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entleman's Diary

# MATHEMATICAL REPOSITORY; AN ALMANACK

FOR THE YEAR OF OLR LORD

# 1816:

BISSEXTILE OR LEAP-YEAR.

Containing many useful and entertaining Particulars, poculiarly adapted to the ingenious Gentlemen engaged in the delightful Study and Practice of the

MATHEMATICKS.

The Seventy-sixth ALMANACK published of this Kind; and the Sixty-sixth of the NEW STYLE in ENGLAND.

> The Hand of Nature on peculiar Mark Imprints a different Bias; and to each Decrees its Province in the common Tet To some she taught the Fabrick of Article The golden Zones of Heaven: to some the fore To weigh the Moment of Eternal Thing Mula Mark Of Time, and Space, and Fate's unbroken Classific And Will's quick Impulse. AKENSIDE.

LONDON : PRANTED FOR THE COMPANY OF STATIONERS, By Nichola, Son, and BENTLEY, Rod Lion Pausage, Fleet Street :... And Sold by GEORGE GREENHILL, Tressurer to the Company,

at their Hall, LUBGATE STREET. 1816.

Two Shillings and Three Ponce stilched.]

E-C-L-I-P-9-E-S,--1816.-

# JANUARY Judy XXX 1988

Bun with be centrally colipsed on the meridian at 2h. 484 nu in the morning, in lat. 584 52', S. lon. 1384 264' E.

Four; viz. Two of the Sua, and two of Sis. Moonak

2d. June 9th and 10th. An eclipse of the Moon. Beginning of schipser 11h. 30m. P. M. Beginning of total darkness 0h. 39m. A. M. Middle. of the Eclipse 1h, 15m. Ecliptic opposition 1h. 19m. End of foral larkness 1h. 51m. End of the Eclipse, 3h. Digits eclipsed 14d 56' from South side of the Sun's shadow.

3d. November 19th. A visible eclipse of the Sun. Beginning of the eclipse Sh. 18m. morning. Greatest obscuration 9h, 24m. Visible tonjunction 10h. 23m. End 10h. 34m. Digits eclipsed 94 23' on the North limb. ) makes first impression ou Sun's disk at 59° from his vertex on the right hand.

4th. December 4th. Another visible sclipse of the Moon. Beginning of the Eclipse 7b. 15m. afternoon. Middle 8h, 44m. Ecliptic toposition 8h. 51m. End of the Eclipse 10m. 14m. Digits scolipsed 8d on D's South limb.

Vanus will be a Morning star till the 31st of July; then an Evening star to the Year's end.

JUPITER will be a Morning star till the 25th of April; then are Evening star till the 13th of November; afterwards a Morning star to the end of the Year.

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 $*_{\frac{1}{2}}$  The last column in each page of the Calendar shews the mean beight of the Barometer and of Fahrenheit's Thermometer, near London, on each day in the year 1814.

The Editor begs to thank Mr. Reynard for presenting him with a copy of h s work entitled Geometria Legitima.

Mr. Professor Leybourn's republication of the Mathematical parts of the Ladies' Diary, up to the present time, in four 8vo volumes, will be pub-'lished about the end of the year. No. 14 of his Mathematical Repository -'le just published.

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Letters must, as usual, be franked or post-paid, directed To the Author of the Gentleman's Diary, Stationers' Hall, London, and strive before the 1st of May 1816.

JANUARY Hath XX	XI Day	s.	M	J Decl South
Full Moon 15 (Day at ) 1	47 m. Afte 18 Mor	wing.	1	230 30
od i LastiQuarter 21 ( Day at ) 4		moon.		21 50
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2 F Rain in Jan. 1814, 401 inc.		<del>2</del> 25 3 10		9 <sup>.</sup> 8-30 9 <b>.6-</b> 31
4 T Day 7 h, 58 m. long,	8 58	3 53	5 2	9-4-29
5 F K B. P. D.	()	4 35 5 15		9·1-32 9:3-24
1.7 Giz.a.L. G. Do. Oh. of A.b		5, 56		9.6-19
SM Lucian. Plough Monday.		6 37 7 21		9 <b>·7-21</b> 9· <b>7-1</b> 8
10W. Abp. Laud beheaded, 1645.				9:7-21
41 r T Str Hans Sloane died, 1752		9 0	12/30	0 8-22
. 13 S Hilary, Cam, Term begins.		• • • •		9` <b>8-22</b> 9` <b>4-2</b> 5
14 S. al. Oxf. Term b.	7 401		- 1	9 4-27
15 M Pondicherry surrendered. 16 T Sir John Moore slain.		norn. 1 0		9° <b>2-20</b> 9`4-27
17 W Battle of Falkirk, 1746.	.7 27	2 0	18 2	9 2-20
18 T O. Ch. E. thank, Prisca. 19 F	r - 1			9 <b>·1-33</b> 9 <b>·2-</b> 31
20 5 Fabian. In 84. of St. Hil. 1 r.	11 38	4 39	81 2	9.6-23
21 C ed Son of Esch. Agnes. 22 M Vincent.		-		9 <b>·7-19</b> 9·8-20
23 T Hilary Term begins.	2 15	7 5		9.7-25
24 W Fire ut Custom House, 1715. 25 T Couversion of St. Paul.	3 31	$7^{-55}$		9·8-29 9· <b>7-2</b> 8
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Author pro the <u>ECLIPSES, 1816.</u>

JANUARY Look バメント Plan

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est. May 27th. An eclipse of the Sun invisible at Greenwich. I The Sun will be centrally eclipsed on the meridian at 2h. 481m. in the morning, in lat. 58d 52'S. lon. 138d 264'E.

