	12	16	1	13	36	12	16
6	0	10	34	20	40	21	16	14	49	11	4	7	51
3	44	10	26	20	40	21	20	13	33	8	20	3	8
1	24	10	19	20	40	21	21	12	13	5	28	1	ſ 34
0	ſ. 56	10	11	20	40	21	21	10	52	2	30	6	3

OCTOBER hath XXXI Days.

Geocentric Latitude.

D	☿	♄	♃	♂	♀	☿
1	0 44	1 50	0 42	1 15	1 23	0 42
13	0 44	1 51	0 42	1 16	1 11	2 3
25	0 44	1 52	0 42	1 17	0 52	2 54

Last Quart. 5 day, 7 morn.
New Moon 12 day, 10 nig.
First Quart. 21 day, 3 mor.
Full Moon 28 day, 2 morn.

Heliocentric Longitude.

D	☿	♀	♁	♂	♃	♄	♅	♆
1	4 11	7 53	8 25	21 24	29 21	2 26	25 27	
7	4 15	8 6	8 56	24 1	8♎53	18 56	24 49	
13	4 20	8 20	9 28	26 39	18 34	5♑42	24 11	
19	4 25	8 33	9 59	29 16	28 13	23 30		
25	4 30	8 46	10 31	1♏53	7♐51	13♒15		

M D	W D	Festival days.	Asp. & weath.	☉ ♎	☿ ♏	♄ ♊	♃ ♑	♂ ♏	♀ ♎	♅ ♎	☽ ♉	☽ lat lou.	☽ de. north	☽ miles.
1	T	Remig. Ph.	lh. be.	8	5	13	27	8	4	24	17 29	4 42	12 33	7a52
2	F	♄ ri. 8. 14 n		9	5	13	27	9	5	2♌	2♊15	4 5	16 38	8 27
3	S	☌ ſet 6. 8 n	Some ſhowers	10	5	13	27	9	6	27	16 44	3 12	19 36	9 10
4	D	18 S. aft. T.	at the	11	6	13	27	10	8	29	0♋54	2 9	21 18	10 5
5	M	♃ ſo. 7. 15 n	begin-	12	6	13	27	11	9	♍	14 43	1 0	21 30	10 58
6	T	Faith	ning.	13	6	13	27	11	10	2	28 13	on11	20 43	Morn
7	W	♄ ri. 7. 56 n		14	6	13	27	12	11	3	11♌25	1 20	18 39	0 2
8	T	☌ ſet 6. 3 n	△ ♄ ♀	15	6	13	27	13	13	4	24 22	2 24	15 40	1 10
9	F	St. Denys	☌ ☽ ☌	16	6	13	28	13	14	♎	7♍ 6	3 19	11 50	2 20
10	S		[*♅ ♆	17	6	13	28	14	15	7	19 40	4 3	7 40	3 17
11	D	19 S. aft. T.	Wind,	18	6	13	28	14	16	♎	2♎ 3	4 35	3 23	4 3
12	M	♃ ſo. 6. 51 n	☌ ☽ ♀	19	6	13	28	15	18	10	14 19	4 54	1 5	☽ ſ.
13	T	Tr. K. Ed. C.	with	20	6	13	28	16	19	11	26 26	4 59	5 33	6a 4
14	W	Calixt. PM.	☌ ☽ ♅	21	6	13	28	16	20	13	8♍26	4 51	9 43	6 25
15	T	♄ ri. 7. 25 n	ſhowers	22	6	13	28	17	21	14	20 20	4 31	13 30	6 47
16	F	☌ ſet 5. 50 n	☌ ☉ ♀	23	6	13	28	18	23	15	2♐10	3 58	16 43	7 17
17	S	Ethel. Virg.		24	6	13	28	18	24	16	13 58	3 16	19 15	7 48
18	D	20 S. aft. T.	S Luke	25	6	13	28	19	25	18	25 48	2 24	20 50	8 20
19	M	St. Frid.		26	6	13	28	19	26	19	7♑45	1 26	21 48	9 13
20	T		Turbu-	27	6	13	28	20	28	20	19 53	0 23	21 36	10 8
21	W	♄ ri. 7. 2 n	☌ ☽ ♃	28	6	13	28	21	29	21	2♒17	0f42	20 21	11 13
22	T	♃ ſo. 6. 16 n	□ ☉ ♃	29	6	13	28	21	♍	22	15 3	1 48	18 8	Morn
23	F		lent air,	♍	6	13	29	22	1	23	28 15	2 50	14 45	0 19
24	S		but	1	7	12	29	23	3	24	11♓56	3 44	10 32	1 30
25	D	21 S. aft. T.	G. III.	2	7	12	29	23	4	25	26 8	4 26	5 37	2 47
26	M	K. G. III. pr.	faceſſ.	3	7	12	29	24	5	26	10♈48	4 53	0 13	4 8
27	T	[Crifpin	* ♅ ♀	4	7	12	29	24	7	27	25 50	5 1	5n19	☽ rif.
28	W	St. Si. & Ju.	mild,	5	7	12	29	25	8	28	11♉ 4	4 47	10 37	5a54
29	T		with	6	7	12	29	26	10	29	26 20	4 13	15 15	6 27
30	F	♄ ri. 6. 26 n	ſhowers	7	7	12	29	26	10	29	11♊26	3 21	18 51	7 7
31	S	♃ ſo. 5. 46 n	at the end.	8	7	12	29	27	12	♐	26 15	2 12	21 7	7 56

D	D. L. beg.	Sun riſe	Sun ſets	D. L ends	leng. of D.	D y dec.
1	4 15	6 11	5 49	7 45	11 38	5 0
7	4 28	6 23	5 37	7 32	11 14	5 24
13	4 41	6 35	5 25	7 19	10 50	5 48
19	4 52	6 46	5 14	7 8	10 28	6 10
25	5 2	6 57	5 3	6 58	10 6	6 32

Declination.

☉ ſ	☿ n	♄ n	♃ ſ	♂ ſ	♀ ſ.	♅ ſ.
3 16	10 3	20 30	21 20	9 29	0 31	10 14
5 36	9 56	20 37	21 17	8 4	3 32	14 2
7 52	9 50	20 25	21 13	6 38	6 32	17 21
10 5	9 43	20 33	21 8	5 11	9 27	20 5
12 12	9 37	20 31	21 1	3 43	12 13	22 5

NOVEMBER hath XXX Days.

Geocentric Latitude.

D	☿ n	♀ l	♁ l	♂ n	♃ n	♄ l.
1	0 45	1 53	0 41	1 18	0 38	2 47
13	0 45	1 53	0 41	1 18	0 10	0 32
25	0 45	1 53	0 41	1 18	0 19	2 n 32

Heliocentric Longitude.

D	☿	♀	♁	♂	♃	♄	♅	♆
1	4 35	9 2	11 7	4 57	19 3	10 15	23 49	
7	4 39	9 15	11 39	7 34	28 37	09 8	23 10	
13	4 44	9 29	12 10	10 12	8♐10	11♑32	22 32	
19	4 49	9 42	12 42	12 49	17 42	18♊45		
25	4 54	9 56	13 13	15 27	27 12	25♋40		

Last Quart. 3 day, 6 night
New Moon 11 day, 4 after.
First Quart. 19 day, 7 night
Full Moon 26 day, at noon

M D	W D	Festival days.	Asp. & weath.	☾ ♏	☿ ♐	♄ ♑	♅ ♒	♂ ♓	♀ ♈	♃ ♉	☽ ☌	☽ lat sou.	☽ de north.	☽ rises.
1	D	22 S. aft. T.	All Sa.	9	7	12	20	27	18	0	10 30	1 5	21 57	8a51
2	M	All Souls	P.Ed.b	10	7	12	♒	28	14	1	24 37	0 n 9	21 21	9 57
3	T	Prs.Soph.b.	1 ret.	11	7	12	0	29	15	1	8♍10	1 20	19 31	11 4
4	W	Revo. 1688	Tem-	12	7	12	0	29	17	♄	21 20	2 24	16 41	Morn
5	T	Powd. Plot	☌ ♅ ♂	13	7	12	0	♎	18	1	4♏10	3 20	13 (	0 13
6	F	Mic.T.beg.	perate	14	7	12	0	1	19	☽	16 45	4 5	9 ☌	1 22
7	S	♅ f. 5. 21 n	☌ ☽ ♂	15	7	12	0	1	20	1	29 5	4 37	4 ☍	2 5c
8	D	23 S. aft. T.	✶ ♅ ♄	16	7	12	0	2	22	♏	11♎14	4 5(	0 ♋	3 37
9	M	L. M. D. L.	wind,	17	7	11	1	2	23	2c	23 2c	5 2	4 ♌23	4 43
10	T	♄ ri. 5. 40 n	with	18	7	11	1	3	24	2♓	☾♏10	4 55	8 4c	5 4(
11	W	St. Martin.	☌ ☽ ♀	19	7	11	1	4	25	27	17 18	4 34	12 3(	☽ sets
12	T	2 return	CTd.n	20	7	11	1	4	27	2(	29 4	4 2	16 2	5a2c
13	F	Britius	ſhower	21	7	11	1	5	28	25	10♐54	3 1c	18 4c	5 48
14	S	♅ ſo. 4. 5 n	☌ ☉ ♄	22	7	11	1	(	2c	24	22 44	2 27	20 4♓	6 27
15	D	24 S. aft. T.	Mach.	23	7	11	1	(	♐	22	4♑37	1 2c	21 54	7 ☾
16	M	♄ ri. 5. 15 n	✶ ♅ ♀	24	7	11	2	7	21	21	16 3(	0 2(	22 c	7 57
17	T	Hu. Bi. Lin.	☌ ☽ ♅	25	7	11	2	7	3	2c	28 4♉	0 of 3c	21 4	8 5♓
18	W	3 return	Pleaſant	26	7	11	2	8	4	1c	11♒ ☾	1 44	19 7	10 8
19	T	♅ ſets 8. 55 n	for the	27	7	11	2	c	5	18	23 4c	2 45	16 11	11 12
20	F	Edm. K.M.	□ ♅ ♀	28	7	11	2	c	7	17	(♓55	3 4c	12 23	Morn
21	S	♄ ri. 4. 52 n	ſeaſon.	29	7	11	2	1c	8	1c	20 27	4 24	7 5c	0 2♋
22	D	25 S. aft. T	Cecil.	♐	7	1c	2	1c	c	15	4♈2c	4 54	2 43	1 3c
23	M	St. Clement		1	7	1c	3	11	1c	1♋	18 5c	5 7	2n44	2 5♌
24	T	♅ ſets 8. 38 n	✶ ♂ ♀	2	8	1c	3	12	12	♑	3♉55	5 c	8 8	4 2c
25	W	Lu. Glo. b.	4 ret.	3	8	1c	3	12	19	1♋	19 7	4 32	13 1c	5 41
26	T	[St. Cath.	✶ ☉ ♅	4	8	1c	3	13	14	15	4♊27	3 44	17 23	☽ rises
27	F	♄ ri. 4. 23 n	☌ ☽ ♄	5	8	1c	3	13	15	1c	19 42	2 4c	20 24	5a37
28	S	Mic. Te. en.		♑	8	1c	4	14	17	1c	4♋44	1 2c	21 57	6 3c
29	D	Advent Su.		7	8	1c	4	15	18	17	19 23	0 7	21 5(	7 32
30	M	St. Andrew	□ ☉ ☿	8	8	1c	4	15	19	18	3♌35	1 n 9	20 2c	8 42

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	Length of D.	Day dec.
1	5 14	7 19	4 50	6 46	9 4c	6 5♐
7	5 24	7 21	4 3c	6 3♐	9 18	7 20
13	5 30	7 3♑	4 30	6 30	9 c	7 3♐
19	5 36	7 3c	4 21	6 24	8 42	7 5♏
25	5 43	7 4♑	4 12	6 17	8 29	8 14

Declination.

☉ l.	☿ n	♄ n	♅ l.	♂ n	♀ l	♃ n
14 32	9 31	20 27	20 51	1 59	15 15	23 5
16 23	9 27	20 24	20 41	0 31	17 35	22 10
18 4	9 23	20 21	20 3c	0 of 57	19 39	19 25
19 33	9 2c	20 17	20 18	2 24	21 23	15 39
20 5c	9 18	20 13	20 4	3 5c	22 44	14 5

Geocentric Latitude.

L	☿ n	♄ f.	♃ f.	♂ n	♀ f.	☿ n
1	0 45	1 52	0 41	1 18	0 33	2 27
13	0 46	1 51	0 41	1 17	0 59	1 9
25	0 47	1 49	0 41	1 15	1 20	of 20

Laſt Quart. 3 day, 8 morn.
New Moon, 11 day, 11 mo.
Firſt Quart. 19 day, 7 mor.
Full Moon 25 day, 10 night

DECEMBER hath XXXI Days.

Heliocentric Longitude.