Four: viz. Two of the Sua, and two of the Moone

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13.5       8         14       9         15.M       Fester Day, 1         15.M       Fester Monday, 11         16.T       Fester Monday, 11         17.W       0         17.W       0         18.T       1         19.F       Alphege. 2         20.S       3         21.F       1st Suin, af Easter, Low S         32.1F       1st Suin, af Easter, Low S         32.8       Henry VII. died, 1509.         23.7       St. George. 4         24.W       Oxf, and Camb, Terms b.         25.F       St. Mack: Pre. Mary Forn 4         26.F       4         27.S       2         28.F       2d Sunday after Easter, 9         29.M       From East, in 15 days 1 r. 9	Afternoor Morning, Morning, Afternoor 31 2 4 44 3 3 rn. 4 2 56 5 1 0 6 1 53 7 1 38 8 1 11 9 1 38 10 0 10 5 20 11 5 53 0 A 9 1 5	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
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94 T St. Ambrose.       0         15 E Camb. Term ends.       2         16 S Oxf. Term ends.       2         17 P Ch S. n.iz Lent. Palan S       3         18 M Edward IV. died, 1483.       4         19 T May 13h. 34 m. long.       5         11 T Mayndy Thursday.       5         12 F Good Friday.       10         13 S C       8         14 9 Paster Day.       10         15 M Easter Monday.       11         16 T Francedey.       10         17 W Easter Monday.       11         16 T Francedey.       10         17 W Easter Monday.       11         19 F Alphege.       2         90 S       3         21 F Det Sun af Easter. Lew S       3         22 M Henry VH. died, 1509.       3         23 T St. George.       4         24 W Oxf. and Camb. Terms b.       4         25 T St. Mark. Pro. Mary Form       4         26 F       27         27 S T       0         28 F 20 Sunday after Easter.       8         29 M From East. in 15 days 1 r.       9	56       5       1         0       6       1         53       7       1         38       8       1         38       10       1         38       10       5         9       1       5         9       1       5	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	ショー・ショー ゆうゆう かん かいしょう しょう しょうしょう
56 E Camb. Term ends.       2         56 S Oxf. Term ends.       2         57 P Cth S. n.in Lent. Palm 5       3         58 M Edward IV. died, 1483.       4         59 T       4         10 W Day 18h. 34 m. long.       5         11 T Maundy Thursday.       5         12 F Good Friday.       10         13 S       8         14 9 Faster Day.       10         15 M Fester Monday.       11         16 T Master Theodey.       11         17 W       0         18 T       10         19 F Alphege.       2         20 S       3         21 F Let Sun af Easter. Low S       3         22 M Henry VII. died, 1509.       3         23 T St. George.       4         24 W Oxf. and Camb. Terms b.       4         25 T St. Mack: Pro. Mary born.       4         26 F       2         27 S       5         28 F 2d Sunday after Easter.       8         29 M From East. in 15 days 1 r.       9	0 6 1 53 7 1 38 8 1 11 9 1 38 10 0 10 5 20 11 5 ises. more 53 0 4 9 1 5	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	- 「「「「「「」」」」」「「」」」」」
66       S       Oxf. Term ends.       2         17       P       Cth S. m.in Lont. Paint S       3         18       M. Edward IV. died, 1483.       4         19       T       4         10       W Day 13h. 34 m. long.       5         11       T       Maxndy Thursday.       5         12       F       Good Friday.       5         12       F       Good Friday.       5         13       S       8       8         14       F       Faster Day.       10         15       M. Esster Monday.       11       11         16       T. Gester Troodey.       11       11         17       M. Esster Monday.       11       11         17       M. Esster Monday.       11       11         17       M. Esster Monday.       11       14         17       W. Esster Monday.       11       14         17       W. Esster Monday.       11       14         17       W. Esster Troodey.       11       14         17       W. Esster Monday.       14       14         17       W. Esster Monday.       15       33	53       7       1         38       8       1         11       9       1         38       10       5         00       10       5         20       11       5         ises.       morn         53       0       4         9       1       5	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
7:12       6th S. m.in Lent. Dain S       3         88       M. Edward IV. died, 1483.       4         19:17       4       4         10:W Day 18.h. 34 m. long.       5         11 T. Maundy Thursday.       5         12:F. Good Friday.       5         13:S.       8         14:9. Raster Day.       10         15:8. Rester Monday.       10         15:9. Hester Monday.       11         16:T. Faster Day.       10         17:W. Bester Monday.       11         17:W. Bester Monday.       11         17:W. Bester Monday.       11         16:T. Faster Day.       11         17:W. Bester Monday.       11         19:F. Alphege.       20         19:F. Alphege.       22         19:S. S.       3         21:F. Ist Sun af Easter, Low S       3         23:T. St. George.       4         24: W. Oxf. and Camb. Terms b.       4         25: F. St. M. dt.: Pre. Mary Form.       4         26: F. St. M. dt.: Pre. Mary Form.       4         26: F. 20: Sunday after Easter.       9         29: M. From East. in 15 days 1 r.       9	38     8       11     9       38     10       38     10       9     1       38     10       53     0       9     1	$\begin{array}{c} 13 \\ 10 \\ 30 \\ 1-52 \\ 0 \\ 11 \\ 30 \\ 2-47 \\ 5 \\ 51 \\ 30 \\ 1-53 \\ 0 \\ 59 \\ 13 \\ 30 \\ 1-53 \\ 0 \\ 59 \\ 13 \\ 30 \\ 1-53 \\ 0 \\ 59 \\ 1-53 \\ 0 \\ 59 \\ 1-53 \\ 0 \\ 1-53 \\$	
is! M. Edward IV. died, 1483.       4         is! T. Mayndy Thursday.       5         i1 T. Mayndy Thursday.       5         i2 F. Good Friday.       5         i2 F. Good Friday.       10         i5 M. Fester Day.       10         i5 M. Fester Monday.       10         i5 M. Fester Monday.       11         i6 T. Fester Monday.       11         i7 W.       0         i8 T.       11         i9 F. Alphege.       2         i0 S.       3         21 F. Let Sun af Easter. Low S.       3         22 T. St. George.       4         23 T. St. George.       4         24 W. Oxf. and Camb. Terms b.       4         25 F. St. Mark: Pre. Mary Form.       4         26 F.       5         27 S.       5         28 F. 20 Sunday after Faster.       9         29 M. From East. in 15 days 1 r.       9	11     9     1       38     10     5       90     10     5       20     11     5       ises.     morr       53     0     4       9     1     5	10 11 30 2-47 5 5 12 30 1-48 6 59 13 30 1-53 0 52 14 29 9-49 0 n. F 29 8-55 0 45 16 29 7-58 0 39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 25 20 29 4-51 0	1
is! M. Edward IV. died, 1483.       4         is! T	38 10 0 10 5 20 11 5 ises. morn 53 0 A 9 1 5	5 12 30 1-48 6 59 13 30 1-53 0 52 14 29 9-49 0 n. F 29 8-55 0 45 16 29 7-58 0 39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 25 20 29 4-51 0	•
10       W Day 18h. 34 m. long.       5         11       T Maundy Thursday.       5         12       F Good Friday.       5         13       S       8         14       F Good Friday.       10         15       M Fester Day.       10         15       M Fester Monday.       11         16       T Fester Monday.       11         17       W Order Product.       11         17       W Order Product.       11         17       W Order Product.       11         19       F Alphege.       2         18       T Form VII. died, 1509.       3         23       T St. George.       4         24       W Order and Camb. Terms b.       4         25       F St. Mark: Pre. Mary Form.       4         26       F 2d Sunday after Faster.       9         25       F 2d Sunday after Faster.       8         29       M From East. in 15 days 1 r.       9	0 10 5 20 11 5 ises morn 53 0 A 9 1 5	59 13 30 1-53 0 52 14 29 9-49 0 n. F 29 8-55 0 45 16 29 7-58 0 39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 25 20 29 4-51 0	
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11       T       Maundy Thursday.       5         12:       F       Good Friday.       91         13:       S       8       10         14:       9       Faster Day.       10         15:       M Esster Monday.       11         16:       T       Faster Monday.       11         17:       W       0       0         17:       W       0       0         18:       T       12       11         19:       F       Alphege.       2         90:       S       3       2         14:       9:       F Alphege.       2         9:       S       14       9:         17:       W       0       3         18:       T       14:       9:         19:       F Alphege.       2       3         20:       S       .       3         23:       T St. George.       4       4         24:       Woxf. and Camb. Terms b.       4         26:       F       25:       .         25:       F       24:       .       .         26:       F <td>20 11 5 ises. morn 53 0 A 9 1 3</td> <td>52 14 299-49 0 n. F 29 8-55 0 45 16 29 7-58 0 39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 25 20 29 4-51 0</td> <td></td>	20 11 5 ises. morn 53 0 A 9 1 3	52 14 299-49 0 n. F 29 8-55 0 45 16 29 7-58 0 39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 25 20 29 4-51 0	
122       F       Good Friday.       D1         133       S       8         141       9       Fraster Day.       10         155       M Esster Monday.       11         165       M Esster Monday.       11         167       Fraster Tradedy.       11         177       W       0         187       Henry Childed.       1509.         29       M Henry VII. died.       1509.         23       St. George.       4         24       Woxf. and Camb. Terms b.       4         26       F       St. Mark. Pre. Mary Form         26       F       Mark. Pre. Mary Form         27       S       D         28       F       24         29       M From East. in 15 days 1 r.       9	53 0 A 9 1 3	45 16 29 7-58 0 39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 26 20 29 4-51 0	
13       St       8         14       16       Mirster Day, 1       10         15       Mirster Monday, 11       11         16       Totaster Frodey, 11       11         17       W       0         18       Totaster Frodey, 11       11         19       F Alphege, 22       11         19       F Alphege, 22       12         10       St.       33         21       14       15         14       15       16         15       15       16         20       St.       33         23       T. St. George, 23       4         24       Woxf, and Camb, Terms b, 4       4         25       T. St. Mark: Pre, Mary Form 4       4         26       F       10         25       F. 2d. Sunday after Faster, 39       30         26       F. 2d. Sunday after Faster, 39       30         29       M. From East, in 15. days 1 r.       9	53 0 A 9 1 3	45 16 29 7-58 0 39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 26 20 29 4-51 0	
14       9       Faster Day, 1       10         15       M Exster Monday, 11       11         16       T Paster Monday, 11       11         17       W       0         17       W       0         18       T       1         19       F Atphege.       2         90       S       3         21       F 1st Sun, af Easter, Low S       3         22       M Henry VH. died, 1509.       3         23       T St. George.       4         24       W Oxf. and Camb. Terms b.       4         26       F       4         27       S       9         28       F 2d Sunday after Easter, 8       9         29       M From East, in 15 days 1 r.       9	91.8	39 17 29 6-56 5 34 18 29 4-57 5 29 19 29 3-56 0 26 20 29 4-51 0	
15       M Exster Monday.       11         16       T Gaster Tuesday.       m         17       W       0         18       T       1         19       F Alphege.       2         20       S       3         21       J et Suin af Easter. Low S       3         22       M Henry VII. died, 1509.       3         23       T St. George.       4         24       W Oxf. and Camb. Terms b.       4         25       T St. Mark: Pre. Mary Forn.       4         26       F       4         27       S       D         28       F 20       Sunday after Easter.       8         29       M From East. in 15 days 1 r.       9		34 18 29 4-57 5 29 19 29 3-56 0 25 20 29 4-51 0	
161 Thickster Threadey.       m         17 W       0         18 T       1         19 F Alphege.       2         20 S       3         21 F 1st Suin. af Easter. Low S       3         22 M Henry VII. died, 1509.       3         23 T St. George.       4         24 W Oxf. and Camb. Terms b.       4         25 T St. Mark. Pro. Mary born.       4         26 F       2         27 S       2         28 F 2d Sunday after Easter.       8         29 M From East. in 15 days 1 r.       9	28 2 . 3	<b>2</b> 9 19 29 3-56 0 25 20 29 4-51 0	
17/1W       0         18/17       1         19/17       1         19/17       1         19/17       1         19/17       1         19/17       1         19/17       1         19/17       1         19/17       1         19/17       1         19/17       1         20/17       1         21/17       1         21/17       1         22/17       1         23/17       St. George.         24/17       1         25/17       5         26/17       1         26/17       1         27/18       1         28/17       1         29/17       1         29/17       1         29/17       1         29/17       1         29/17       1         29/17       1         1       1         29/17       1         29/17       1         29/17       1         29/17       1         20/17       1         20/17		25 20 29 4-51 0	
18       T       1         19       F       Alphege.       2         90       S       3         21       F       1st Sun af Eester. Low S       3         23       T       St. George.       4         23       T       St. George.       4         24       W Oxf. and Camb. Terms b.       4         26       F       4         27       S       5         28       F       2d         29       M.From East. in 15 days 1 r.       9			
19       F Alphege.       2         90       S       3         21       F 1st Sun, af Eester, Low S       3         23       T St. George.       4         24       W Oxf. and Camb. Terms b.       4         25       T St. George.       4         26       F       4         26       F       4         27       S       9         28       F 2d Sunday after Easter, 9       9         29       M. From East. in 15 days 1 r.       9		20176112913-192106	
100       S       3         21       F       1st Suin, af Eester, Low S       3         22       M       Henry VII. died, 1509.       3         23       T       St. George.       4         24       W Oxf. and Camb. Terms b.       4         25       T       St. George.       4         26       F       4       4         27       S       9       9         26       F       20       9         27       S       9       9         26       F       20       9         27       S       9       9         26       F       20       9         27       S       9       9         28       F       20       9         29       M       From East. in 15       days 1 r.         29       M       From East. in 15       days 1 r.		13 22 29 6-53 5	- (
21         F         1st Suin.af Ecster. Low S         3           22         M         Henry VH. died, 1509.         3           23         T         St. George.         4           24         W Oxf. and Camb. Terms b.         4           25         T         St. Mark. Pro. Mary Form.         4           26         F         4           27         S         0           28         F         0         9           25         F         9         9	20 0	323296-580	
23 M Henry VII. died, 1509.         3           23 T St. George.         4           24 W Oxf. and Camb. Terms b.         4           25 I St. Mack. Prs. Mary Forn.         4           26 F         4           27 S         5           28 F 2d Sunday after Easter.         8           29 M From East. in 15 days 1 r.         9		5024297-505	1
<ul> <li>23 T St. George.</li> <li>24 W Oxf. and Camb. Terms b.</li> <li>25 T St. Mack.: Prs. Mary Forn.</li> <li>26 F</li> <li>27 S</li> <li>28 F 2d Sunday after Easter.</li> <li>29 M From East. in 15 days 1 r.</li> </ul>		34 25 29 8-46 0	Ì
24 W Oxf. and Camb. Terms b. 4 25 I St. Mark: Prs. Mary Forn. 4 26 F 27 S 28 F 2d Sunday after Easter. 8 29 M From East. in 15 days 1 r. 9	1	16 26 29 8-50 5	ļ
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27 S 28 F 2d Sunday after Easter. 8 29 M From East. in 15 days 1 r. 9		<b>3</b> 8 20 29 0-45 3 <b>19 29 30 0-44 0</b>	1
28 F 2d Sunday after Easter. 8 29 M From East. in 15 days 1 r. 9			k.
29 M From East. in 15 days 1 r. 9			· · · · · · · · · · · · · · · · · · ·
	1	47 1 30 1-47 5	By K
	A11 *	35 2300-530	- <u>P</u> -
BO T Battle of Fontenoy, 1745. 10		26 3 30 0-53 0	
			1
		Jupiters Mars S	- 316.
H 5 30 6 30 3' 57" 3 38 6	54 2 E. Saturn S	1 1	Jun .
	54 2 E. Saturn S 5 8 m 53	1 m 44 4 a 18	No.
	54 2 E. Saturn S 5 8 m 53 1 8 35	1 . 24 4 13	Ra / 10 55
	54 2 E. Saturn S 5 8 m53 1 8 35 7 8 18	$1 \cdot 24 + 4 = 13$ 1 \cdot 4 + 4 = 7	30 95
	54         2           E.         Saturn S           5         8 m53           1         8 35           7         8 18           3         8	1 · 24 4 13 1 · 4 4 7 -0 - 43 4 2	30 90
	54         2           E.         Saturn S           5         8 m53           1         8 35           7         8 18           3         8 1           9         7 45	$1 \cdot 24 + 4 = 13$ 1 \cdot 4 + 4 = 7	30