D	☿	♌	♄	♊	♃	♒	♂	♍	♀	♑	♅	♏	♇	♓
1	4	59	10	9	13	46	18	5	6	42	28	4	22	13
7	5	3	10	22	14	17	20	44	16	11	24	♌55	21	35
13	5	7	10	36	14	49	23	23	25	40	17	♒17	20	57
19	5	12	10	49	15	21	26	3	5	♒ 9	6	♌38		
25	5	17	11	3	15	53	28	43	14	39	24	10		

M D	W D	Feſtival Days.	Aſp. & weath.	☉ ♐	☿ ♌	♄ ♊	♃ ♒	♂ ♎	♀ ♑	♅ ♏	☽ ☊	☽ lat. nor.	☽ dec north	☽ riſes.
1	T	4 ſ. 8. 16. n	Vari-	9	8	10	4	16	20	18	17 19	2 19	17 52	9a48
2	W	Bilb. V. M.	♂ ☽ ☿	10	8	10	4	17	22	19	0♌36	3 20	14 23	11 4
3	T	♄ ſo. 11. 52n	able	11	8	10	4	17	23	20	13 30	4 8	10 18	Morn
4	F	Barbary		12	8	10	5	18	24	22	26 3	4 43	5 54	0 13
5	S	♅ ri. 6. 0. m	♂ ☽ ♂	13	8	9	5	18	25	23	8♎20	5 4	1 20	1 20
6	D	2Su. in Adv	Nich.	14	8	9	5	19	27	24	20 26	5 11	3ſ11	2 2ſ
7	M	4 ſet 7. 57 n		15	8	9	5	20	28	25	2♌23	5 4	7 33	3 31
8	T	Co. B. V. M.		16	8	9	5	20	29	26	14 16	4 45	11 36	4 35
9	W	♄ ſo. 11. 24n	♂ ☽ ☿	17	8	9	6	21	♍	28	26 7	4 13	15 12	5 40
10	T	♅ ri. 6. 15 m		18	8	9	6	21	2	29	7♐57	3 30	18 12	6 41
11	F	4 ſe. 7. 45 n	rain or	19	8	9	6	22	3	♐	19 50	2 38	20 27	☽ ſets
12	S		♂ ☽ ♀	20	8	9	6	23	4	2	1♍46	1 39	21 48	4a5ſ
13	D	3Su. in Adv	Lucy	21	R 9	9	6	23	5	3	13 47	0 35	22 10	5 45
14	M	♄ ſo. 11. 1n	♂ ☽ ♃	22	8	9	7	24	7	5	25 55	0ſ32	21 30	6 3ſ
15	T	♅ rif. 6. 34 m	△ ♅ ♀	23	8	9	7	24	8	6	8♏13	1 38	19 48	7 42
16	W	O. S. C. T. e	Em.	24	8	9	7	25	9	8	20 44	2 41	17 8	8 5ſ
17	T	Oxf. Te.	□ ♅ ♆	25	8	8	7	26	11	9	3♑30	3 37	13 36	9 5ſ
18	F	♄ ſo. 10. 43n	✶ ☉ ♂	26	8	8	7	26	12	10	16 35	4 23	9 20	11 12
19	S	♅ rif. 6. 51 m		27	8	8	8	27	13	12	0♈	1 4	5 6	4 31	Morn
20	D	4Su. in Adv	ſnow,	28	8	8	8	27	14	13	13 51	5 14	on40	0 2ſ
21	M	St. Thomas	and va-	29	8	8	8	28	16	15	28 5	5 12	5 56	1 42
22	T	Shorteſt da.	riable to	♍	8	8	8	29	17	16	12♉41	4 51	11 2	3 2
23	W	♄ ſo. 10. 19n	♂ ☽ ♄	1	8	8	8	20	18	18	27 34	4 11	15 34	4 23
24	T		the end.	2	8	8	9	♎	19	19	12♊38	3 12	19 9	5 45
25	F	Chriſtm. d.		3	8	8	9	0	21	21	27 43	2 0	21 26	☽ riſ.
26	S	St. Stephen		4	8	8	9	1	22	22	12♋41	0 40	22 11	4a57
27	D	1 S. aft. Chr.	St. Jo.	5	8	8	9	2	23	24	27 23	on41	21 22	6 5
28	M	Innocents		6	8	8	10	2	24	26	11♌42	1 58	19 10	7 18
29	T	♄ ſe. 9. 29 n	△ ☉ ♅	7	8	8	10	3	26	27	25 36	3 5	15 54	8 32
30	W			8	8	8	10	3	27	29	9♎ 3	4 0	11 53	9 44
31	T	Silveſter	□ ♅ ♄	9	8	7	10	4	28	♍	22 54	4 41	7 26	10 55

D	D. L. beg.	Sun riſe	Sun ſet.	D. L. ends	leng. of D.	Day dec.
1	5 48	7 54	4 6	6 12	8 12	8 26
7	5 54	8 0	4 0	6 6	8 0	8 38
13	5 57	8 3	3 57	6 3	7 54	8 44
19	5 59	8 5	3 55	6 1	7 50	8 48
25	5 59	8 5	3 55	6 1	7 50	8 48

Declination.

☉	ſ.	☿	n	♄	n	♃	ſ	♂	ſ	♀	ſ.	♅	ſ.
21	52	9	16	20	10	19	48	5	15	23	42	15	7
22	40	9	15	20	6	19	32	6	39	24	14	17	21
23	12	9	15	20	2	19	15	8	0	24	19	19	47
23	27	9	16	19	58	18	56	9	18	23	57	21	55
23	25	9	17	19	55	18	35	10	36	23	8	23	32

Anſwers to the Enigmas, Rebuſes, Charades, &c.

Enigmas.		*Rebuſes.*	*Charades.*
I. Sleep	VI. Honey	I. Enigma	I. Ruſhton
II. Lock	VII. Time	II. Nield	II. Wind-mill
III. Key	VIII. Juſtice	III. Fildes	III. Cotton
IV. Mill	IX. or Prize a	IV. Lieutenant	IV. Bagpipe
V. Shoe	Top		V. Penmanſhip.

ANSWERS TO THE PRIZE ENIGMA.

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

Ye hoſts, angelic powers divine,
To your ſuppliant's ſuit incline;
Have pity on my tender youth,
And guide me in the ways of truth.
O teach my mind aloft to ſoar,
And pant for things on earth no more;
On proper *Top*ics, as I ought,
Let me alone employ my thought;
Your attribute ſweet friendſhip give
And let me all its joys receive,
And fit me, as I grow in years,
For your immortal happy ſpheres.

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

Accept, kind Sirs, my thanks for favours paſt,
T he ardent wiſh too of a friend pray hear;
O h may your Diary while time ſhall laſt,
P rove more ſucceſsful each ſucceeding year.

3. *By the Reverend J. Shakleton, Thornton, Yorkſhire.*

Steep is the hill, and craggy is the way,
Which leads to ſcience—ſhall I give up? nay,
I'll boldly perſevere, and win the *Top*;
Then honour crowns me, and my fears will drop.

4. *By Mr. John Savage, Smithalong Grove.*

How many ſeek to gain an honour'd name,
The *Top*-moſt pinnacle of worldly fame,
And try their utmoſt efforts to aſcend,
As tho' this earthly glory ne'er would end.

5. *By Mr. John Carwithen.*

When on Mount Sinai *Top*, the trump did ſound,
The Iſraelties ſtood trembling around;
Their hearts impure, none durſt aſcend the mount;
All begg'd that Moſes might the word recount.
But when the ſolemn trump ſhall rend the ſky,
And Chriſt appear in robes of majeſty,
Both bond and free ſhall hear his powerful word:
Awake ye dead, come forth to meet your GOD.

6. *By Mr. Olinthus Gilbert Gregory, Schoolmaſter, Yaxley, Hants.*

ADDRESS (*of a Perſon who, on a ſlight umbrage, had left his friends and home*) to his Soul.

Where would'ſt thou rove my wav'ring ſoul, dear ſpark of ambient flame,
Can nought thy airy dreams controul, can nought thy fancy tame.

Lamp of my life, ſmall chink of light, thro' which I faintly ſee
A radiant glimmer, dimly bright, of immortality.
Where would'ſt thou rove, is life a jeſT, a dance upOn this sPhere,
Inſcrib'd in pleaſure's ſpecious veſt, and ſpent—no matter where.
And independence, what is that, a good, or feign'd, or real,
Made by no laws, no clime, no ſtate, 'tis thine alone can feel.
Ah! then return! from dreams like this, return my ſoul to prove,
The ſweets of home, of ſocial bliſs, of friendſhip, peace, and love.
Let reaſon, let religion lead thee hence in wiſdom's road,
So ſhall thy wings unerring ſpeed to virtue, and to GOD.

7. *By Mr. John Youart, Schoolmaſter, Glazedale, near Whitby, Yorkſhire.*

When firſt I read the myſtic prize, my thoughts were at a ſtop,
But at the laſt my muſe replies, the anſwer's ſure a *TOP*.

Other ingenious and ſeparate anſwers were given by Meſſrs. Broomwott, Brown, Fox, Norris, Powel, Saul, Wood, Amo Zytheon, and Autodidactus.

GENERAL ANSWERS TO THE ENIGMAS.

1. *A Hymn to Retirement. By Mr. John Savage.*

Celeſtial friend, O may I often find,
Thy ſoft'ning influence to ſooth mankind.
And draw my ſoul from tranſitory things,
Where I, by thee, inſpir'd am led to ſee,
How good it is to wait in fervency,
On Chriſt, the everlaſting King of Kings;
Who died for us, and broke the chain of ſins
Which ſatan, by his art, had brought us in.
2. In towns and cities, where confuſion dwells,
When barber'd fops, and flaunting beaux and belles
Delighted paſs along the crouded ſtreet;
Where *grinding* chariot wheels the ears confuſe, 4. *Mill.*
And ſparkling fire oft darteth from their *Shoes*, 5.
Of the poor flogged horſes nimble feet;
Theſe hateful ſcenes, where vice and folly reigns,
E'er doeſt forego for the remoteſt plains.
3. Within the ſtill ſequeſter'd rural vale,
Where fragrant *Sweets* are born on ev'ry gale, 6. *Honey.*
Thou always doſt erect thy ivy throne;
Where I (as Sol declines the glowing weſt,
And toiling nature ſeems prepar'd for reſt)
Do oft enjoy my *Time* with thee alone, 7.
In thee, forſaking this deluſive world,
In falſhood, and in *Juſtice*, hourly hurl'd. 8.
4. By thee, retirement I am made to hear,
The ſTill ſmall vOice that whisPers in my ear, Prize.
As ſpoke to good Elijah long ago; 1 Kings, ch. 19. v. 12.
Whereby attending to his ſacred voice,
My fainting heart is made for to rejoice,
And praiſe the Lord, from whence theſe comforts flow;
Nor will he e'er forſake his children dear,
Who in retirement ſeek with hearts ſincere.

'This world's a *Sleep*, and *Lock*'d from doing good, 1, 2.
Because it David's *Keys* ne'er understood. 3.

2. *On a Dream. By Thomas Fox, Norton, Derbyshire.*

As *Sleeping* in my bed I lay,
Secured well by *Lock* and *Key*,
Methought I saw Don Quixot's *Mill*,
Fix'd on the *Top* of yonder hill;
Where *Thyme* & *Honey* suckles grew,
And sloes as black as any *Shoe*.
Just then appeared in the field,
Lieutenant Fildes, *Justice Nield*.
So fam'd for *Penmanship* and wit,
That one the prize *Enigma* writ;
Then Captain *Ruston* with his train,
Came prancing o'er the dusty plain,
With *Bagpipes*, guns, & *Cotton* flags,
They knock'd the *Windmill* all to rags;
But ah! th' explosion and the scream,
Arous'd me from my horrid dream.

3. *The Invocation. By Autodidactus, Ramptonienſis.*

No earthly muse will I invoke,
Nor crave aid of the tuneful nine,
Such heathen names I here reject,
And sue to one that's more divine.
'Tis thee, great God, that I address,
Nor give *Sleep* to my weeping eyes;
My bed with trickling tears I'll wet,
'Till thou attendest to my cries.
Thy *Key* & *Lock* up our hearts from vice,
Nor let our feet far from thee slide;
Feed us with *Honey* of thy word,
And chace from us all human pride.
Teach us our *Time* for to improve,
Nor grind our corn at folly's *Mill*,
To soar to th' happy realms above,
And mount the *Top* of Sion's hill.
May *Justice* all our steps pervade,
To love thee may we never cease.
Then shall thou banish war's alarms,
And grant us lasting health and peace.

4. *Life transient and unprofitable. By Mr. Philip Norris, Liverpool.*

Time slides away, e'en as a *Mill* revolves. 7. 4.
How vain and transient are our firm resolves;
How short, at most, are all our earthly days,
E'er secure in life, we're *Lock*t in *Sleep* and ease. 2. 6.
What then avails the cares and toils of life,
Or store of wealth, acquir'd with pain and strife;
Honour or fame, which heroes seek in wars,
Topics of frays, or petty broils and jars. Prize.
The pen's productions, or enigmas quaint,
Or *Honey*, *Shoes*, *Keys*, or other subject meant; 6. 5. 3.
Such things are vain, and merely empty sound,
Unless our care for future state abound,
'Tis that and *Justice*, and true faith unite, 8.
Shall high enthrone us in the realms of light.

5. *Aramont and Anna, or the Lucky Escape. By Mr. John Fildes, Schoolmaster, Liverpool.*

Young Anna was a lovely lass,
Of worthy parents she;
And unto Aramont was wed,
A gallant seaman he.
He did not s*Top* six months ashore
Before to sea he went,
And his dear Anna left behind,
His absence to lament.
Who to God's *Justice*, and his love,
Still paid a due regard,
And hop'd her husband's safe return,
Would all her cares re*Ward*, or *Key*
At length the *Time* drew near that
Might him expect at home; [she
And she along the shelly shore,
At ev'ning oft would roam. [short
One morn some neighbours hir'd a
An hour or two to sail;
And to be on the party, they
On Anna did prevail. [shore,
They were not got five miles from
Just opposite a *Mill*, [saw,
When something on the waves they
And which came nearer still.

On its approach it prov'd to be,
A part of a ſhip's deck ;
And like a dying *Bee*, a man
Lay ſtretch'd upon the wreck.
Whom they on board their little boat
In pity quickly drew,
And found him periſhing with cold,
Without a hat or *Shoe*.
But I ſhall not attempt to tell
How great was the ſurprize,
Of Anna, when her Aramont
She ſaw before her eyes.

His ſhip, it ſeems, the night before,
About eleven o'c*Lock*,
Had been returning homeward, but
Had ſtruck againſt a rock.
To pieces ſhe was quickly daſh'd,
And ſcatter'd o'er the deep,
And all her crew, ſave Aramont,
Now in the ocean *Sleep!*
He on the broken deck till morn,
Had floated thus diſtreſt ;
And he alone eſcap'd to tell,
The fate of all the reſt.

6. *A Morning Walk and Reflection. By Mr. Jonathan Wood, Schoolmaſter, Ruſhton, Northamptonſhire.*

Shall *Sleep* any longer detain me in bed, 1.
Or empty chimeras amuſe my fond head ;
Neither *Shoe*, *Lock*, nor *Key*, ſhall prohibit my haſte, 5. 2. 3.
I'm determin'd th' *Sweets* of Aurora to taſte. 6. or *Honey*.
How beauteous the morning, how lovely the ſcene,
Now th' fields and the meads are enamell'd with green ;
Sure nothing can equal the pleaſure that's found,
By viewing yon *Mill* from this fine riſing ground. 4.
How amazingly buſy th' birds all appear,
In building their neſts for their young, without fear
Of the treacherous ſchool-boy, who often deſtroys
The elegant ſtructure, and ruins their joys.
Unfortunate birds, I deplore your ſad caſe,
And fain would aſſiſt you your bliſs to replace ;
May *Juſtice* preſerve you from ſimilar woes, 8.
And *Time*ly s*Top* all your inveterate foes. 7. Prize.

7. *By Mr. John Carwithen.*

'Twas at Spithead the fleet unmoor'd did lay,
When *Top*ſails trip, when Poll was forc'd away ; 9. Prize.
Torn from his arms within the *Honey* moon, 6 Enig.
Ah ! cruel fate, and muſt we part ſo ſoon ?
*Sleep*leſs my nights, when you are far away, 1 Enig.
Ah ! do not *Fildes*, do not truſt the ſea ; 3 Reb.
Unus'd to war, the ſword thou cannot wield,
I'll haſte myſelf unto *Lieutenant Nield*. 4, 2 Reb.
With this bank-bill admiſſion it will gain,
Perhaps it may thy liberty obtain ;
If not, thyſelf can write unto the board,
For none with *Penmanſhip* is better ſtor'd. 5. Ch.
Various the ſubjects that have grac'd thy quill,
Oft have we ſat by *Ruſhton Cotton Mill* ; 1, 3 Ch. 4 Enig.
Elſe on thy breaſt reclin'd beneath a ſhade,
To hear thee read *Enigmas* thou haſt made. 1 Reb.
With pleaſing ſonnets from Euterpe's theme,
For thou haſt quaff'd Parnaſſus flowing ſtream ;
Thy graceful numbers lofty thoughts convey,
Tho' trifling ſubjects on a *Lock* or *Key*. 2, 3 Enig.
But *Time* ſteals on, perhaps e'er now he's gone, 7 Enig
The van has weigh'd, their *Top*ſails ſheeted home ;
Juſtice demands, let no aboding fear, 8 Enig.
Diſturb thy peace, let me wipe off that tear ;

Proſaging

Preſaging fate ſaith we ſhall meet again,
When by the *Wind mill* ſide I will explain,
What *Shoes* in India's worn, how zed'ry grow,
Where on a *Bagpipe* play, or pipe of ſtraw;
Bring ev'ry rarity to deck my love,
For true as compaſs points, to you I'll prove.
She bid farewel, he took a laſt embrace,
But perturbation dwelt upon each face.

Other general and ingenious anſwers were alſo given by Meſſrs. Attwood, Brookes, Brown, Calton, Davis, Harrizon, Kingſton, Moore, Saul, Sanders, Taylor, Juveniencis, and Woollin.

ANSWERS to the REBUSES and CHARADES.

1. *By Mr. Philip Norris, Liverpool.*

At the *Wind mill*, or *Cotton*, in fam'd *Ruſhton* town, 2, 3, 1.
With *Nield*, and with *Fildes*, thoſe bards of renown;
I'd gladly ſome ev'ning ſit down and regale,
O'er a bottle of wine, or a tankard of ale;
And read ſome *Enigmas*, or myſtic charade,
On *Bagpipe*, *Lieutenant*, or *Penmanſhip* made;
Or rebus replete with ſome bards ſubtile wit,
While the bumper goes round with a health to the cit.

2. *By Mr. Jonathan Wood, Schoolmaſter, Ruſhton.*

Ingenious *Nield*, and witty *Fildes*, with eaſe *Enigmas* plan,
Their *Penmanſhip* true pleaſure yields to keen diſcerning man;
When *Wind-mill*, *Cotton*, and *Bagpipe*, employ Diarian friends,
My muſe of *Lieutenant* does write, and ſo with *Ruſhton* ends.

3. *The Happy Cottager. By Mr. John Savage, Smithalong Grove, Towceſter.*

What happineſs attends the man,
Who in ſome ſylvan ſcene remote,
Contented ſpends his little ſpan
Within his moſs-grown rural cot.
Such compliments as towns eſteem,
So much *Enigmas* are to him.
He laughs at faſhion's gaudy train,
Nor ſeeketh beauiſh ornament;
All ſuch by him are counted vain,
I'th comely ruſſet he's content;
Like *Nield* or *Fildes*, ſtrives to find
Inward adornings of the mind.
Soon as the ruler of the day,
From eaſtern chambers 'gins his race,
Forth to the fields he takes his way,
Where all is harmony and peace;
No cares diſturb his faithful breaſt,
Sure no *Lieutenant*'s half ſo bleſt.
To chear him in his rigid toil,
At *Ruſhton* where birds ſweetly ſing,
While mimic echos back recoil,
Makes diſtant woods & valleys ring.
Where on the tow'ring hill he ſees,
The *Windmill* move with ev'ry breeze
At eve's approach, fatigu'd with toil,
He to his peaceful cot retires,
Where his dear Thirza, with a ſmile,
Meets him whom ſhe ſo much admires,
While round his prattling offspring
Liſping their father welcome home. [come,
With romantic novels feign'd,
His *Bagpipes* drives off ſad deſpair.
He never does corrupt his mind,
His bible is his chiefeſt care,
Theſe zealous ſtrives to underſtand
The *Penmanſhip* of David's hand.

4. *On the Death of his Friend. By Mr. John Fildes, Schoolmaſter.*

J. *Fildes*, this year, aſſumes a penſive ſtrain,
To tell the ſorrow that afflicts his heart;

For death 'gainſt whom all human pow'r is vain,
Has pierc'd his friend with his unerring dart!
Ah! how uncertain is this life below;
How ſhort and fleeting are all earthly joys!
For he who was in health a week ago,
Now in the earth's cold boſom breathleſs lies!
Beſide the *Wind-mill* he in *Ruſhton* dwelt,
Like *Nield* in *Penmanſhip*, was famous grown;
He lov'd *Enigmas*, long in *Cotton* dealt,
And was far round like ſome *Lieutenant* known.
But now his earthly pilgrimage is o'er,
The *Bagpipe* he again will never hear;
And I, alas! muſt ſee his face no more,
The cauſe to me of many a trickling tear!
How dread and awful is the hour of death!
And oh! what ſcene more ſolemn can be found!
Than that wherein a huſband yields his breath,
His tender wife and children weeping round.
But nought avails a wife's ſad piercing cry,
And nought a ſon's, and nought a daughter's moan;
For Death, regardleſs of their deepeſt ſigh,
With pleaſure hears a dying mortal groan.

Other general anſwers were given by Meſſrs. Autodidactus, Brown, Brookes, Carwithen, Davis, Fox, Moore, Rimmer, Saul, Turton, & Youart.

ANSWERS to the QUERIES.

Query 1, *anſwered by Autodidactus, Raptoniencis.*

Granting of patents undoubtedly encourages invention, but as certainly clips the wings of improvement; and as this country is far more renowned for the latter than the former, I am of opinion that conſiderable benefit would accrue to it from their abolition, providing handſome and ſuitable rewards were held out to the inventors of any thing of public utility.

Query 2, *anſwered by Mr. John Carwithen.*

St. Jude is admoniſhing the brethren to beware of falſe teachers, uſeth this quotation to ſhew, that no man is perfect; probably in his manuſcript, its Michael contending in the body of Moſes. Namely, the paſſions that are mixt in the human frame, fleſh and ſpirit; for the word Michael ſignifies, who is perfect? Although Moſes had greater perfections than any man in his days, yet he could not intirely rule the failings of the fleſh, or the imperfections of mortality. St. Jude alludes to the time when he ſmote the rock at Meribah, without aſcribing the power unto GOD, which brought on that railing accuſation in his body, which of theſe paſſions ſhould gain the aſcendency, and for a moment gave himſelf up to the paſſion that governs this world, and the fleſh or the devil overcame the ſpirit; but on recollection of what he had done, ſaith, in his ſpirit, the Lord rebuke thee.

Query 3, *anſwered by Autodidactus, Raptoniencis.*

Working of miracles was an infallible criterion of the divine miſſion; if our Saviour and his Apoſtles muſt be allowed to have been very neceſſary for the promulgation of chriſtianity at firſt, which was not like other abſurd and idolatrous religions, to be founded in blood, and propagated by the dint of the ſword. But ſince the ceſſation of miracles,

cles, there are no certain and demonſtrative proofs of a divine miſſion to be had. We muſt therefore be content with the beſt we can get, and which muſt be ſought for in the character and conduct of the preacher. Hence I would conclude, that thoſe who exert their utmoſt endeavours to tread in the ſteps of their divine maſter, adding to their faith virtue, and to virtue knowledge, &c have the greateſt right to the claim; whether they be found in the eſtabliſhed church, or among any of the diſſenting proteſtants.

The ſame by Mr John Carwithen.

In the primeval age, GOD gave miſſions to man, but to thoſe ordained he appeared to, or elſe they diſtinctly heard his voice. No man but Moſes had a criterion; he wore a veil as an emblem that the law was inſtituted for the good of man while in mortality, and that the religious ceremonies were only types, to be obſerved before the performance of the true offering, which was Chriſt, who offered himſelf as the true ſacrifice once for all the elect; and not as the high prieſt, who offered every year a lamb as a ſacrifice for the people; therefore it is by faith in his blood we obtain the promiſe, and not by the preaching of any man. For in the preſent age, all are commiſſioned by the legiſlative power, or take a power upon themſelves by imagination, and not by any miſſion given of GOD.

To each of thoſe that GOD e'er made a choice,
He did appear, or elſe they heard his voice;
No marks or miſſions now are to be given,
For Chriſt has opened th' gates of heaven.
To all that can believe in truth and ſpirit,
The heav'nly canon ſurely will inherit;
By faith alone the promiſe we obtain,
For Methodiſts, like other men, are vain.

Query 4, *anſwered by Mr Philip Norris.*

Admitting the ſenſe of the record be implied after his reſurrection, we do not find in any of the other three goſpels, that ſuch things did happen even immediately after that event. But to return to the query, and rely upon his teſtimony therein contained, it does not appear that the bodies of thoſe which were raiſed from the grave, were united to their ſouls as before time; for he ſays, they appeared unto many, therefore it is evident, if they only appeared, they could be only viſionary.

Autodidactus ſaith,

If he was to attempt an anſwer to this query, ſhould certainly take the words in their literal ſenſe; for by body muſt be meant the material body, unleſs we are to believe, that ſoul and body ſleep together in the duſt; which is contrary to reaſon.

The ſame by Mr. John Carwithen.

The words of St. Matthew are ſo very plain, that it needs no farther explanation; the bodies of ſaints that ſlept, aroſe after his reſurrection, for viſions are not bodies, but produced by imaginary dreams. And though the catholic church has a notion that the ſoul of man departs from the body, yet it was not the opinion of the Apoſtles, for they well knew the ſoul and body died together; for St. Paul ſaith it is ſown in diſhonour, and nought is quickened except it die, and that every ſeed ſhall have or receive its own body. Which ſeed implies the ſoul or quickening ſpirit. And thoſe bodies that awoke after his reſurrection, were quickened in the ſame ſpirit that they ſlept in, being the firſt mighty example of his ſecond crown of glory, and recorded to

convince the elect, that by his powerful word, that he is able, at the general reſurrection, to raiſe them by the ſeed when in the grave dead, or aſleep, into a celeſtial body, and to every ſeed, or ſoul, its own body.

NEW ENIGMAS.

I. ENIGMA (70) *by Mr. John Nuttall, Schoolmaſter, Bury, Lancaſhire.*

Attend ye wits, while I relate to you,
The ſtrange viciſſitudes I have gone through;
When in my infancy I'm very ſmall,
But when grown old I am exceeding tall.
With arms extended round on ev'ry ſide,
And am by ruffians ſtript of all my pride;
Tho' baſely us'd, true Britons me revere,
Above my brethren honor me each year.
I o'er my tribe am juſtly ſtiled king,
Since I moſt uſeful am in ev'ry thing;
Always in woods or groves I may be ſeen,
Sometimes indeed upon the lovely green.
In ſummer, clad in veſtments quite compleat,
Wherewith I hide my mother from the heat
Of Sols moſt ſcorching rays; in winter bare,
Of my green ſuit, quite ſable does appear.
Naked or cloath'd, I ſtoutly ſtand the blaſt
Of bluſt'ring Boreas; yet I'm doom'd at laſt,
To fall a victim to the harden'd ſteel,
Which the rude clown does often cauſe to feel.
Who not content with laying me quite low,
Makes me, oh fatal! ſorrows undergo,
More grievous far, but which I'm forc'd to bear,
For he my ſkin does off my body tear;
With cruel weapons he my limbs does part,
Which are of uſe in each mechanic art;
I may be ſaid to guard Britannia's iſle,
From the rude efforts of her foes moſt vile.
But that I may my name more clear impart,
Think on the ſurname of a Britiſh heart.

II. ENIGMA (71) *by Mr. John Carwithen.*

In days of yore, when martyrdom was rife,
With cruciating pain I've took man's life;
Talus ne'er model'd me for acts like thoſe,
For the mechanic's uſe I firſt aroſe.
When Cain his implements for building plan'd,
I with his labourers went hand in hand;
And form'd his principals both bad and good,
Tho' teeth I have, yet never want for food.
From back to edge I'm made of temper'd ſteel,
And ſquares, and circles, form by line and reel;
Your ſhoulders eaſe, and ſet your tenants right,
Deſever bones, and carcaſes unite.

III. ENIGMA

III. ENIGMA (72) *by Mr. Thomas Fox, Norton.*

Make room, ye enigmatiſts, learned and wiſe,
Behold a ſtrange couple wrapt up in diſguiſe;
So nearly related, ſo like one another,
At firſt you wou'd take us for ſiſter and brother;
Nor wonder, for we have our parent in common,
But oft'ner brought forth by the man than the woman;
In ſable we're cloath'd, and ſometimes in ſcarlet,
When we in conjunction attend on a varlet.
But when we're in mourning we better are known,
From the beggar in rags, to the king on the throne.
How pleaſing our aſpect, how winning our air,
When brought to perfection, denuded of hair.
We always attend the debates of the nation,
And help ev'ry member to his proper ſtation;
In ev'ry aſſembly we ſtrive for the lead,
Tho' it muſt be confeſt we are far from the head.
We daily attend you where-ever you go,
And beg, from theſe hints, that our names you will ſhew.