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ARCH Hath South	IDaysYAAUH D South.
First Quarter 1000 milh in F2 44.	55 m. Morning. istal M9ari 80'
Full Mooh COPSTERA 99	4. Afterniobn. nools liuts
TiLast Quarter 20 Day at 5-5	- 44 Atternoon. a shall be leaded
	27 Afternoon. 16 M woldo
1 () estude op 20th Day, at 5 H.	9 M, Atternoong 21 North19
·1] P [David.	7 2 52 1 45 9 290-380
-2 S Chad,	9 0 2 26 3 29 0-38 0
03 Post Sonday in Lent.	10 9 8 7 429 2-360
4 M Henry VI. deposed, 1461.	11 20 3 51 51994-88-0
5 T Day 11 hours long.	morn. 4 37 9997-31:0
o GW Ember Week,	0 32 5 27 7 29 8-31 0
7 T Perpetua.	
S F	2 56 7 18 9297-305
Digitized to the second	
Po F 13 Sunday in Lent.	<b>3</b> 59 8 19 10 29 6 820 <b>4</b> 51 9 20 11 29 5 36 5
11 M Rizzio murdered, 1566.	5 3210 1912298-800
12 T'Gregory Martyr.	6 311 1713 301-340
13 W	
14 1 Admiral Byng shot, 1757.	
14 1 Adminat Dyng snot, 1757.	
16 S Day 11 h. 54 m. long	8 14 1 7 6 30 4 34 5
	9 41 9 017308-835
17 C 3 San in Lent. St. Patrick. 18 M Edward K. of West Sax.	11 6 2 53 18 30 1-3 <b>3 C</b>
19 F	morn. 3 4619299-895
	0 26 4 40 20 29 7 49 0
	1 40 5 34 21 29 6-43 0
21 T Benedict.	2 43 6 97 29 29 7-450
23 S	3 36 7 20 23 29 7 44 5
23 5 24 F 41 Sun, in Lent, Mid-L.S.	4 18 8 1/24 39 6-44 0
25 M Annanciation or Lady-day.	4 48 6 59 25 29 7 48 0
25 T Company	5 14 9 45 26 29 8-47 5
200 1. 20	5 34 10 29 27 20 7-49 5
	5 5011 1128 29.6-43.5
28 T Tobacco bros to Eng. 1595.	
	6 a 59 aft 32 1 29 243 2
80 S Roin in Mar, 1814, 206 inc.	8 7 1 14 2 29 8-455
31 FathSuddy indiant;	9 19 1 56 3 29 7 498
O ORises. Ohets. Cl. bef. O D. Br	Sun E. saturn Jup ters Marsis
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19 6 13 5 37 11 32 31 19 6 13 5 47 10 15 90	42 10 174 3 201 4 48
16 6 3 9 54 8 50 10	55 9 44 9 47 4 964
21 3 59 6 9 7 90 00	6 1 9 28 28 28 4 30
5 9 43 6 1 m 91 48 3 48	7 9 12 8 84 4 94