IV. ENIGMA (73) *by Autodidactus Raptonienſis.*

A ſweet bewitching nymph I am,
And in my youth was coy,
But as I grew up with my mam,
I learn'd to ſmile and toy.
In ſilks and ſatins I was dreſs'd,
My ears with jewels hung,
The blooming roſe adorn'd my breaſt,
And muſic on my tongue.
The ſwains for ſome time ſtood abaſh'd,
And knew not what to ſay,
But fir'd with love—ruſh'd forth at laſt,
And 'gan with me to play.
The patroneſs of letters deem'd,
I was likewiſe of ſong;
Then princes highly me eſteem'd,
And forc'd me from the throng.
Arabian ſweets to me they paid,
And rich ore from Peru,
A coſtly table for me ſpread,
With wines both old and new.
To me the deeps yield up their ſtore,
Heav'n unto me bows down;
In common I diſown the poor,
Yet yearly kiſs each clown.
All hail me as a goddeſs bright,
And offer at my ſhrine;
Without me ſome won't ſup at night,
Nor can without me dine.
At weddings I am look'd on beſt,
And help to heighten glee;
There wou'd be neither ſong nor jeſt,
If it were not for me.
But now, ah! ſore againſt my will,
I ſing a mournful ſtrain;
Pale ſickneſs, and a thouſands ills,
Attack my ſmiling reign.
Next poverty with ghoſtly rage,
On all my ſteps attends;
Th' downfal of empires I preſage,
And here my being ends.

V. ENIGMA (74) *by Wr. W. Shipſides, Normanton on the Woles.*

No martial hero from the hoſtile plains,
With honors loaded your attention claims;
Nor hideous monſter, nor fam'd magic elf,
Abruptly dares to introduce himſelf.
But one more modeſt begs admittance here,
Your kind attention and paternal care;
For know, dear Gents, I am but young in years,
And childhood's oft oppreſt with boding fears.
And various trials I muſt undergo,
While ſubject to the regions here below;
When in embryo ere I had my birth,
Or in this weary world I was brought forth— The

The wiſe and learned juſt predictions drew,
Foretold my coming, and my merits too;
Tho' young in years, in knowledge I am old,
And hidden myſteries with eaſe unfold:
And many virtues you in me may find,
That charm the ſoul, and cultivate the mind;
The lively teint of nature I diſplay,
The depth of winter, and the height of May.
A friend to gen'us, reputation prize.
Inſtruct the witty, make the ſimple wiſe:
To friendſhip true, ſweet balm of all our joys,
And yield to you delight that never cloys:
And ſo proficient now in arts I'm grown,
The gay and poliſh'd my perfections own;
While Fame's loud trump doth ſound abroad my praiſe,
And crown my brows with unfading bays,
And laurels too, while truth ſhines in my face,
Which time nor envy never can eraſe;
And crowds of votaries of high degree,
My favours court, and tribute pay to me.

VI. ENIGMA (75) *by Mr. John Carwithen.*

Each day upon the road do trudge,
In country and city,
No poſt-boy is ſo great a drudge,
There's none m' fate do pity.
My belly they do never fill,
But out upon my face
Corrupted blood and water ſpill,
A burthen on me place.
Far greater than a ſlave could bear,
Or porter with his knot,
Which leaves the traces of deſpair,
Grief, ſorrow, and what not.
Through theſe aſſaults I am not yet
Of pleaſure quite bereft,
Show Mars at large in Vulcan's net,
Diſcovers many theft.
I alſo aid that fiery god,
In all his martial ſtrife,
And am obedient to your nod,
Tho' ne'er rob none of life:
But yet I ſometimes my maſter,
In iron fetters bind;
But that is his own d faſter,
Declares another mind.
Faſhions and fancies I relate,
Aid men in every trade;
Suſpicion oftimes I create,
Amongſt the cavalcade
My right I further could maintain,
But might my name expoſe,
Detected it would give me pain,
None would eſpouſe my cauſe.

VII. ENIGMA (76) *by Mr. Jonathan Wood, Schoolmaſter, Ruſhton, Northamptonſhire.*

Ingenius bards who grace Diaria's page,
And with poetic lore delight the age;
Admit a friend whoſe ſervices you uſe,
When you diſcloſe the efforts of your muſe.
When ſits the judge in ſtately robes array'd,
To try the pending cauſe he needs my aid;
The lawyer, parſon, and phyſician find,
Exact from me a model of their mind.
I'm artful found, for I with eaſe can plan,
What may appear impoſſible to man;
The abſtruſeſt myſteries by me are trac'd,
And what ſeems vulgar elegantly plac'd.
Perhaps ere this you wiſh to know my form,
But that I ſhall reſerve, tho' oddly born;
For I'm entirely at my maſter's whim,
And never heed if I can pleaſure him.

But

But if with age, or wearineſs oppreſt,
I ſuffer tortures ne'er to be expreſt;
With piercing ſteel, and with unfeeling heart,
He oft divides my tender frame apart.
But hold, enough is ſaid, you've found my name,
Long may you live, and by me merit fame.

VIII. ENIGMA (77) *by Mr. Philip Norris, Liverpool.*

Ye learned Gents in Britain's happy nation,
Permit a friend in Di. to crave a ſtation;
Tho' unadorn'd, and clad in mean array,
To fame aſpires, and begs you'll point the way.
Lo! this before you—ſpeak—unfold your ſtory,
Behold, kind Gents, I ſeek the path to glory;
And by your kind indulgence and permiſſion,
Would ſhew my ſtate, and claim your high deciſion.
Know ye—I'd being ere great Sol appear'd,
Or ere the vaulted arc of heav'n was rear'd;
And when Jehovah iſſued the decree,
'Let there be light'—I inſtant did obey.
On ærial pinions, lo! to earth I fled,
Diſpel'd the gloom which o'er her ſurface ſpread;
When from the duſt my brothers had reſcu'd,
And with new luſtre all their frame's endu'd.
Since which grand epocha I have explor'd,
Her ſpecious ſurface—and around her ſoar'd;
And on each rock, and mountain's craggy ſteep,
I ſtill remain—as in th' unfathom'd deep.
On deſart waſtes, where human foot ne'er trod,
I dormant lie, yet ſweep the briney flood;
Where burning lava ſtreams in lurid round,
In ſome dreadful volcano I am found.
Yet ſtill within each dark abyſs remain,
And in oblivion ſleep upon the plain:
In gloomy caves, unknown to mortal eye,
I ſtill abide, yet touch the vaulted ſky.
Where dreadful clangor and deſtruction reign,
Behold me foremoſt in each murd'ring train;
Yet coward like I ſtalk behind the laſt,
And mix amongſt the ranks, and ſtand aghaſt.
Full many a hero falls beneath my charge,
A bleeding victim whilſt I roam at large;
I fear no mortal—tho' aſſaſſin dire,
Since earthly power can't bar my high career.
O'er mighty kings, 'tis ſaid, I potent reign,
Yet deign to crown them, and with them remain;
Nay, I'm ſo friendly to each royal fair,
I'm known to guard her with a parent's care.
Each haughty tyrant with diſdainful ſcorn,
Me on the ground has oft been ſeen to ſpurn;
Yet I regardleſs of his fierce diſdain,
Exulting riſe, and ſkim acroſs the plain.
Such are my feats and ſuch my mighty power,
Tho' I on all my bleſſed influence ſhow'r;
The king and plebeian I alike befriend,
And firſt and laſt on high and low attend.
Thus, Gents, I'm ſomething—pleaſe my form to view,
Yet, ah! I'm nothing when compar'd with you.

IX. PRIZE ENIGMA (78) *by Mr. John Fildes, Schoolmaſter.*

In this diſguiſe be pleas'd to introduce,
A hero bold of matchleſs worth and uſe;
And ancient race too, for before the flood,
My ſtately anceſtors ſome ages ſtood.
In ev'ry country I may now be found,
Where learned men and noble arts abound;
And ſhall remain in Britain's fruitful iſle,
While trade and commerce on her deign to ſmile.
In wealthy cities you may daily ſee,
Great numbers wiſh to be poſſeſt of me;
For well they know that howſoe'er they ſtrive,
Without my aid 'tis difficult to thrive.
And if to meanneſs ſometimes I deſcend,
Both Lords and Commons find in me a friend;
By all good men I'm ever highly priz'd,
But by baſe villains always am deſpis'd.
Once when Elmira was with grief oppreſt,
And doubts and fears diſturb'd her thoughtful breaſt;
When ſad ſuſpenſe ſhe could no longer bear,
But would have fall'n a victim to deſpair.
To her I flew a meſſenger of joy,
And ſoon her tender boſom ceas'd to ſigh;
Suſpenſe I baniſh'd, and diſpel'd her grief,
Diſpers'd her fears, and gave her ſoul relief.
'Tis no uncommon thing to find me poor,
Or like a beggar waiting at each door;
And yet 'tis ſtrange that I ſhould want ſupport,
For I have always many friends at court.
Near me the ſick and weary find repoſe,
And in ſweet ſleep awhile forget their woes;
Among all ranks of men I gain reſpect,
Yet have ſome foes who treat me with neglect,
And far from ſhewing me the leaſt regard,
With rapine all my ſervices reward;
But oft their folly they have cauſe to rue,
For when found out they meet with juſtice due;
And as a puniſhment, like rogues, you'll ſee,
They quickly get exalted near to me.
Tho' dull and ſtupid, I'm for ſwiftneſs fam'd,
And in dread wars my merits are proclaim'd;
Strange oppoſitions, and conjunctions too,
In public places I expoſe to view;
And of aſtrology, tho' nought you know,
By me true ſigns and wonders, you may ſhow.
When in the weſt the circling ſun deſcends,
And awful night her ſable ſhade extends;
'Tis then, and then alone, I terror ſpread,
And then with reaſon you my pow'r may dread.
For tho' by day I'm known to do you good,
By night beware, leſt I ſhould ſpill your blood;
Upon this earth where ſinful mortals live,
But few advice can take as well as give;
For would mankind give heed to what I ſay,
And mind my precepts, few would go aſtray.

The

The more I'm doom'd the wants of men to bear,
The more I grow a ſtranger to deſpair.
And now I think there cannot be much doubt,
But that you've hints enough to find me out;
If not, I can ſupply you with another,
You paſs each day between me and my brother,

NEW REBUSES.

I. REBUS, *by Mr. John Youart, Schoolmaſter, Glazedale.*

A ſhepherd turn'd into a ſtone,
A goddeſs of infants alone;
She who was turn'd into a cow,
He who did Eteocles out-do;
The youth who a cloud did embrace,
What brought woe upon human race;
A nymph for beauty juſtly fam'd,
A king in ſcripture often nam'd,
A youth for love fell to deſpair,
Was for rebellion made a ſtar;
What's after death all wiſh to learn,
And what's once paſt doth ne'er return:
The initials join will bring to ſight,
A ſubject in whom I take delight.

II. REBUS, *by Mr. Philip Norris, Liverpool.*

An Engliſh meaſure pleaſe to quote,
Two vowels alſo place in rote;
To theſe two tigers heads adjoin,
And they will name a friend of mine,
Upon whoſe friendſhip in deep ſcience,
The Diary may place reliance.

III. REBUS, *by Mr. Jonathan Wood, Schoolmaſter.*

Pray name th' glory of Britannia's iſle,
Whoſe noble worth would make the captive ſmile;
Amount in Theſſaly for beauty known,
That there the gods have fix'd their royal throne.
Th' frowns of that beauteous goddeſs we dread,
The plains appointed for the happy dead;
The initials join immediately you'll view,
A moſt noble paſſion that's felt but by few.

IV. REBUS, *by Mr. Thomas Fox, Norton, Derbyſhire.*

When Iſrael by God's command,
From Pharaoh's land did come,
An exile in a deſert land,
Full forty years did roam.
One half thereof when added to,
Our gracious ſovereign's name,
Will *x*, *y*, *z* bring to your view,
Endow'd with wit and fame.

V. REBUS, *by Mr. Thomas Edwards, Coventry.*

If unto one thouſand and one are ſubjoin'd,
A fifty, and then to the whole we unite,
A weight of a certain deſcription we find,
The name of an author produc'd to our ſight.

VI. REBUS, *by Mr. John Fildes, Schoolmaſter, Liverpool.*

Take half of two thirds of ſeven more than a ſcore,
Next three fifths of five twelfths of juſt forty and four,
Then two thirds of three fourths of nineteen minus ſeven,
And one third of three eighths of five plus eleven.
The initials of theſe if connected will ſhow,
As curious a building as any I know.

NEW CHARADES.

I. CHARADE, *by Mr. Philip Norris, Liverpool.*

Great men, triumphal, us'd my firſt of old,
My next in worth exceeds e'en ſolid gold;
My third is of the feather'd tribe you'll find,
My whole's a bard of moſt exalted mind.

II. CHARADE, *by Mr. Jonathan Wood, Schoolmaſter.*

My firſt is the common reſort,
Of all in their juvenile years,
Where wantonneſs, paſtime, & ſport,
Prevail if my next diſappears;
My whole may be conſtantly ſeen,
If you ſtrictly explore Dia.'s page;
My aim and my pleaſure has been,
To inſtruct and enliv'n the age.

III. CHARADE, *by Mr. W. Shipſides, Normanton on the Woles.*

To ſoothe the anguiſh of young Damon's breaſt,
Clariſſa kindly gave to him my firſt;
My next, tho' deſtitute of winning charms,
The love-lorn youth oft bribes unto his arms;
For deeds unjuſt too oft, alas! we find,
My whole upon my firſt is oft confign'd.

IV. CHARADE, *by Mr John Rimmer, Liverpool.*

Ah! Myra, hide my firſt, or I,
In painful ecſtaſy muſt die;
He with my next Lucinda braces,
To give her form more charming graces;
As ſparkling ſerpents larks entice,
My whole attracts e'en hearts of ice.

V. CHARADE, *by Mr. John Carwithen.*

My firſt from the Indies is brought,
My ſecond is hid in a cell,
There's thouſands each year by me got,
Yet oft eat the houſe where I dwell.

VI. CHARADE, *by Mr. Thomas Fox, Norton.*

My firſt on your finger you plainly may ſee,
My ſecond when Miſs in her airs ſhe ſhall be;
My whole circumſcribes the moſt beautiful part,
Of nature compleat, when aſſiſted by art.

VII. CHARADE, *by Mr. John Fildes, Schoolmaſter, Liverpool.*

My firſt's a term ſome uſe to thoſe they love,
Within each breaſt my next is known to move;
The maid who ſpeaks the feelings of her ſoul,
Will own ſhe ſometimes thinks upon my whole.

I. PARADOX, *by Mr. Jonathan Wood, Schoolmaſter.*

However myſterious, ye Gents, I appear,
I vow what I ſay to be true;
I'm a word of five ſyllables, from which take one,
And no ſyllable appears to your view.

I. QUERY, *by Mr. Jonathan Wood, Schoolmaſter, Ruſhton,*

Who would be extremely obliged to the ingenious contributors of this Diary, for an elucidation of the laſt verſe 9 chap. St. John.

II. QUERY, *by Mr. John Carwithen.*

Required to know, what is the ſin that is not unto death; and why he ſaith, we need not pray for the ſin that is unto death. 1 epiſtle of St. John, chap. v. verſe 16.

III. QUERY, *by Mr. John Fildes, Schoolmaſter.*

How are we to underſtand the latter part of 20th verſe v. ch. Judges, "the ſtars in their courſes fought againſt Siſera."

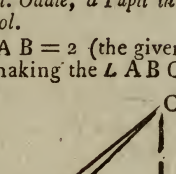
☞ *The Prizes have been determined by lot as follow;*—For the Prize Queſtion, to Caſia Broomwott, 6 Diaries; and to Mr. J. Brookes, 6 Diaries, for anſwering the greateſt number of queſtions; 2d, for the Prize Enigma, to Amo Zythum, 6 Diaries; 3d, for the General Anſwer to the Enigmas, to Mr. John Carwithen, and Juveniencis, 6 Diaries each; 4th, for the General Anſwers to the Rebuſes. Charades, &c. to Mr. Fox, of Norton, 6 Diaries;—all of whom will pleaſe to ſend for them to Mr. PEARSON, Printer, in Birmingham.

N. B. Queſtions omitted, that ſuit our Plan, will be inſerted in their turn.

Answers to the Mathematical Questions.

I. Question (96) *anſwered by Maſter Wm. Oddie, a Pupil in Mr. Fildes's School, Liverpool.*

Conſt. In any indefinite right line take A B = 2 (the given diff. of the two legs) and from B draw B C, making the ∠ A B C = 135°, and the ∠ C B E = 45° ; alſo from A draw A C = 12·8 (the given hyp.) cutting B C in C, and from C let fall the ⊥ C E, meeting A B produced in E; then will A E and C E be the ſides required. For ſince ∠ E = 90° and ∠ C B E = 45° ; the ∠ B C E = 45° alſo : and conſequently B E = C E.



Calc. As A C : *s.* ∠ A B C : : A B : *s.* ∠ A C B = 6°. 20′ ; then 6°. 20′ + 45°. = 51°. 20′ = ∠ A C E, and 90°. — 51°. 20′ = 38°. 40′ = ∠ A. Again, as Rad. : A C : : *s.* ∠ A : C E = 8 nearly, ∴ 8 + 2 = 10 = A E. Laſtly $\frac{AE+CE}{2}$ = 40 ſquare chains, or 4 acres, the required area.

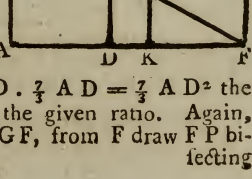
The ſame by Maſter John Rowbottom, Weſt Hallam, Derbyſhire.

If A E and C E be the two legs of the △, it will be by Trig. as hyp. A C (12·8 cha.) : A E — C E (2 cha.) : : *s.* $\frac{A+C}{2}$ (45°) : *s.* $\frac{C-A}{2}$ = ·1104854 = 6°. 20′. 35″. (ſee laſt Fig.) then 45°. ± 6°. 20′. 35″. = 51°. 20′. 35″. and 38°. 39′. 25″. the two acute ∠'s ; and, as rad. : *s.* ∠ A : : A C : C E = 8 cha. then A E = 10 cha. and the area 4 acres very near.

Solutions to this Queſtion were alſo given by Meſſrs. Aſhton, Mercurius, Travis, Woollen, Stevenſon, Youart, Gregory, ſen. Eaton, Saunderſon, Brown. Saul, Whiting, Marſden, Elliot, Buckley, Mabbot, Brookes, and Sadler.

II. Question (97) *anſwered by Caſia Broomwott.*

Conſt. Make a ſquare A B C D = $\frac{3}{7}$ of the given area ; produce A D till A F : A D : : 7 : 3 ; make F G ∥ and equal A B, join C G and A B G F will repreſent the garden. For A F : A B (A D) : : 7 : 3 ; but A D² = $\frac{3}{7}$ of the given area by conſtr.



hence A B . A F = A D . A F = A D . $\frac{7}{3}$ A D = $\frac{7}{3}$ A D² the given area ; and A F : A B : : 7 : 3 the given ratio. Again, Take K F : A F : : 3 : 7 ; draw K I ∥ G F, from F draw F P bi-ſecting

ſecting K I in O, then will F P be the required walk. For □ K G = △ F G P and A K = A F − K F = $\frac{7}{3}$ K F − K F = $\frac{4}{3}$ K F; hence as A B = G F, we have □ A I : □ G K :: A K : K F :: $\frac{4}{3}$ K F : K F :: 4 : 3. Q. E. D.

Cal. By conſtr. A D = $\sqrt{\frac{3}{7}9680} = 44\sqrt{\frac{15}{7}}$, and A F = $\frac{208}{3}\sqrt{\frac{15}{7}}$; alſo F K = $44\sqrt{\frac{15}{7}}$ by conſt. hence $\sqrt{2\,KF^2 + AD^2}$ = P F = $220\sqrt{\frac{3}{7}} = 144{\cdot}0238$ yards, the length of the walk required.

The ſame by Mr. John Brookes, of Leeds.

Let A B G F repreſent the garden and F P the walk (ſee the laſt fig.) and by ſimilar figures, $7 \times 3 : 7^2 :: 9636$ yards, the area of the garden : $\sqrt{\frac{9680 \times 7}{3}} = 150{\cdot}2886$ yards = AF, or BG. —Alſo $7 : 3 :: 9680 : 4148{\cdot}5714$ = the area of the △ cut off by the walk, which being divided by $\frac{1}{4}$ G F gives G P = 128·8188.—Now by Euc. 47. 1. F P = 144·0238, the length of the walk required.

Solutions to this Queſtion were alſo given by Meſſrs. Rowbottom, Aſhton, Woollen, Mercurius, Travis, Varley, Stevenſon, Youart, Eaton, Saunderſon, Saul, Whiting, Elliot, Bruckley, Buckley, Mabbot, and Sadler.

III. Queſtion (98) *anſ. by Mr. Richard Elliott, Liverpool.*

Put m = meridional parts of 40°, c = coſine of the courſe to radius 1, a = ·00029088, &c. the length of an arc of one minute, and x = arc of Lat. come to; then $3438\,x$ = Lat. in minutes, $2400 - 3438\,x$ = diff. of Latitude; and by Mercator's ſailing, $c : 2400 - 3438\,x :: 1 : \frac{2400 - 3438\,x}{c}$ = diſtance ſailed, which by the queſt. is equal to meridional diff. of Lat.—Now Dr. Halley's ſeries for x is $\frac{1}{a} \times \overline{x + \frac{1}{6}x^3 + \frac{1}{24}x^5 + \frac{61}{5040}x^7}$, &c. the meridional parts for the Lat. arrived in, therefore $m - \frac{1}{a} \times \overline{x + \frac{1}{6}x^3 + \frac{1}{24}x^5}$, &c. = $\frac{2400 - 3438\,x}{c}$, which by proper reduction, &c. is reduced to $697{\cdot}054$, &c. $\times\, x - 572{\cdot}957\,x^3 - 143{\cdot}24\,x^5$, &c. = 2886 − m = 263, or $x = {\cdot}82191\,x^3 - {\cdot}20547\,x^5 - {\cdot}05968\,x^7$, &c. = ·37727 ($n$); then by reverting the ſeries, $x = n - {\cdot}82191\,n^3 + 3 \times \overline{{\cdot}82191}^2 - {\cdot}20547 \times n^5$, &c. = ·454863 by ſumming a few of the terms. Hence the Lat. = 26°. 4′. nearly, and Longitude = 31°. 10′.

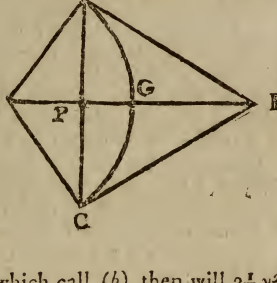
The ſame by Mr. Jonathan Mabbott, Oldham, Lancaſhire.

By the principles of ſailing, radius : coſine of courſe :: diſ-

tance failed: proper diff. of Lat. but by the queſtion the diſtance failed is equal to the meridional diff. of Lat. Put $c =$ coſine of the courſe, $r =$ rad. M $=$ meridional diff. of Lat. D $=$ proper diff. of Lat. then $\frac{r}{c} = \frac{M}{D}$, i. e. $\frac{10\cdot000000}{8\cdot314696} = \frac{M}{D}$: by the help of which, and a table of meridional parts, and a few trials, I find the Lat. arrived in $= 26°.\ 41'.$ N. nearly.

Solutions to this Queſtion were alſo given by Meſſrs. Aſhton, Eaton, Saul, Whiting, Elliott, Brookes, and Fildes.

IV. QUESTION (99) *anſwered by Mr. William Eaton, Jun. Sutton o'th' Hill, Derbyſhire.*



Put PC $= x$, AC $= y$, AP $= 35 = d$, PB $= 80 = c$, and AP $+$ PB $= 115 = a$; then will $xa =$ the area of ACBCA, and $dx =$ the area of AC CA, and by a known theorem $\frac{2\frac{1}{2}y^2 - 1\frac{1}{2}yd - d^2}{1\frac{1}{2}y + d} \times x =$ the area of the ſegment CGC, and per queſtion, $\frac{2\frac{1}{3}y^2 - 1\frac{1}{2}yd - d^2}{1\frac{1}{2}y + d} \times x + dx = \frac{2}{3}ax$, therefore $\frac{2\frac{1}{2}y^2 - 1\frac{1}{2}yd - d^2}{1\frac{1}{2}y + d} = 2a \div 3 - d$, which call (b) then will $2\frac{1}{3}y^2 - 1\frac{1}{2}yd - d^2 = 1\frac{1}{2}by + bd$, conſequently $y^2 - 1\frac{1}{2}yd - 1\frac{1}{2}by \div 2\frac{1}{3} = \frac{d^2 + bd}{2\frac{1}{3}}$; aſſume $\frac{1\frac{1}{2}d + 1\frac{1}{2}b}{2\frac{1}{3}} = 2n$, and $\frac{d^2 + bd}{2\frac{1}{3}} = m$, then will $y^2 - 2ny = m \therefore y = 64\cdot59 =$ AC, then CB are eaſily found 96·67. W. W. R.

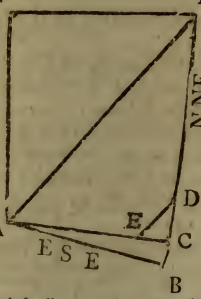
The ſame anſwered by Mercurius.

Put AP $+$ PB $= 115 = e =$ AB; AP $= 35 = a$; $\cdot7854 = c$; and AC $= x$ (ſee the preceding figure) then CP $= \sqrt{x^2 - a^2}$; and per Emerſon's Trig. pa. 89, 1ſt ed. $x + \frac{a}{2} : 86 :: \sqrt{x^2 - a^2}$: the degrees in the $\angle$ CAG $= 86\sqrt{x^2 - a^2} \div \frac{2x + a}{2}$; But 360 degrees : $86\sqrt{x^2 - a^2} \div x + \frac{a}{2} ::$ area of the circle $4cx^2 : \frac{4 \times 86x^2c \times 2\sqrt{x^2 - a^2}}{360 \times 2x + a}$ the area of the ſector ACG $= \frac{2}{3}e \times \frac{1}{2}\sqrt{x^2 - a^2}$ per queſtion: this equation reduced, &c. and in numbers $x^2 - \frac{15e}{43c}x = \frac{15ae}{86c}$, this quadratic

equa. ſolved gives $x = 64{\cdot}859 = AC$: then we find $CB = 96{\cdot}859$ as required.

Solutions to this Queſtion were alſo given by Mr. John Rowbottom, Mr. Aſhton, the propoſer, Mr. Travis, Mr. Stevenſon, Mr. Saul, Mr. Whiting, Mr. Elliott, Mr. Mabbot, and Mr. Brookes.

V. QUESTION (100) *anſwered by Maſter William Walker, a Pupil in Mr. Fildes's School, Liverpool.*



Conſt. From any point A in the N meridian AN draw an ESE line AB = 26 the given diſtance between the two ſhips A and B, and ⊥ thereto draw a NNE line BF, in which take BC = 5, the diſtance the ſhip B fails before the ſhip A ſtarts, and join A and C. Next from C take CD = 5 in the ſame line BF, and from D draw DE = 6, cutting AC in E; then from A draw AF ‖ to DE, cutting BF in F. Laſtly, from F let fall the ⊥ FN upon the meridian AN: then will AF be the diſtance the ſhip A muſt ſail, the ∠ FAN her courſe, and F the point at which ſhe will overtake B. For the △'s ACF and ECD being ſimilar, CF : AF :: CD : DE :: 5 : 6.