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APRIL hath XXX	Days	lind V/	M O Decl. D North.
Eirst Roarter 5) (4h.	22 m. A		,1,1, 48 , 31'
Last Quarter 19 ( Day at ) 9	38 M	lorning. Iorning,	41.8, 23
a second de la constante de la c		fternoon.	16 10 11 21 11 55
. O cuters & Roth Day, at \$ H.			26 13 31
1 M Rain in April 1814, 1.35 inc. 2 T	10 a 51 11 44	2 42 3 31	4 29 4-51 0 5 29 4-48 5
SW Richard Bp. of Chichester.		4 23	6 29.5-44.5
4.T St. Ambrose. 5 F. Camb. Term ends.	0 56 2 0		7 29 6-46 0
6 S Oxf. Term ends.	2 53	7 15	9 29 9-49 5
7 Fich Sandie Lent. Pain S is M Edward IV. died, 1483.	3 38 4 11		10 30 1-52 0
19 T			11 30 2-47 5 12 30 1-48 6
10 W Day 18h. 34 m. long.		10 59	13 30 1-53 0
11 T Maundy Thursday.	5 20 )) rises.	11 52 morn.	14 2919-49 0 F 29 8-55 0
13 5	8 a 53		16 29 7-58 0
14 P Faster Dar, 1	10 9 11 28	1 1	17 29 6-56 5 18 29 4-57 5
15 M Bester Monday: 16 T Master Thordey.	morn.	1 - 1	19 29 3-56 0
17 W	0 40	4 26	20294-510
18 T 19 F Alphege.	1 40 2 25		21 29·5-52·5 22 29·6-53·5
polS	3 2	7 3	23 29.6-58.0
21 Flot Sun. af. Eester. Low S. 22 M. Henry VII. died, 1509.	3 27 3 43		24 29 7-50 5 25 29 8-46 0
23 T St. George.	4 5		26 29 8-50 5
24 W Oxf. and Camb. Terms b. 25 T St. Made. Pro. Has shown	4 91	1 - 1	27 99 8-48 0 28 29 6-45 5
25 F St. Mach.) Prs. Macriborn. 26 F			29 30 0-44 0
27 5	) sets.		N 30 1-48 5
28 F 2d Bunday after Easter 29 M From East. in 15 days 1 r.	8 a 28 9 41		1 30 1-47 5 2 30 0-53 0
BO T Battle of Fontenoy, 1745.	10 54	1	3 30 0-53 0
NOBINI OSAL DILLEO D. D.	 		
1 5 30 6 30 3' 57" 3 33.	6 15		m44 4 a 18
6-5     21     6     39     2     28     21       11     5     12     6     48     1     3     6		8 35 1 8 <b>1</b> 8 1	24 4 13 4 4 5
16 5 2 6 58 aft: 15 2 54 21 4 53 7 7 1 23 40		3 1 0	
268 4 44 7 16 2 20 25		7 98 110	

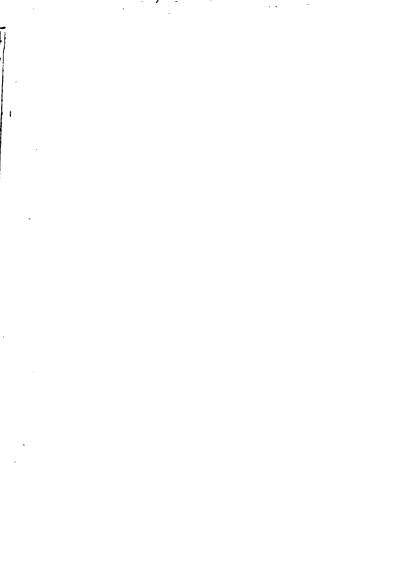
<u></u>	
MAY hath XXXI	Days MO Decl.
	9 m. Morning. [141591-87] 40 Afternoon. [616] 35
Last Quarter 19 Day at 2	35 Moraing. 1117 55
New Moon 27	7 Moraing. 1619 ".8
	0100 19
<ol> <li>Consistent in Alternation des Chait</li> </ol>	8 1 Liorning 26 21 10
TIWER, Philles det Janes.	12 a 20 3 20 4301-580
21T	morn. 4 17 5300-520
3 F Invention of the Cross.	0 59 5 15 6 29.9-47.0
4 8 Henry VI. murdered, 1471.	1 45 6 12 7 29.8-46.5
5 7 86 Shalay after Moster	2 20 7 7 8 29.5-46.5
6 M John Evan. ante Port. Lat.	
7 T Ford an of Jor's borns of	3 10 8 53 10 29 8-56 0
8 W *****	3 30 9 4411 900-560
9 <b>T</b>	3 48 10 35 12 30 2-46 0
NOF	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
11 S Day 15 h. 28 m. long.	) rises. morn. F 30-8-45 5
12 V Ath S musiter firstor.	9 a 4 0 21 15 30 2-49 0
ISM	10 24 1 1716 30 D-47 0
14 T Anne Boleyn beheaded 1504	
14 1 Mine Dowyn Deneddeu 1504	
16 T	
17 F Princes of Woles bern.	
18 S	
19 F 5 Son of Vast. O. Char. h.	1 56 6 32 22 29 9-55 5
20 M [Dunstan.	2 15 7 15 23 29 8-52 0
21 T	2 31 7 56 24 29 6 48 0
29 W Princess Elizabeth born.	<b>2</b> 45 8 36 25 29 6-45 5
23 T Ascen, Day, Holy Ibus,	2 58 9 17 26 29 6-47 5
24 F	3 13 9 5927 297.434
25 B	3 29 10 43 28 29 7-44 5
26 W Sun, af, Asc. Day, Aug. 1st.	3 49 11 30 29 29 8-48 0
27 M Sun eclip. invis. [Abp.Can.	) sets. aft. 20 N 29.7-52.5
28 1	9 a 48 1 14 1 29 6-54 5
29 W F: O U. born and rest.	
SO T	11 44 3 9 3 29 9-55 5
31 F Rain in May, 1814, 2.62 in.	morn. 4 7 4 30 0-56 5
DORises. OSets. Cl.aft. O D. Br.	Sun E. SaturnS Jupiters Mars S.
11 4 35 17 25 3' 4' 2 7	6 50 7 m10 11 a 35 3 a 46
6 4 26 7 34 3 36 1 52 11 A 18 7 A9 3 43 30	6 55 6 52 11 14 3 4D
	7 0 6 34 10 52 3 34 4 6 15 10 31 3 27
91 4 5 7 55 3 45 0 32	4 6 15 10 31 3 27 8 5 56 10 8 3 20
26 3 58 8 2 3 20 No Ni.	12 5 36 9 46 3 14
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First Quarter 3 Full Moon 10 Day at 1	18 m 19		ornin		14.00	1 2	Vorth. 29 5 2 41
Last Quarter 17 ( ) 7	48		terno		nI	1 2	31 7
New Moon 25 ) ( 2	7		terno	21.	1	510 14.	2×1 . 1
I Co en ters 5 21st Day, at 2 H	45 N	4. A	fters	000.	2		3 28 3 23
1 S Nicomede.	f on	124	5	-3	6.0.00	100	8-52
2 Whit Sunday.	0	52	5	56	11.24.21	21006.00	8-49
3 M Whit Monday.	i	16	6	47	-1424	10 M 1	7-52
4 T Whit Tues. K. Geo. HI. b	Lī.	35	7	37	CODEC.	1 m 1	8-501
5 W D. of Cum. b. Emb. Weel	11	53	8	26	1.001.01	A 4 4. 1	9-49 (
6 T [Boniface.	2	10	9	1.7.68	1.000	No. 2001	0-49.0
7 F Bellisle taken, 1761.	2	28	10	121 8-54	64/X2	1.7.1.7.7	0-49 0
S S 7 Bps. sent to the Tower 1688	2	51	11	1	12	30.0	0-54 0
9 F Trinity Sunday.	3	16	11				)-53·0
OM Geo. I. died, 1727. Decl.	Dri	ses.	mo	rn.	F	29 9	9-55-5
IT St. Barnabas. [visible.	10 :	a 9	0	53	15	30.0	D-58-5
2W	10	55	1	49	16	29:8	-61.0
3 T Corpus Christi.	11	30	2				9-69.0
4 Complete stress culture	nı.	57	3				8-65.0
5 S	mo		4	1.000.00	12.65.1	1.1.1.1.1.1.1.1.1	9-57:0
6 H 1st Sunday after Trinity.	0	16	5				9-60 0
7 M St. Alban.	0	32	5				9-57-0
18 T Battle of Waterloo, 1815.	0	47	6				8-54.0
9W	11	6	7	\$			6-56.5
20 T Trs. of Edw.K. of West Sax	A	14	7	0.2003	122.34	10.7	8-54.0
21 F Long. Day, 16h. 34m. long 22 S	E 11 11	29	8				9-54.5
23 F 2d Sunday after Trinity.	12	46	\$1445.00XXX	17			1-54:5
24 M St. John Baptist.	2	9	10	6	1.1.1.1		2-50 5 1-56 0
25 T	Dise	2.008	11	55			0-55.0
26 W		1 34		7.3.2	10-21	1. 6. 1	9-540
27 T Land on the last	10	17	1	53			0-57.0
25 F Rain in June 1814, 2:32 in	1	50	2	51	1	1	9-65 0
29 S St. Peter.	11	14	3	46	4	1.7.67	8-63.0
30 5 3d Sunday after Trinity.	11	35	4	39			3-60.5
8 000 1 0 00 0	<b></b>	1.10		11	1		This
DORises   Sets.  Cl.aft O, D Br.	Sunl	P IS	then	etr.	init.		Mars S.
1 3 52 8 8 2' 34' No		16	5 m l		a 2	20	3 a 5
6 3 48 8 12 45 real	13	18 4	5	1 8	6 15	59 9	2 57
1 3 45 8 15 0 8 Night 6 3 43 8 17 bef. 13 in		19 -	5 30				2 49
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JULY hath XXX	Days. HUUL M Q Dec.
North North North	TR. Voltenel dama
First Quarter 2019 ph.	28m. Morning. 1 23° 8
P Fall Moon	21 Afternoon, 6 22. 42
Last Quarter 17 Day at 3 0	46 Afternoon. 11 22
- New Moon 24	9 Afternoon, 16 21 23 25 Afternoon, 21 20 29
First Quarter 31	the second second second
2 Senters & 23d Day, at 1 H.	A THE TRAINING
I M Rain in July 1814, 0'91 in	.11 a 54 5 29 6 29 8-56
2 T Cam. Com. Ox. Act. V.V.M	1 morn. 6 18 7 29.9-58
3 W Trin. Ter. e. Dog Days b	
4 I Franslation of St. Martin	0 29 7 57 9 29 9-66
5 F Cam. Term ends.	0 49 8 48 10 29 9-65
6 S Oxford Term ends.	1 10 9 42 11 29 9-64
7 F 4th Sun. af. Tr. Tho. à Bec	a second designed 1 land
	2 21 11 33 18 29 7-65
SM Determined 1760	
9 1 Czar Peter murdered, 1769	
ICW STREET GAL S	
HEL R	9 52 1 20 16 29 9-63
12 7 2010	10 15 2 9 17 30 0-64
13 S Peace of Utrecht, 1713.	10 31 2 55 18 29 9-59
14 F 5th Sunday after Trinity.	10 48 3 38 19 29.7-58
15 M Swithin.	11 2 4 19 20 29.6-63
16 T Day 16 h. 4 m. long.	11 15 4 59 21 29 7-58
17 W Cape Breton taken, 1745.	11 29 5 39 22 29 8-60
a second s	11 46 6 20 23 29 8-61
and a hold state in the	
19 F	
20 S Margaret.	1. T. & Y. M. L. T. H. M. & M. M. M. T. T. T. WEIN
21 F oth Sunday after Trinity.	0 32 8 42 26 29 8-67
22 M St. Mary Magdalen.	1 6 9 37 27 29 9-59
23 T	1 52 10 35 28 30 1-67
24 W Gibraltar taken, 1704.	) sets. 11 36 N 30'0-66'
25 T St. James.	8 a 46 aft. 36 1 300-72
26 F St. Anne.	9 14 1 34 2300-70
27 S DE 8 1 1	9 38 2 29 3 30.0-76
A STANDAR ALA STANDAR	9 57 3 21 4 29 9-78
28 F Th Sunday after Trinity 29 M Span. Arma defeated, 158	810 14 4 19 5300-63
	10 31 5 1 6300-68
30 T	
31W	10 51 5 52 7 30 0-66
D O Rises. O Sets. Cl.bef. O D. Br	
1 3 45 8 14 3' 24" No	7 19 3 m 8 7a 12 2a
6 0 10 0 11 4 18 real	17 2 46 6 52 2
11 3 53 8 7 5 3 Nigh	
16 3 58 8 2 5 37 m	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
21 4 5 7 55 5 59 Britai	
106 4 12 17 48 6 7 10 22	and many in the second of the