Calc. As AB = 26 : Rad. :: BC : tang. ∠ BAC = 10°. 53'.; whence the ∠ ACB = 79°. 7'. and the ∠ DCE = 100°. 53'. Alſo, DE = 6 : *s.* ∠ DCE = 100°. 53'. :: CD = 5 : *s.* ∠ CED = 54°. 55'. = ∠ CAF, whence the ∠ CDE = 24°. 12'. = ∠ AFC, and the courſe GAF = ∠ GAB (10 points, or 112°. 30'.) − ∠ BAF (∠ BAC + ∠ CAF) = N 46°. 42'. E. Next, $AC = \sqrt{\overline{AB}^2 + \overline{BC}^2} = 26{\cdot}47$. Then, as *s.* ∠ AFC = 24°. 12'. : AC = 26·47 :: *s.* ∠ ACF = 100°. 53'. : the diſt. AF = 63·41 miles. Again, as Rad. : 63·41 m. :: cof. courſe 46°. 42'. : diff. lat. = 43·49 N. which added to 53°. 30'. the lat. ſailed from, gives 54°. 13'. for the lat. come to. Laſtly, as Rad. : merid. diff. lat. = 72·9 :: tang. courſe = 46°. 42'. : diff. long. 77·3 m. E. which taken from 2°. 49'. W. the long. left, leaves 1°. 28'. W. the long. arrived at.

N. B. That part of the fig. belonging to the laſt operation, are omitted: for if the merid. diff. lat. were to be taken in the meridian AN continued, and a ⊥ drawn to repreſent the diff. long. meeting AF continued; the fig. would be either very large, or the lines CD and DE almoſt imperceptible.

The ſame anſwered by Mr. J. Brookes, of Leeds.

Let A be the place of the weſtern ſhip, and B that of the eaſtern (ſee the preceding fig.) whoſe bearing are E. S. E. and W. N. W. (not W. S. W. as mentioned in the queſtion); then if the ſhip B ſail N. N. E. it is plain that ſhe ſets off at right angles to A B: hence then, if A B $= a$; 5 miles $= b$; B F $= b + 5x$ and A F $= 6x$, by the nature of the queſtion $36x^2 = 25x^2 + 10bx + b^2 + a^2$: which equation being properly reduced, gives $x = \frac{56 + \sqrt{11a^2 + 3662}}{11} = 10{\cdot}573$; therefore A F $= 63{\cdot}438$, and B F $= 57{\cdot}865$, and per fig. the angles B A F $= 65^{\circ}.48'$; hence by ſubtraction only the $\angle$ F A N is found $= 46^{\circ}.42'$.; therefore the courſe is N. E. $1^{\circ}.42'$. E.

Now in the Δ A N F all the $\angle$'s and ſide A F are given to find A N $=$ the diff. of latitude $= 43{\cdot}5$ miles, and N F the departure $= 46$ miles; therefore the latitude arrived at is $54^{\circ}.13\frac{1}{2}'$; alſo the proper difference of latitude $= 43\frac{1}{2}$: meridional difference of latitude 74 : : departure 46 : $1^{\circ}.18'$. the difference of longitude; therefore $2^{\circ}.45'. - 1^{\circ}.18'. = 1^{\circ}.27'$. the required longitude.

Mr. Aſhton, Mr. Eaton, Jun. Mr. Youart, Mr. Saul, Mr. Whiting, Mr. Elliott, and Mabbot, alſo gave anſwers to this Queſtion.

VI. QUESTION (101) *anſwered by Caſia Broomwott.*

GENERAL SOLUTION.

Take the ſum of the indices three, two and one,
Have for its numerators each index alone; †7200 ſhillings.
Each fraction thus form'd, multiply by the ſum†,
Then from theſe proportions the anſwer will come,
One price : one gallon : : each product : a fourth,
Proportion's the number of gallons he bought.

NOTE, the initials anſwers the Prize Enigma.

Thus $\frac{3}{3+2+1}, \frac{2}{3+2+1}, \frac{1}{3+2+1} \times 7200s. = 3600, 2400, 1200$ *s.*

then as	5	: 1	: :	3600	: 720 gall. of claret.
	6	: 1	: :	2400	: 400 ſherry.
	8	: 1	: :	1200	: 150 canary.

The ſame anſwered by Mr. James Stevenſon, the propoſer.

Put $x =$ the number of gallons of claret, $y =$ thoſe of ſherry, and $z =$ thoſe of canary, then by the queſt. $x^3 y^2 z = a$ max. and $5x + 6y + 8z = (360 \times 20)\ a$; hence $z = \frac{a - 5x - 6y}{8}$, by ſubſtituting this in the max. we obtain $\frac{ax^3y^2 - 5x^4y^2 - 6x^3y^3}{8} =$ a max. in Fluxions, firſt making y

constant, &c. $3ay^2x^2\dot{x} - 20y^2x^3\dot{x} - 18y^3x^2\dot{x} = 0 = 3a - 20x - 18y$; and $2ax^3y\dot{y} - 10x^4y\dot{y} - 18x^3y^2\dot{y} = 0 = a - 5x - 9y$; which equations solved give $x = 720$, and $y = 400$; consequently $z = 150$. W. W. R.

True Solutions were also given by Messrs. Travis, Mercurius, Woollen, Youart, Eaton, Jun. Saul, Whiting, Elliott, Mabbot, and Brookes.——Other answers were sent, but not right.

VII. QUESTION (102) *answered by Mr. Olinthus Gregory, the Proposer.*

By Simpson's Fluxions, Vol. I. p. 22, the greatest cone will be when the slant side is to the diameter of the base, as 3 : 2. Therefore if $3x$ denote the slant height, $2x$ the diameter of the base, $3.141593 = a$, and the whole surface $= c$; we shall have the following equation $\frac{2x \times a \times 2x}{4} + \frac{2x \times a \times 3x}{2} = c$, or $ax^2 + 3ax^2 = 4ax^2 = c$, consequently $x = \sqrt{\frac{c}{4a}} = 6$: hence the slant height is 18, and the diameter of the base 12, from which the perpendicular is found 16.970556 inches. It is shewn by the writers on fluids, that $\frac{\text{base} \times \sqrt{\text{altitude}}}{\text{apert.} \sqrt{32\frac{1}{6}}} \times \frac{16}{15}$ is the time in seconds of emptying a cone at the base, this in the present case is $\frac{113.097348\sqrt{16.970556}}{1 \times \sqrt{386}} \times \frac{16}{15} = 25.29493$ seconds, as required.

The same answered by Mr. William Travis, of Shaw, near Rochdale, Lancashire.

Put $x =$ diameter of the base, $v =$ slant height, $c = 3.1416$, $b = 452.38939$; then per Emerson's Fluxions, page 173, $x = \sqrt{\frac{b}{c}} = 12$; $v = \frac{3}{2}\sqrt{\frac{b}{c}} = 18$, and perpendicular height $= \sqrt{\frac{2b}{c}} = 16.97056$. Then, per Hutton's Mathematical Miscellany, art. 1st, $\frac{4b\sqrt[4]{\frac{2b}{c}}}{15\sqrt{386}} = 25''.295$ the time required.

Otherwise, by Mr. James Ashton, of Harrington.

Put $a = 3.1416$, $\frac{a}{4} = b = .7854$ $s =$ the given surface, and $x =$ the diam. then $ax =$ the circumference, and $bx^2 =$ the area of the base, also $2s - 2bx^2 =$ twice the convex surface; whence

whence $\frac{2s-2bx^2}{as}$ = the ſlant height; (as $x^2=16b^2$) $\frac{\sqrt{4s^2-8bsx^2}}{ax}$ = the perpen. altitude; then will $\frac{bx\sqrt{4s^2-8bsx^2}}{3a}$ = the ſolidity, = a maximum; or sx^2-2bx^4 = a max. and $2x\dot{x}-8bx^3\dot{x}=0$; then $x=\sqrt{\frac{s}{4b}}=12$, the diameter. Now, as the ſolidity is a max. it will be 1 : $\sqrt{2}$: : 12 : 16·97056 = perp. altitude; the ſlant height = 18; area of the baſe = 113·0976; and ſolidity = 639·776 cubic inches. Then, by Hutton's Exhauſtions, cor. 3d, pa. 8, putting a = the alti. b = area of the bottom; n = 1 inch, $m=32\frac{1}{6}$ feet = 386 inches, then $\frac{16b\sqrt{a}}{15n\sqrt{m}}$ = 25·3 ſeconds.

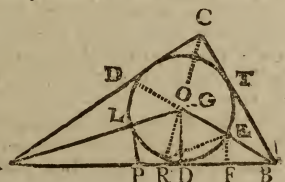
Or thus, by Mercurius.

Firſt put a = 452·389392; c = ·7854; x = the diameter of the cone; and y = the perpendicular; then the ſolidity is $=x^2\times y\times\frac{c}{3}$ = a maximum per queſt. or x^2y = a max. Again per Euc. 47. 1. the ſlant height of the cone = $\sqrt{\frac{x^2}{4}+y^2}$; and the whole ſurface is $x^2c+2cx\sqrt{\frac{x^2}{4}+y^2}=a$ $\therefore x^2=\frac{a^2}{4c^2y^2+2ac}$, which ſubſti. in the max. above, and $\frac{a^2y}{4c^2y^2+2a}$ = a max. fluxed and reduced $y=\sqrt{\frac{a}{2c}}=17$; whence x = 12. Secondly, put a = 17; n = 1, the area of the aperture; and $m=32\frac{1}{6}$ feet = 386 inches, then per Dr. Hutton's Miſcellanea Mathematica, prob. 2d. cor. 3d. the time $=\frac{16b\sqrt{a}}{15n\sqrt{m}}=25\cdot317$ ſeconds, required.

Meſſrs. James Stevenſon, Joſeph Saul, Thomas Whiting, Richard Elliott, Jonathan Mabbot, and John Brookes, alſo gave ingenious anſwers.——Other anſwers received, were not right.

VIII. QUESTION (103) *anſwered by Mr. J. Brookes, Leeds*

Make the angle BAC = one of thoſe given, which biſect by the line AO; take AL of the given length, and demit the perpendicular LP; make PD = PL, and erect the perpendicular DO, meeting AL produced in O; make the angle DOB =



the compliment of half of another of the given angles, upon the center O with radius O D deſcribe a circle; draw A C, B C to touch the circle, and A B C will be the triangle fought. The demonſtration is too evident to need an illuſtration.

Same anſwered by Miſter John Rowbottom, Weſt Hallam.

Conſtr. From any point B (ſee Mr. Brookes's Fig. and the additional dotted lines) in the indefinite line A B, draw B D, making the $\angle$ D B A = half the given $\angle$ at the baſe; make B E = the given diſtance, and let fall the $\perp$ E F: make E O, a fourth proportional to B E — E F, E F, and B E, and draw O D $\parallel$ to E F; make the $\angle$ A O D = the comp. of half the other $\angle$ at the baſe; from A, and B, draw A C, and B C; making the $\angle$'s C B D = O B D, and C A O = O A D: then will A C B be the $\triangle$ required.

Demonſtration. The $\angle$'s C A B, C B A, are equal the given $\angle$'s at the baſe by conſtruction; and A O, B O, biſects them $\therefore$ O is the center of the inſcribed circle; and by ſimilar triangles, B E : E F : : B O : O B; hence, as B E — E F : E F : : B O — O D : O D, the radius of the circle by conſtruction. Q. E. D.

Or thus, by Mr. James Aſhton, of Harrington.

Conſtr. Conſtruct the given $\angle$ B, and biſect it with the given diſtance B E (ſee the preceding fig.) at the point E make an $\angle$ B E R = the ſupplement of $\frac{\angle A + \angle B}{2}$: draw E R to meet B F continued in R; at R make an $\angle$ E R C = $\frac{\angle A + \angle C}{2}$, draw R C, to meet B T continued in C, and B E continued, will meet R C in the center O, of the inſcribed circle; then the $\angle$ O C A being made = O C B; and C A drawn to meet B R continued, will complete the $\triangle$ A B C required.

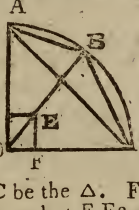
Demonſtration. By prop. 35th, book 2d. Emerſon's Geom. three lines, beſecting the three $\angle$'s all meet in one point; and by cor. 1ſt of the ſame prop. that point will be the centre of the inſcribed circle. Now the angle E R B = $\angle$ O A B by conſtruction; therefore E R is $\parallel$ to A O, hence $\angle$ E R O = $\angle$ C O G; but the external $\angle$ C O G = the ſum of $\angle$ C A O + $\angle$ A C O; therefore, &c. Q. E. D.

Meſſrs. Mercurius, Thomas Edward Shandy, William Travis, Joſeph Saul, and Thomas Whiting, alſo gave ingenious conſtructions.

Mr. William Eaton, Jun. gave an algebraic anſwer.

IX.

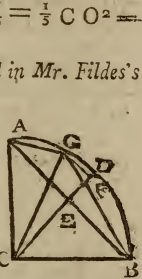
IX. QUESTION (104) *anſwered by Caſia Broomwott.*



Conſtruction. By Simpſon's alg. prob. 26, page 340, divide the given $\angle$ A O C into two ſuch parts that the ſines E F, D E may be to each other as 4 : 3 ; with the given rad. and I cent. O deſcribe the quadrant A B C, produce O E to B, which will be the poſition of the point required.

Calculation. Join A B, B C, then will A B C be the Δ. For F E : D E : : 4 : 3, and $FE^2 : DE^2 : : 16 : 9$, but $FE^2 + DE^2 = \text{rad.}^2$ ($OE^2 = 1$) that is $FE^2 + \frac{9}{16} FE^2 = \frac{25}{16} EF^2 = 1^2$; hence $FE = \frac{4}{5}$, and $DE = \frac{3}{5}$, the ſines of the $\angle$'s B O C, and B O D ; then by trig. $BC = \sqrt{2CO^2 - 2CO^2 . \frac{3}{5}}$ (for $\frac{3}{5} = \text{cof. } \angle BOC$) $= 2 CO \sqrt{\frac{1}{5}}$, and $AB = CO \sqrt{\frac{2}{3}}$; alſo $\angle ACB = \frac{1}{2} AOB =$ by trig. $\sqrt{\frac{1}{10}}$. Hence A C. B C. $\frac{1}{2}$ ſine $\angle ACB = 2 CO \sqrt{\frac{1}{5}} . CO \sqrt{2} . \frac{1}{2} \sqrt{\frac{1}{10}} = \frac{1}{5} CO^2 =$ 154880 yards the given area. W. W. R.

The ſame anſwered by Maſter James Buſhell, a Pupil in Mr. Fildes's School.



With the center C, and the radius A C = 40 chains ($\frac{1}{2}$ a mile) deſcribe the quadrant C A B C, alſo draw A B, and $\perp$ thereto draw C D, cutting A B in E, and the arc of the quadrant in D : then will A E = B E = C E. Next, $\sqrt{AC^2 + BC^2} = 56.568 =$ A B, $\therefore$ 320 ſquare chains (the area of the required Δ) $\div$ B E ($\frac{1}{4}$ A B) $= 11.313$ the $\perp$: which lay off from E to F in the line E D, then draw F G $\parallel$ to A B cutting the arc in G, alſo draw A G, B G, and C G, and the point G will be the required vertex of the Δ ; to find the poſition of which ſay, as C G = 40 : rad. : : C F (C E + E F) = 39.597 : cof. $\angle$ DCG = 8°. 14′. the meaſure of the arc D G ; conſequently the arc B G = 53°. 14′. and the arc A G = 36°. 46′.

Or thus, by Maſter John Rowbottom, Weſt Hallam.

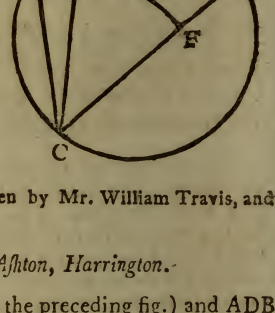
O A B C is the given quad. (ſee fig. to Caſia Broomwott ſolu.) A B C the required Δ, call O C = 880 yards = r ; given area of the Δ = 154880 yards = a; ſine of the $\angle$ B O C = x; then $\sqrt{1 - x^2}$ = cof. B O C which is well known = ſine $\angle$ A O B. Now $\frac{r^2 x}{2}$ = area of the Δ B O C, and $\frac{r^2}{2} \sqrt{1 - x^2}$ = that of A B O; hence $\frac{r^2 x}{2} + \frac{r^2}{2} \sqrt{1 - x^2} = \frac{r^2}{2} + a$; reduced is

$x^2 - \frac{2a}{r^2} + 1 \cdot x = \frac{1}{4} - \frac{a}{r^2} - \frac{a^2}{r^4}$ ſolved by quadratics $x = \frac{1}{2} + \frac{a}{r^2} \pm \sqrt{\frac{1}{4} - \frac{a}{r^2} - 1 + \frac{a}{r^2}}$, in numbers $x = \frac{1}{2} + \frac{1}{5} \pm \frac{1}{10} = \frac{4}{5}$ or $\frac{3}{5}$; hence the arc BC = 815°8629, the poſition required.

Solutions to this queſ. were alſo given by Meſſrs. Joſeph Waters the propoſer, James Aſhton, Mercurius, William Travis, James Stevenſon, William Eaton, Joſeph Saul, Thomas Whiting, Richard Elliot, and John Brookes.

X. QUESTION (105) *anſwered by Mr. John Brookes, Leeds.*

Conſtruction. Draw AB = the given tangent, and thereon deſcribe the ſegment of a circle to contain an angle equal to that which the lines AC, BC given in poſition are to include; and apply CD, ⊥ to CB, the thing will be done.



Remark. The queſtion will be impoſſible when CD is too great to ſtand in the ſegment ABC.

And nearly thus is the anſwer given by Mr. William Travis, and Mr. J. Saul.

Otherwiſe, by Mr. James Aſhton, Harrington.

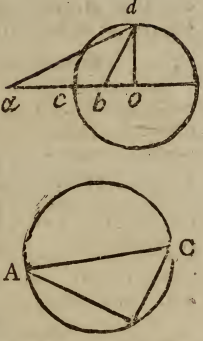
Let EFC be the given ſector (ſee the preceding fig.) and ADB the given tangent. Put a = the radius CE = CD, b = the tangent ADB, t = the nat. tang. of the given ∠ C, or arc EDF, and x = the nat. tang. of the arc ED; then, by prop. 9th, book 1ſt, Emerſon's trig. $1 + tx : 1 :: t - x : \frac{t-x}{1+tx}$ = tan. of the arc FD; then becauſe CD is ⊥ to AB, $1 : a :: x : ax$ = AD; and $1 : a :: \frac{t-x}{1+tx} : \frac{ta-ax}{1+tx}$ = DB; hence $\frac{at-ax}{1+tx} + ax = b$ ∴ $at x^2 - btx = b - at$; or $x^2 - cx = -d$ (by putting $-\frac{b}{a} = -c$ and $-\frac{b-at}{at} = -d$); and $x = \frac{c}{2} = \sqrt{\frac{c^2}{4} - d}$; then one of the roots of this equa. is the tang. of the arc FD, the other of the arc ED.

Mr. Whiting alſo gave an algeb. anſwer.

XI. QUES-

XI. QUESTION (106) *anſwered by Mr. Brookes.*

On any radius of a circle *o c* produced, take *o a* : *o c* in the given ratio of the ſides, and *b c* : *c a* in the ſame ratio; erect the radius *o d* perpendicular to *o c*; join *a d*, *b d* and the triangle *a b d* will be ſimilar to the required one.—For by the Lemma, page 336, Simpſon's Algebra, the ſides *a d*, *b d* are in the given ratio of *a c* : *b c*; and the area will evidently be a maximum, when the ſides *a d*, *b d* are drawn to meet the vertical radius in *d*, the vertex of the circle. Therefore in the given circle inſcribe the triangle A B C, ſimilar to *a b d*, and the thing will be done.

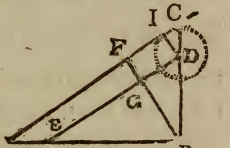


Remark. This queſ. was publiſhed in the Ladies' Diary for 1780, and a falſe ſolution given in 1781; and a true one in 1782, both in L. D. and Carnan's L. D.—Therefore I ſuppoſe Honeſtienſis has an improved ſolution to it, otherwiſe it would not have been republiſhed.

Mr Eaton, jun. alſo gave an algeb. anſwer. Other ſolutions were received, but not right.

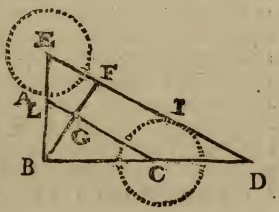
XII. QUESTION (107) *anſwered by Mr. Brookes.*

Take A B equal the longer of the given legs, and perpendicular thereto draw B D equal the other; with center D and the given difference of the perpendiculars as radius deſcribe a circle: From A draw AC to touch the circle in I, and draw D E parallel thereto, produce B D to meet A C in C, and A B C, E B D, will be the triangles required.—For if the perpendiculars B F, D I, be demitted, G F is equal D I, becauſe AC, E D are parallel; and the reſt is evident from the conſtruction.



The ſame anſwered by Mr. Joſeph Saul, Rochdale.

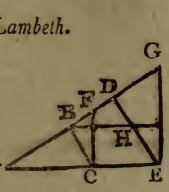
Make B E perpendicular to BC, and reſpectively equal to the given ſides; with the radius equal the given difference of the perpendiculars, and centers E, and C, and deſcribe two circles; then draw two tangents A C, E D, to touch the circles E and C in A and I; ſo will B C L, B E D be the triangles required.



The

The demonſtration is evident from the conſtruction: For if BF be drawn at right angles to E D, will alſo be the ſame to AC; and the part intercepted between them, that is G F, is equal to the radius of each circle.

Otherwiſe, by Mr. Thomas Glanvill, of Lambeth.



Put $a = AC$, $b = GE$, $C = DH$, all of which are given; alſo $x = CE$, and $n =$ nat. ſine $\angle A$, radius $= 1$. Then, $1 : a :: n : na = BC$; and, $1 : a + x :: n : na + xn = DE$ $\because nx = DH = C$; alſo, $\sqrt{\overline{a+x}^2 + b^2} = AG$. Hence $1 : \sqrt{\overline{a+x}^2 + b^2} :: n : b$. By multiplying means and extremes $-n\sqrt{\overline{a+x}^2 + b^2} = b$, and ſrom above $nx = c$, theſe equations reduced will give the values of x and n, as required.

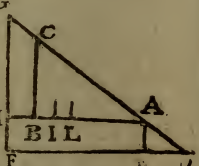
Or Thus, by Mr. James Aſhton, of Harrington.

Put $a =$ the ſhorter leg of the leſs triangle, $b =$ the longer leg of the greater, $d =$ the given diff. of the perpendiculars, and $x =$ the ſhorter leg of the greater triangle; $\sqrt{b^2 + x^2} =$ the hypothenuſe of the greater, $bx =$ double its area, and $\frac{bx}{\sqrt{b^2+x^2}}$ $=$ its perp.: but, as the triangles are ſimilar, we have, as x : $\frac{bx}{\sqrt{b^2+x^2}} :: a : \frac{ab}{\sqrt{b^2+x^2}} =$ the perpendicular of the leſs triangle; whence their diff. $= d$, that is $\frac{bx - ab}{\sqrt{b^2 - x^2}} = d$; and $\overline{b^2 - d^2}.x^2 - 2ab^2x = b^2d^2 - a^2b^2$.

Exam. Let $a = 3$, $b = 8$, $d = 2\frac{2}{5}$ $\because x^2 - \frac{600}{91}x = -\frac{324}{91}$; $x = \frac{546}{91} = 6$.

Mercurius gave a geometrical anſwer; and Mr. William Travis, Mr. William Eaton, jun. algeb. ones.

XIII. Question (108) *anſwered by Mr. Brookes.*



Take the ſquare of the given line from the given magnitude. On A B, the ſum of the two proportionals, conſtruct a right angled triangle, whoſe area ſhall be equal to the rectangle of the ſaid proportionals, viz. B L A: perpendicular to A B, draw AE = the given line, and E D parallel to AB, meeting C A produced in D; to the firſt-mentioned difference add the area DEA, and make the triangle D F G = the ſum, and produce AB to H; divide HA in I, in the given ratio, ſo ſhall H I and I A be the required lines.

The

The anſwer by Mr. Joſeph Saul, Rochdale.

On any line A H, take A L to L B in the given ratio (ſee the preceding fig.) on A B conſtruct a rectangled triangle A B C, equal the rectangle A L . L B: Draw A E ‖ C B, and equal the given line; alſo, draw F E ‖ A H, meeting C A produced in D. Make the right angled triangle D F G = the given area + △ D E A — □ E A, and divide A H in I, in the given ratio of A L to L B; ſo will A I and I H be the lines required.

Demon. The △ A H G is ſimilar to △ A B C, then A I : I H :: A L : L B : the △ A B C = A L . L B ∴ △ A H G = A I . I H; and if to the rectangle A I . I H, the parallelogram H A E F, and the ſquare of A E be added, and the △ A E D be taken away, there will remain the completed rectangle, or given magnitude.

Algebraically by Mr. James Aſhton, of Harrington.

Let the given ratio be as 3 to 4, and x = the ſhorter line, b = the given line to be added to each, and a = the given magnitude: then $3 : x :: 4 : \frac{4x}{3}$ = the longer line; $\frac{4x}{3} + b = \frac{4x+3b}{3}$, hence $\frac{4x+3b}{3} \times \overline{b+x} = a \therefore x^2 + \frac{7b}{4}x = \frac{3a-3b^2}{4}$.

And thus nearly is the anſwer given by Mr James Stevenſon; Meſſ. Harriſon, Mercurius, Richards, Apollo, Spendthrift, and Broadtime, gave elegant algeb. anſwers.

XIV. Queſtion (109) *anſwered by Mr. T. Glanvill, of Lambeth.*

By experiment, the length of an organ pipe, ſounding D, two octaves below D, in the middle of the open diapaſon, was found 21.6 inches, and its diameter 1.9 inch; then the ratio of D to C (or an 8th + 7th) being 5 : 18 or $\frac{5}{18}$, and of D to A (or 2 8ths + 5th) = .775 the breadth of a pulſe, or wave of air of each ſtring ſounding C and B reſpectively.

To find the diſtance of time between each beat,

Let N = 232.96 the vibration of C; $\frac{n}{m} = \frac{3}{5}$ the ratio of a 6th. $\frac{q}{p} = \frac{1}{5}$ of a comma; then $\frac{161p+q}{2q} + \frac{1''}{mN} = .346$ parts of a ſecond, the diſtance of time between each beat, and alſo the length of a period of the leaſt imperfections.

To find the length of a cycle of the pulſes,

If A B : ab :: 403 : 402, the interval of theſe ſeconds, is $\frac{1}{5}$ of a comma nearly; and the vibrations of imperfect 6ths being 5 A B, and $5 \times 3ab$; then, as 15 A B : 15 ab :: 403 : 402, whence $402 \times 15\,AB = 403 \times 15\,ab = 2430090$, the length of a cycle of pulſes. Laſtly, the cycles and periods of pulſes are nearly the ſame length, whether the temperaments be ſharp or flat. Smith's Harmoniacs, p. 106.

XV. Ques-

XV. Question (110) *anſwered by Mr. Brookes, of Leeds.*

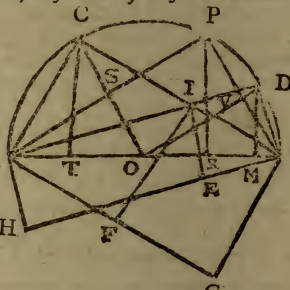
In the 22d art. of Dr. Hutton's Mathematical Miſcellany, the late ingenious Mr. William Wilkin has ſhown that the ſum of the infinite ſeries $\frac{x}{1.4} + \frac{x}{2.5} + \frac{x}{3.6} + \frac{x}{4.7}$, &c. ad infinitum is $= \frac{11x}{18}$; alſo it is evident that the ſecond ſeries is the unciæ, or co-efficients for the binomial theorem, and therefore if n be any affirmative integer the ſeries will terminate.—Suppoſe $n = 6$, then $1 + n + n \cdot \frac{n-1}{2}$, &c. $= 1 + 6 + 15 + 20 + 15 + 6 + 1 = 64$. Therefore $\frac{11x}{18} = 64$, and $x = 104\frac{8}{11}$.—After the ſame manner the ſum of any other number of terms may be found.