11110	AUGUST bath XX					-+*	44	vorui. f
	Moon 8 Quarter 16	19 m 58	. M . M	ornin ornin	0		1MS 6116	904 15 85.142
	Moon $23$ Day at $\frac{4}{7}$	58 .6	M	omin	0	- I.		1.1.161
e Firs	t Quarter 29) (9	45	Af	temo	<b>.</b>	1.		144
24	C enters my 234 Fray, at 8 H. S	<i>N.</i> 1	Iora	iag.			1 12 6 10	
UT	LammasD. Q. Anne d. 1714	411 0	19	6	43	<u> </u>		-69 5
2 F	12011110051. Q. 21/1/10 0. 1/ 17	111	41	7		. (		)-700
35		mo		8				-67.0
	Sth Sunday after Triblity.	0	17				<b>t</b>	<b>)-67</b> e
	Crown Point taken, 1759.	1		10				-69.5
	Transfiguration.	2	3	11				)-63·0
	Name of Jesus.	3	9	nao	rn.	14	39	7-65-0
	Cherbourg taken, 1758.	) r	ises.	0	3	$\mathbf{F}$	29:	6-61 5
9 F		1 8	a 38					7-60-5
	St. Lawrence.	8	54	1				)-60•0
	6th Sunday after Britaity.	9	8	2		a. 1		7-64 0
12 M	Tr. of Wales b. 1762. Dog	1 -	22		-			)-66.5
13 T	Days end	· · · ·	37	3		- · .		8-62:5
14 W		9	52					7-59 5
	Assumption B. V. Mary.	10	10 32	1				8-61:0
17 5	Dake of York born, 1763	10	32	6				7-56 5 3-64 0
	10th Sunday after Trinty		40	1				9-64:5
	Day 14 h. 20 m. long.		orn.	8		· ·		9-56:5
20 T		0	35	-			1	9-59-5
	Duke of Charence b. 1765.	lī	46	10		1 - •		8-61 5
	K. Richard III. slain, 148		` 6	11		•	1	8-65 5
83 F		)) s	ets.	aft	. 19	N	29:	5-65:5
	St. Eartholomew.	8.	a 4	1	14	1	29	4-59 V
<b>2</b> 5 F		8	22	2	7	2	29.	4-60-0
<b>26</b> M		8	40		59	1		5-61-0
27 T		8	59	1	51			7-550
	St. Augustine.	9	21	1	43			8-54\$
	St. John Baytist behaded		49	1	. 37		1	9-5 <b>6 0</b>
30 F		10	.23		32			0-57-0 0 t c h
	Rain in Aug. 1914, 2.87 in		5		27			8-560
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ł	8	T		bour			, 17	58.	· ·	rises.	0	3		297		- 24	
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	16	F						1763	10	32	5	45	23	29	7-5	6-5	
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Decl Deck WEMBER hath X	AA	Da	ys.	1		DI.	O D	h.	
Full Moon 357 M .m (13h.	18	m. N	lorni	ng.	1	1 h	140	30	
Last wuarter 12 Day at 1 3 & Afternoon.   0 16 13									
Birst Quarter 26 da 25	23		Iomi			ULC.	17ani	29	
	6		ftern	oon.		101	18	48	
18 6 enters 1 22d Day, at 9 H. 9	Μ.	Morr	ing.				19 21	59	
TF (All Saints. 1 1 1 1 1 1	1 0,	m 50	19	R.C.	P		9-4	2.5	
2 S D. of Kent b. 1767. All Sou.	3	57		95	10	00	9-4	0	
3 F20 S. af Tr. Pis. Sophia b.	5	5	1000				8-4		
4 M KiWil III. !. [OnAllS.Iret.	6		11	57			8-3	1.04	
5 T Powder Plot 1605. O.S.	1.75	ises.	1 6 4	1. 16			7-3		
6 W Leonard. Mich. Ter. beg.	-	a 24	1.4 C 19 C	rn.	2040	19,717.7	1-3	• 104	
7 T es alle offer. leg.	5	a 24 52	-						
S F Prs. Aug. Sophia b. 1768.	6	30					5-4		
9 S Lord Mayor's Day.	7						3-3		
o 1 29d Sunday after Trinity.	1 million (1997)	18	ALC: NO	12			6-3		
1 M St. Martin.	8	21	4	7			1-3		
2 T On m. of S.M. 2ret, Cam.	9	34	5				0-3	240	
	10	53	5				8-4		
3 W Britius. [Ter. div. m.	1.10	orn.	6				8-4		
5 F Machutus.	0	17	7				8-48		
	1	41	8				5-49		
6 S Henry III. died, 1272.	3	6	9				6-40		
7 F 23S.af.Tr. HughBp. of Lin.	4	1.2.5	10				9-44		
S M In 8 Days of St. Mart. 3 ret.	5	57	11				6-47		
9 T o eclipsed visible.		ets.	aft.	C = 1 = 2			4-37		
O W Edmund King and Mart.		1 57	1	3			5-38		
IT	5	42	2	3			6-29		
32 F Cecilia.	6	37	3	2			7-30		
3 S St. Clement. Old Mart.	7	43	3	59			6-40		
4 F 24th Sunday after Trinity.	8,	100.002	4,	52			3-40		
15 M D. of Glou, b, Cath. In15D,	10	8	5	40			4-4]		
26 T 2.09 [of St. Mar. 4 r.	11	21	6	25			6-49		
2.65.2 FT 0 9	mo	rn.	7	8	8	29	4-39	9.5	
28 T Michaelmas Term ends.	0	31	7	48	9	29:	5-40	):	
29 F Rain in Nov. 1814, 2:76 in.	1	39	8	27	10	29	3-4	1.0	
30 S St Andrew.	2	46	9	1	11	29	3-38	3.0	
an 15 15 15 15 15 15 16 17 189 9 5 10	1401	1620	04	1000	1.02	8 77	1	11	
D ORises. O Sets. Cl.aft.O D.Br.	Sun	E.Isa	turn	s.L	ipit	erst	Mar	25	
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6 7 23 4 37 16 11 24		716	5 . 3/	i I (	, ¿	22	11	24	
1 7 31 4 29 15 46 31 6 7 39 4 21 4 59 37		100	41	10	5.		11.0	16	
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16 27 151 44 0 9 12 23 4 49	G.,	640	115	16	-64-	Id	100	10	

Inon OQTOBER about XX	XI Danser an TY Mr. Decl.
	D South.
Full Moon 6 Last Quarter 14 8	
	3 Morning. 79 761 ( 526.10 56 17 Afternoon. 1111/7-015
	56 Afternoon. 111/1/ 7/19/15 58 Afternoon. 79 16 8 8 11 87
S caters 11 23d Day, at 0 H. 45	
	20 18 31
1 T Remignus.	0m14 9 110300-470
2 <b>W</b>	1 24 9 47 11 30 1 45 5
3 T	2 34 10 30 12 30 9-47 10
4 F	3 45 11 11 13 30 144 95
5 S Old Parr died, æt. 152. 1635	4 55 11 51 14 29 9-45 10
6 F 17th Sun, after Trin, Faith.	) rises. morn. F 29.7-43.0
7 M	6 a 21 0 31 16 29 7 44 5
8 T Admiral Benbow died 1702.	6 35 1 12 17 89 9 43 0
9 W St. Denys. 10 T Oxf. and Camb. Terms beg	6 53 1 551830 0-28-0
10 T Oxf. and Camb. Terms beg.	7 18 2 40 19 30 0 45 0
	7 49 3 28 20 29 8 47:5
	8 30 4 2021 296 51:5
13 13 13 13 14 Trans. of 14 M [K. Edw. Conf.	
15 T Day 10 h. 35 m. long.	
16 W Bps. Latimer and Ridley	
17 T Etheldreda. [burnt, 1535.]	morn. 8 425 39 5-55 m 1 14 8 59 36 29 3-47 m
18 F St. Luke.	2 41 9 52 27 29 1 48 0
19 S King John died, 1216.	and the state of the second
10 T 19th Sandoy after Trinity.	
21 M Battle of Trafalgar, 1805.	5 a 39 aft 32 129 5-55 0
22 T Sir Clo. Shovel last, 1707.	6 2 1 28 9 99 6 45 5
23 97	6 30 2 25 3 29 4 46:0
24 T Battle of Agingourt, 1415.	7 8 3 24 4 29 3 4 20
NO P LOS GEREI ACCESS, CHISPIN	7 58 4 23 5 29 4 43 0
26 S E. Seo. H. Prod. 1780.	8 55 5 20 6 29.6.44.0
27 F SCh Sunday after abmity	10 6 6 13 7 29 7 49 -
28 M St. Shaon and St. Jude.	11 18 7 8 8298 42 0
29.1	man 7 -50 9997 4415
SOW	Q 29 8 34 10 29 9 46 Q
31 T Rain in Oct. 1814, 0.80 in.	1 40 9 1511 29 9 510
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1 8 15 5. 40 10 22 4. 18.	5,49, 8a 51 2 a V 0 a B
6 6 24 5 36 11 13 29 1 6 6 54 5 26 13 14 39 2	43 8 32 1 5B 0 7 B
16 6 44 5 16 14 23 49	37 8 5 14 5 1 39 11 m 50 1 51 7 55 1 24 11 750
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THE GENTLEMAN'S DIARY, Nº 76.

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100- 1111

ANSWERS to the QUESTIONS Critical and Philosophical.

CCCXXV. By HINCKLEIENSIS, the Proposer. -

The requisites to constitute the character of a Gentleman completely are many:—They are, perfect ease of deportment, even under the most embarrassing circumstances: manners that conciliate and gain universal esteem: good breeding, so disciplined as never to be thrown from its guard, or, except 0. the most extraordinary occasions, betrayed to the discovery of passion: a smooth and flowing enunciation: a bland gaiety of heart that no trifles can disturb: a flattering, yet not officious, attention to every person present: and all those charms of address and demeanour which cannot fail to vin our es-

() I should define a gostloman, then, a person well born and educated : manifesting elegance of behaviour, gracefulness of mises, nicely of taste; and of pleasant manners with virtuous habits. Above the vulgar by his character, situation, and fortune: uniting politeness of address with meetiness and gentleness of behaviour.

Mr. W. Stringer says: According to the usual acceptation, a genlicent is a man possessed of weath. But a true gentleman is he who acie, as a person of affluence sught to act, that is, charitably, interlectually, liberally, and honourably. He is no gentleman, properly speaking, (however great his wealth) who is guilty of a mean action. Nor is he much short of one, whose mind is of an exalted nature, who possesses liberahity of sentiment, a generous disposition, and an upright soul, even though he be destitute of wealth. As for those, who although they posses what the world call independence, yet daily prove that they have nothing good, gentle, or honourable, in their composition; nothing can be a greater mistake than to call such creaturies gentlemen.

#### CCCXXVI.

Several of the early councils required the Clergy to wear apparel snitable to their profession; but they prescribed neither kind nor coionr. See Conc. Carth. 4. c. 45. & Conc. Agathen. c. 20. The first held A. D. 400, the second A. D. 505. Nor, indeed, is it likely that bisheps and preshyters should wear a distinct habit out of the chart bisheps and preshyters should wear a distinct habit out of the chart, during the three first centuries, when tyrants and per-centors were dilgently seeking them in order to destroy them. At Constantinople, in the time of Chrysostom and Arsacius, the clergy commonly wert in black, is the Novatians did in white; that they might be discinguistical from those schismatics. In process of time the custom becanne general.

As to peculiar vestments worn in the charch, they seem to have obtained much earlier. It is clear from Const. Apost. lib. vili. cap. 14, (must probably collected very early in the third century) that during the cuterarist the bishop administered at the alter in a white and shiming garnieut.

CCCXXVII. By Mr. W. SPENCER, of Sapcole, near Hinckley, It is highly probable that the rol in sheep is caused by a flat insect called a flate (fasciola hepplica) which is found adhering to stones and platts in weightations; and also in the livers and biling ductor

# 16 Quest. Unite: and Philos: answered, 4816.

bri shido allowing has been too in Spain and water with the work of the the state of the state o

Some of our correspondents refer to Mr. B. Holdich's means on the Resp or Rot, as containing many valuable hunts.

#### CCCXXVIII.

The opinions of our correspondents seem nearly belanced in reference to this question, But-Mr. Spencer and a few others decide against both characters, thus :- The Producal and the Misser may be considered as analogous to positive and negative quantities in Algebra, which destroy each other's effects. It is not easy to conceive how either of them can promote the wealth of the country. It is evident that the misser increases nobody's wealth but his own; and though the product ways catter his property, yet it is doubtful whether that property increases by flowing in other channels, in a greater ratio than the value received for it dopinishes.

#### CCCXXIX.

The majority of our correspondents agree as to the fact specified in this question. But they vary greatly in their mode of accounting for it; some ascribing it to the pre-ordanned difference in the constitution of the seres; others to habit. The former opinion, however, prevails amongst them.

CCCXXX. By Mr. B. MANDALL, Woolwich Common. In this passage, so often brought upon the controversial arena, it is . evident, independent of all critical disquisition, that the interpretation advanced by those who deny the divinity of our Lord, runs counter to the whole scope of the Apostle's reasoning in the context. Looking, however, to the correct meaning, of the passage, the rendering may be, " Who existing in the form of God, did not think it robbery to be like God : yet he divested or emptied himself fi. e. of his for mer glory] when he took or rescived the form of a bondman. The word form is a confessedly inadequate rendering of, mayon; but that need not be dwelt upon. That To spon ine Orgeliteruily signifies to be like God, has been clearly proved by whitby Doddridge, and others. The fair, and I apprehend, the true, interpretation of the Apratics meaning is, that the S u being in the torm of God when he mude the world, and appeared to the patriarchs and prophets, he thought it no derogation from the honour due to God, that he received from angels and men like worship with God. As to the inference deducible from the opposition of the two terms unique and addin, in the respective phrases in mochy Ore under in and more a docker aspin, it is, I concoive, inditionably this " that which thie a proter sponts of the form of God, be employs the first (of thises residue attoming the Fisus Christ existed in the form of God : while, while the books of The form of a, Which be simply uses the latter term, which implies that he received it!