The ſame anſwered by Maſter John Rowbottom.

The ſum of the infinite ſeries is $\frac{11x}{18}$, and the ſum of the n terms of the other ſeries is evidently $= \overline{2}^n - 1 =$ by the queſ. $\frac{11x}{18}$; hence $x = \frac{18.\overline{2}^n - 18}{11}$.

This queſ. was ingeniouſly anſwered by Mr. Jonathan Mabbott, of Oldham, Lancaſhire.

XVI. or Prize Question (111) *anſwered by Caſia Broomwott.*



Demon. Let ACPB be the ſemicircle, O the cent, AP, PB the two parts; biſect AP, PB in C and D; and draw the lines as in the laſt year's fig. Let fall the ⊥'s CT, PR and DM, upon the diam. AB, join PB, PA, and draw the radii OC, OD. In the △'s OCT, OAS are the ∠'s T, and S right ones, CO = AO, and the ∠ O common ∴ AS = CT; and by the ſame reaſoning BV = DM; then by ſim. △'s AB : BP :: BP : BR, and AB : AP :: AP : AR, but 2AS = AP, and 2BV = BP ∴ AB . BR = $\overline{2BV}^2$ and AB . AR = $\overline{2AS}^2$. Now $\overline{AB}^2 . \overline{CT}^2$ = ſquare of the double area of the △ ACB = $\overline{2AO}^2 . \overline{AS}^2 = \overline{AO}^3 . 2AR$; and by the ſame way of reaſoning $\overline{AO}^3 . 2BR$ = that of the △ ABD; but AR = AO + OR, and BR = AO − OR; conſequently $\overline{AO}^4$ = the ſum of the ſquares of the △'s ACB, and ADB.

Again,

Again, the $\angle$ CAP = CBP = ABC, and DAB = PAD becauſe PC = AC, and PD = DB by the queſ. but the $\angle$ CAD = CAP + PAD = CBA + BAD = AIC; conſequently CI = CA, and the $\angle$ ACI a right one ∴ CAIF is a ſquare, and by the ſame reaſoning BDIE is a ſquare. Again, the rectangle IH = IE . AI = IE . IF $\sqrt{2}$, and the rectangle IG = IF . IB = IE . IF . $\sqrt{2}$. Q. E. D.

The ſame anſwered by Mr. John Fildes, Schoolmaſter, Liverpool.

Conſt. In addition to the figure of the Diary, from the points C and D, let fall the perpendiculars CT and DM (vid. the fig. above) upon the diameter AB; and from the center O, draw the radii OC and OD.

Demon. As the arc CPD is = $\frac{1}{2}$ the arc APB of the ſemicircle, the L COD will be a right angle, and the Δ's COT and ODM will be ſimilar: and ſince CO = DO, the other two ſides in each Δ will be reſpectively equal; that is CT = OM, and TO = DM.

Next, the area of the Δ ACB = AO ($\frac{1}{2}$ the baſe AB) × CT, and that of the Δ ADB = AO × TO (DM); ∵ the ſum of the ſquares of the areas will be $\overline{AO^2 \times CT^2 + AO^2 \times TO^2}$ = $AO^2 \times \overline{CT^2 + TO^2}$ (CO^2 or AO^2) = AO^4. Q. E. D. Again, the L CAD being = $\frac{1}{2}$ the right angle COD, and the $\angle$ ACB a right angle; the L CAI will be = the L CIA, and the ſide AC = the ſide CI: conſequently ACIF muſt be a ſquare. Laſtly, AI × IE (ID) = IF (CI) × IB; that is the rectangle AIEH = BIFG. Q. E. D.

Or thus, by Mr. Brookes, Leeds.

Upon the diameter AB, demit the perpendiculars CT, DM: (ſee the preceding fig.) Now becauſe the ſum of the arcs AC + BD is equal a quadrant, they are complements to each other, and it is well known, that *ſine ſquare* + *coſine ſquare* is = radius ſquare, i. e. $CT^2 + DM^2$ = radius ſquare. Moreover it is evident, that the ſum of the areas of the triangles ACB, ABD is = CT × $\frac{1}{2}$ AB + DM × $\frac{1}{2}$ AB = $\overline{CT + DM}$ × radius, and the ſum of the ſquares of theſe areas is = $\overline{CT^2 + DM^2}$ × $\overline{rad.}^2$ = $\overline{rad.}^4$, becauſe $CT^2 + DM^2$ = $\overline{rad.}^2$. Again, becauſe CD is a quadrant, and the angles ACB, ADB are right angles, the L CAD = L CBD = L AIC = L BID = half a right angle: therefore AC = CI, DI = DB, and AICF, BDIE are ſquares.

Laſtly, the rectangles AE and BF are reſpectively compoſed of the ſide of one ſquare, and the diagonal of the other, and conſequently are equal one to the other, Q. E. D.

Mr.

Mr. Richard Elliott, of Liverpool, gave the following anſwer.

Let O be the center of the ſemicircle (vide Caſia Broomwott fig.) Demit the perpendiculars CT, DM on the diameter AB; then it is plain the $\angle COT = ABP$, $\angle T = \angle P$, and conſequently the $\angle TCO = \angle PAB$; therefore the $\triangle$'s TCO, PAB, being equiangular, we have $CO : TO :: AB (2CO) : PB (2TO)$. Now the chord of any arc being = to twice the ſine of half that arc, the $\perp DM$ (ſine of $\frac{1}{2}$ arc $PDB) = TO$, from which it appears that the $\triangle$'s TCO, ODM, are equal in every reſpect, that is $CO = OD$, $TO = DM$, and $CT = OM$; then the area of $\triangle ACB = AO \times CT$, and $ADB = AO \times DM$; the ſum of the ſquares of the areas $= AO^2 \times \overline{CT^2 + TO^2} (DM^2) = AO^4$; for $CT^2 + TO^2$ is evidently $= CO^2 = AO^2$. Again, the $\angle PBC = CBA$, $\angle P = ACB$, the remaining $\angle$'s BSP (CSA) and CAB muſt be equal; hence the $\angle CIA = BAD + CBA = PAD + CAP = CAD$, and $AC = CI$; in the ſame manner $ID = BD$; therefore ACIF and BDIE are evidently ſquares. Laſtly, as the $\triangle IBA$ is equal to $\frac{1}{4}$ IFGB, by adding $\triangle IDB$ to both ſides, and multiplying by 2. $ADBH = IBFG + IEBD$, or $ADBH - IEBD$ (IAHE) $= IBFG$. Q. E. D.

Mr. Waters, the propoſer, Mr. Aſhton, Mr. R. Carliſle, and Mr. Saul, alſo gave ingenious ſolutions.

NEW QUESTIONS.

I. Question (112) *by Amo Zythum.*

Given the rectangle of the ſines of the acute angles of a right-angled triangle (to the rad. 1.) equal $\frac{12}{25}$, and the continual product of the ſides equal 480: what is the area of the triangle?

II. Question (113) *by Juveniencis.*

Given the ratio of the parallel ſides AB, ED of a trapezoid, as 5 to 3; and their diſtance AE equal 100 yards; and if BD, AE be produced to C, the area of the $\triangle EDC$ ſo formed equal 1210 yards: required the area of the trapezoid ABDE.

III. Question (114) *by Mr. Stevenſon, Heath, near Cheſterfield.*

Given $100 \sqrt{105}$ equal the area of a trapezium, whoſe ſides are in arithmetical progreſſion, whoſe common diff. is 5; to determine the ſides.

IV. Question (115) *by James Aſhton, of Harrington.*

Given the reſpective lengths of the two arms of a pair of ſcales, equal $6\frac{6}{7}$ and $5\frac{1}{7}$, and the true weight of the goods equal 48lb; to find what the ſame goods will weigh in each end of the ſcales reſpectively.

V. Question (116) *by Mr. John Fildes, of Liverpool.*

Given the three ſides of a triangle, $AB = 20$, $AC = 18$, and $BC = 15$; now if the angles be biſected by the lines AD, BE, and CF, each

$= 6$, and DE, DF, and EF be drawn: it is required to find the area of the triangle DEF.

VI. QUESTION (117) *by Mr. Aſhton.*

It is required to divide an arc of a circle of 75°. into two parts, ſuch that the ſine of the leſs arc may be eq. to 1-3d of the tang. of the greater.

VII. QUESTION (118) *by Maſter John Rowbottom, of Weſt Hallam.*

Kind Gents, a new Friend—to your Di'ry doth ſend,
A queſtion that puzzles my brain;
In hopes the old ſages—in your learned pages,
To me will the anſwer explain.
Its from a young lad—who is puzzled by's dad,
With th' equations hereunto ſubjoin'd;
And many an hour—I've exerted my pow'r,
But ne'er yet an anſwer could find.
Beſides, thus he ſaid—all gueſs work evade,
And by a true method obtain,
Both z, x, and y.—But if you'll not try,
They muſt ſtill in dormant remain.

Given $y^{\frac{8}{3}}z^{\frac{1}{2}} + y^{\frac{7}{3}}z + y^2x^{\frac{3}{2}} + yz^3 + y^{\frac{2}{3}}z^{\frac{7}{2}} + y^{\frac{1}{3}}z^4 = 46431924$
$= ay^{\frac{4}{3}}z^{\frac{1}{2}} + 2yz + 2y^{\frac{2}{3}}z^{\frac{3}{2}} + y^{\frac{1}{3}}z^2 = 28644\overline{z^{\frac{1}{2}} + y^{\frac{1}{3}}}^3 + \overline{z^{\frac{1}{2}} + 2y^{\frac{1}{3}}}^3 + \overline{z^{\frac{1}{2}} + 3y^{\frac{1}{3}}}^3$ &c. to x terms $= 1771856$. Where x repreſents my age in years, y the days, and z the hours.

VIII. QUESTION (119) *by Enveſſent*

There is an octagonal priſmatic ciſtern, that contains 160 ale gallons; whoſe internal ſurface is a minimum; now if it be filled with water, it will exhauſt through an aperture in the baſe in 5 minutes: from the data here given, it is propoſed to determine the ciſtern's internal dimenſions, and area of the aperture.

IX. QUESTION (120) *by Mr. Joſeph Waters, Graves Lane.*

To determine the leaſt whole number, that being divided by n, leaves a; but if divided by $n + 1$, leaves b remaining: where n, a, and b are ſuppoſed three given integers, of which n is greateſt, and b the leaſt.

X. QUESTION (121) *by Mr. Wm. Marſden. Netherhurſt.*

One day, as I upon the ſcale was muſing,
And diatonic harmony peruſing;
Two intervals appeared ſtraight to view,
Whoſe ſum in half notes made an octave true;
The leſs ſquar'd once, the greater twice, muſt be,
Their product next the greateſt you will ſee;
From hence theſe intervals be pleas'd to know.
Their ratio alſo ſhould be glad to ſhew,

XI. QUESTION (122) *by Mr. Fildes.*

If the length of a ladder be twenty-five feet,
It will reach from the edge of a moat near our ſtreet,
To the top of a wall on the oppoſite ſide;
But the ladder, if you at the lower end ſlide,
Juſt eight feet from the moat, the top four feet will fall;
Now from theſe being known, both the height of the wall,
And the breadth of the moat, I requeſt you to tell,
By geometry only; and you'll pleaſe me well.

XII. Question (123) *by Mr. Joſeph Saul, of Rochdale.*

In any right angled △ ABC, if the perpendicular be produced to D, ſo that the hypoth. AD = the ſum of AC and BC, and if a ⊥ BF be demitted from B to AD, the ſegment FD will be = to twice BC: required a demonſtration.

XIII. Question (124) *by Caſia Broomwott.*

Being one night in company ſeated quite ſnug,
With a chearful companion, a glaſs, and a jug;
A conical fruſtum the glaſs ſeemed to be,
All th' dimenſions we know in the margin you'll ſee†.
A circular table, horizontal and true;
The diameter of which appears to your view*.
I took up the glaſs (while relating a fable)
And carelefsly laid it along on the table;
The poſition thereof was unluckily ſuch,
That the top and the bottom the edge did juſt touch‖.
It roll'd ſix times over; then fell to the floor,
Cutting off from the table ſo much‡ and no more.
Now the glaſs it being broken, for it I muſt pay,
And my landlord came into this meaſure ſtraightway,
For each cubic inch in the glaſs I ſhould give,
Four ſeventhſ of a penny which he would receive.
But neither my landlord nor friend could find out,
The value of the glaſs. But you without doubt,
Will give the content, that the price we may know,
I'd rather it were fictious than really ſo.

† Bottom diam. 2 inches; ſide 4 inches.
* 44.05906 inches.
‖ Circum. of the top and bottom of the glaſs touched the edge of the table.
‡ 50.147164 inches from the circum. of the table meaſuring from the top of the glaſs.

XIV. Question (125) *by Jon. Mabbott, of Oldham, Lancaſhire.*

The fluxional expreſſion $\left(\frac{n-1}{abcd, \&c.} \times \overline{r z^{n-2} \dot{z} - z^{n-1} \dot{z}}\right)$ given at page 110, of Simpſon's Annuities: required the fluent thence derived.

N. B. This queſtion was propoſed in a periodical work publiſhed ſome years ſince; but a much more elegant inveſtigation of the fluent here required, than any that hath hitherto appeared.

XV. Question (126) *by Caſia Broomwott.*

Required an inveſtigation of the general rule given in my ſolution to queſtion 6th.

XVI. Prize Question (127) *by Mr. John Brookes, Leeds.*

ABC is a triangle whoſe angles at the baſe are both acute. Now if a right line proceed from D, the middle of the baſe, making an angle therewith equal to the complement of half the difference of the angles at the baſe, and perpendiculars BG, CH be demitted thereon from the angular points B and C, and CD joined: I ſay the triangles DGB, DHC will be equal. Required a demonſtration.

☞ *All Letters for the uſe of this Diary are deſired to be directed thus:* Cotes and Hall, to be left at Mr. Drewry's Printer, in Derby (poſt paid) *to come to hand before the firſt of May.*

FINIS.