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the first form they, was not an accidental and transient form, but, fat and durable ; the second, on the contrary, was not emential, but accidental; for no correct thinker even judges that to reacise a form which it had always. Our Lord, then, was in the form of God essentially, but assumed that of a servant for an especial purpose.

"Ingenious answers to one or other of the above Questions were sent by Messes. John Beines, jun. Thomas Baker, J. Gronow, W. Hill, Tinchicionsis, James Hood, R. Maffett, ames Postlethwaite, John Saunge, D. T. Sheridan, W. D. Snooke, W. Spencer, W. Stringer, Jos. Stfelk 20.

### **ENIGMATOLOGY**

	A Vania Transmission	
	at Year's ÆNIGMAS,	
1. A Publ.	7. A Root.	
2. A Duor.	8. Smoke.	
3, Resignation.	9. Snow.	
4. Rain. 5. Salt.	10. A Newspaper, 11. A Ditemma,	
5. Musical Notes.	Prize, A Conveyance.	
	Carnest. 3. Poultice. 4. Scarcity.	
REBUSES. 1. Resist-Sister.	2. Portico. 3. Malice. 4. Truthe	
5. Smart mart-art.		
at folition we and GENERAL	ANSWERS.	
1.ª On first beholding the Tree-prin	arose. By Mr. J. BAINES, jun.	
Soon as Aurora's lucid beams,	But ere Sol's ever-rolling car	
Had ting'd the orient skies,	Approach'd the middle sky,	
I wander'd by the purling streams	Its modest head, so sweetly fair,"	
Where countless flowrets rise	Began to droop and die.	
And as my raptur'd eyes survey'd Their silken foliage,	What pity that the choicest flow'r So early meets its doom !	
A layely stranger in the shade	But reason cries, one transient hour	
Did all'my thoughts engage.	Will tarnish beauty's bloom.	
Fransported, I beheld, a flow'r	Go round the world, convey'd	
Which Nature form d so fine ;	where'er,	
Of, all that deck'd fair Flora's	You'll find this maxim true, if	
bowr dia and a state	Bright beauties, fairest of the fair,	
"Twas said the most divine.	Are the most transient too.	
Tis hd'rous heavi a breath exhal d	The slightest causes often will one	
Sweet as the breath of love,	Their tender forms destay ;	
S"Of Hybla's thymy grove.	Nay even a single breath may kill What heightens human jup. 41	
elogn The Laisure Hour. By Mr.	what neightens numeri jost all	
aint side When time again gives life to spring.		
STIDDAR WHERE grotes with neice debuhled sing.		
Prise To and the heart the series and the heart the and the time of the series of the		
tern		
a to avoid all'a passe deisers hour.	TOWN PHEND IN THE AT SEVER AS SEE AND	
and the second of the second state of the seco		
ent	men entit and even ded ate be fauthe	

<ul> <li>Soon surgice, comes nor clouds appear in a the sky is bright, no rain is hear,</li> <li>But secured an the bower:</li> <li>The sea's salt waters greenly shing,</li> <li>To pass a leisure hour.</li> <li>Then lovely Ceres - Autumn's joy,</li> <li>Hustes, antious every want to cloy,</li> <li>And plenty forth to shower:</li> <li>While, as she treads the welcome tway conveyance, Pr.</li> <li>The nymphs in wanton revels play</li> <li>To pass a leisure hour.</li> <li>But, solemn winter, at thy blast</li> <li>Hope whispers, long thou will that last, resignation S.</li> <li>These pleasures to devour;</li> <li>So at the scos wilk paper nigh</li> <li>I'll take my pen, and write to Di.</li> <li>To pass a leisure hour.</li> </ul>
S. The Spain of the River Aron. PARSONS, of Aveton Gifford. Behold a weary, toilful, swain Mo swears to gather in the grain And plans adopts to save on; His mind on smoking's never benti, But with the paper is content, Upon the banks of Avon. He toils, and sweats, and takes great pain, Mind summer's heat and winter's Mind summer's heat and winter's Content of the second states the second state
And plans adopts to save on; Upon the banks of Aton. 4. The Farmer. By Mr. JOHN HERDSON, London.
The firmer with judicious eye, Beholds the mint in yonder sky; Which oft foretels a shower of rain, [grain;] Them near the door he ricks his find when his harvest-hone's con- vey'd, [made;] Th' accustom'd fest is quickly will yield to this with resignation. L't peace and plenty crown our isle, And poverty again will smile. No farther laws need then be made to raise the price of daily bread; and make, [] ke He reads the news and cracks a All this woald, fill my heart with But what comes after saddens me. For the' there be a plentcous crop, He cannot let the markets drop; Or if he does he cannot live

5. To

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## THE GENTLEMAN'S DIARY, Nº 76.

## 5. To the Banor By Mr. James Hoop, jun.

Kind Sir, accept a pupil's strain, The muse invok'd he can't refrain; He litry your wild notes to explore, On salt, on root, on snow, or door; But not like contemplative Young, When resignation's bow he strung. Such news cannot expected be From such a simple one as me. Tis smoke that finishes the whole, Which frequent crowns the midnight bowl. Kind Editor, the mase is coy, No more I'll add, so now good bye.

#### 6. Emma's Distres: By Mr. T. NIELD, Chester.

Dark was the night, damp mists around her flew, And stormy winds their loudest war-notes blew; Soon flashing lightnings glanc'd across the plain, And thunders join'd with copious showers of rain. Thus travell'd Emma thro' the trackless waste; In dread the horrors of the storm she fac'd : No tender eye to pity her distress, No door to ope, no place to seek redress; No bread to eat, no smoking hearth is near, O sad dilemma ! hope itself can't cheer, " No paper can salute my friends," she cried, "To tell my doom, or where, or how, 1 died !"

#### 7. Sonnet to Heligion, By Mr JOHN SHITH, Alton Park.

Hail, blest Religion! bright celestial maid, In snow-white vesture clad; thy cheering power Dispels the vapours that our minds o'crapread, a Renews our joy, and gilds each gloomy hour. The sinner thou constrainest to depart From vice, the root of all his killing fears, Conveyest balsam to his wounded heart, And wipest from his eyes the briny tears. Thou pointest to that blissful mansion's door

Where notes from golden lyres harmonious sound, Where cares perplex not; grief as ails no more, And unsophisticated joy's abound. Scraph rever'd! so teach me to employ

Life's remnant that I may with resignation die.

#### - 8. An Evening Walk. By Mr. W. D. SNOORE, Woolbridge.

2 .....

"I was tempfed one eve, when the weather was fine, Through the shadowy lanes, and the woodlands to strey; Wliefe the lambkins in innocent sports did combine, And the birds most enchantingly sung on the spray, Thus allur d by the scene, I with pleasure did roam, So delighted my eye, and enliven'd my mind; GOOSIC

smoke

Zilemma.

Other geneand there were also be banashi i rashe hande Antillessen.
I. Daker, D. D. Velknikaly with a demain stiched min and lead V
Llach Drukeir, E. Cromaintent and reader branch and in the barrier branches and the second start and
R. Maffett, W Gites ante principality and a setter state with W. A.
Plac'd me in a dilemma, which course to purete,
To seek shelter abroad, or my home to regain.
to seek sheller abroad, or my nome to regain.
I reserve to return, when the cloud a smoky fue,
Had completely obscur'd the horizon around;
When a meteor burst forth, forcely vivid and blue, but rod of
And some loud distant thunder did mourufully sound, blocW
I redoubled my speed, and evaded the wet,
Till, at length, quite fatigu'd, I arriv'd at my door toot tedT
At that instant the hurricane furiously beat,
And the water in torrents did rapidly pour.
Thus so safely arriv'd, I sat down to reflect, and
On the accidents dires to which tempests may lead ;
Thinks I, in the news I may read the effect
Of the storm that at present rolls over my head;
And I said, none the trial can patiently bear,
When Providence proves most abraptly unkind;
When methought somethin g whisper'd, as if to my ear,
Resignation is sure the best halm for the mind.
9. A Morning in Spring. By Mr S. TREEBY, of Plymouth.
The star-light's fled beyond our bound
And bright appears just opening day ;
and the star officers and Browned
And lambkins o'er the meadows play.
In green array'd behold the trees,
The grain now shoots towards the sky;
And welcome is the morning breeze,
That makes the smoke and vapour fly.
Inc leatner of songstors raise their notes,
And make the neighbouring valleys ring.
With hope and joy my eye beholds
His course the rising sun be gin.
Oh Nature ! charming, ever new,
So pleasing to my ravish'd sight,
Thy beauties may I calmily view, and agoing
"Till day no more succeeds to night.
10. Hope. By Mr. T. WHICKER, Exeter,
Hail, delightful, cheering hope, Should lightning darts or waters
Thro' life our steady firmest prop. Thro' life our steady firmest prop. Thro' there we can such ills repel. Delightest the sonl and fills the eyes, Puzzling dilemmas prove us not,
Thou opest the door to sacred juys, Thr. ' they we can such ills repel.
Delightest the soul and fills the eyes. Puzzling dilemmas pose us not,
Thou still'st the boist'rous winds of Dire a mter's snows are soon forgot:
life, Bygeheerfabhaasta we sit so anug,
And subdu'at the sparke of suffering Wash flywing ale init cat brown jug:
The spandnying salt to fair The nevers read the news to con
That makes we want at the Thin Bloss our delanders avery and
The same and the high statistication of the high for the back of t
The ever-during salt so fair, That makest us quietly evils bear Bless our defenders every one. No gamut marks more "pleasing fin health we're sound Mon root to notes,
musting the sinter alan more Can moderation the Company
When those thy virtue e'er pro- Can moderation wish for more ?
Other

## THE DENTHEMANSSEDIALTY Nº 76.

Other geograf, Aparamano, the bEating mainwere received the Measure. T. Baker, D. Boyety, B. Schweidegs E. Schubbreen and Markell, jun. Elaeb. Draheir, P. Gone, Hinoldeiensis, Jas. Hood, son: W. Jobs ody Lyab, R. Majfett, W. Qata, Jass. Rastleshmite, John Swaget, D. N. Sheridan, Joseph Smith, W. Spencer, Jos. Suffolk, John Tyson, Sco.

#### ANSWERS to the PRIZE ÆNIGMA, CHARADES, &c.

#### . Answard By Mrs. Anspon,

To her niece who wished to become the favourite of an uncle.

Would you the safe conveyance Read much, think more, indusfind, trious be, [Lee.

That reaches to your uncle's mind; You'll surely please your uncle

#### 2. By Mr. THOMAS BAKER, Nuncaton.

A path, convivance, track, of way, in The prize Zhigma will display; But of all paths may we be givin, To that which terminates in Heavin !

#### 3. By A FEMALE INCOUNTS.

Of all the tracks that we can tread, There's none so smooth and even, As that which doth through virtue lead,

Straight onward up to heaven!

4. To Mr. Pytches. By Miss GURNEY, of Richmond.

#### 5, By Mr. W. HILL, Oldham.

The riddle sent from Groton To scize or solve it; but I fear, House, I've view'd as does a cat a mouse, Behind, before, on every side And left no likely mean untry'd

#### 6. By Mr. JAMES HOOD, sen.

These lines on conveyance, kind sir, I now send. Not by the Leeds mail, but by an old friend, They were penn'd in a cot, hear the rise of a hill, " " On the border of Warwickshire, near to a mill, Here Contentment presides, and Friendship, and Love, Jough 2. A foretaste of that we shall find when above. 1.5 6 2 7. By HINGKLEIENSIS. PORTER OF A CONTRACTOR equie with A safe conveyance, I suppose, spurstwaters The prize Anigma will disclose. A the B. By Mr. THOMAS LITTLY, of Thome. -T os 10 Anwyrs, Latital's an old stick, conveyoues he makes, 12000 wi And sometimes to his study the Diary he takes ; - 849:54

Bull a word in with the ever pro- ICan moderation with for more? Other

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soure And heatriously asserts, since he's found out Rythes's rhytics	
Such a pussing conveyance he ne'er saw in all his time.	
And next Michaelmas term, ha's in hopes you'll glad his eyes,	
By entring on your rolls, "Lawyer Latitat a prize."	
9. By Mr. GEORGE SIMPHIN, of Thirdon.	
Friend Pytches's prize in dark sisguise,	
Did puzzle my old brain ;	
Until at length, I tried my strength,	
Conveyance to obtain.	
10. By Mr. W. SPENCER, of Sapcote.	
Hail the mystic bard of Groton,	
Tis conveyance thou hast wrote on.	
11. By Mr. Jossen Surra, Ruddington near Nottingham.	÷
As soon as the Diaries are published in town,	
By Pytches's conseyance pray send me one down.	
Other ingenious Answers to the Prize Ænigma were transmitted by	
Messrs. Baines, jun. Boulby, Bradley, Claye, Cook, Crabtree, Froude,	
Handford. Herdson, James Hood, jun, T. Hood, Maffett, Nield, Pap-	
ple Parsons, Smith, Snooke, Suffolk, Sumner, Treeby, Tyson, Whicker,	
Whitaker, &c.	
1. ANSWEB to CHABADES and BEBUSES. The Wish.	
By Mr. R. CLAYE	
Could I wish, and obtain, I would ask to reside	
Seeladed from envy with truth as my guide.	
In you humble ivy-crown'd cot,	
For malice and scarcity shrink back with fear	
The world may have sorrow—it reaches not there,	
Contentment is king of the spot.	
The portico's splendour, the mansion's gay shew,	
With all the smart things which from luxury flow,	
No pow'r have such bliss to impart,	
Here him I'd resist who would wantonly try	
In correct to wake in my bosom a sigh	
And sting, unoccasion'd, my heart.	
How frail is our Nature ! ne soomer one want	
Is gone, but another for, life seems to pant ;	
For ah? I a mate should require	
To make me a <i>poultice</i> , or read Dia's page	
What the ave of decomment is dim'd by old over	
When the eye of discemment is dim'd by old age,	
Then grant dearest fate my desire.	
2. Address to Mr. W. Hill, By Mr. WILSON JOBSON, of Grassy Nook.	
Your mansion, Sir, is built with [ Nor envy & your splendid palace.	
art, Contented with my humble lot,	
And all about it very smart? The matter of a kinely cot,	•
In truth the portico's so fine of a difference of a concerve con,	
That earnestly 1,44 wished is mine : Nor poultide, for I have no would.	
To wish for things that we do want And long may you in health and	
Who can resist? I'm sure I can't: spirit,	
But still my heart is free from malice Enjoy the mansion that you merit.	
3, <i>A</i> 4-	

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# THE GENTLEMAN'S DIARY, No 76.

#### 3. Adriate .: By Mr. Jamas PostEster warts, Resin Boyal Marines.

•	· Hit cornest seck the manst and of the blest, Second a second second	4
¢	That you in blue eternally may rest :	
	No search y in those abodes ere reign, and the second or	•
	Nor poulties needed, for these is no pain :	•
	There sisters live in unity and love, in the state of the second	
í.	For malice dwells not in the scalms above ;	
	But white-rob'd truth the portico pervades,	
	And sin and smart are thrust to infernal shades, and the	
	There pleasure reigns without the least slipy,	
	And joy transcendant but succeeding joy.	•

4. By Mr. JOHN SAVAGE, Green's Norton.

No mansion with a portico, Smartly adorn'd, is mine, no. no :

3-1

Nor do I this desire; Contented with a humble cot, I'll pitient bear what is my lot, From maîce free, with oily what Que nature does require.

As sound my table now do rise Sew'n "olive branches," or six boys Who have one sister dear: These for supplies look up to me, Tis truth, so K in corners be; Chick-needed Byys I scores can are Which way my course to steer.

<u>\_</u>&%

Other answers to the Charades and Rebuses were also sent by Messre. J. Baines, jun. B. Boulby, Arthur Daniel, jun. R. Froude, W. Hill, Hinschleiensis, J. Herdson, Jas. Hood, Jaj. Hobd, jun. Lynb, R. Maffett, T. Nield, W. Oats, J. H. Parsone, W. Speneer, D. T. Sheridan, John Smith, Joseph Smith, W. D. Snooke, Jos. Suffolk, C. Summer, S. Treeby, John Tyson, T. Whicker, W. Whitaker, &c.

New ÆNIGMAS to be answered next YEAR.

1. ALNIGMA 955. By Mr.	THOMAS BARRER, Numeaton.
I am in every city found,	That evil does from me proceed
With ivory palisaded round;	But I with verity can say,
And the' I never leave my blace.	That I'm as free from guilt as they:
I'm lost and found by pymphs of	I am as innocently fair
grace.	As the most holy vestals are.
Like Phoebus in his central car	Was I engender'd of the earth,
Enlight ning each revolving star,	Or did the clouds give me my
Creating warmth I nicve below	birth ?
The organs that divinely flow,	Mysteriously in form Pm wrought
	With due efficiency of thought :
praise,	Ahl there's the arch and subtle
Delighted with my hallow'd lays.	foe fwoe:
Yes, every poet I inspire,	That makes me dread the wreck of
And warmiy strike Erata's lyte't	Yet, if with earnest zeat I strive,
For I'm an active ontiry,	And keep the hometfrom the hive,
Of life and sensibility a sense it	Doubtless I shall the victory ghin,
A real automation of love	And lesting happiness obtain : A
	Hence tell my names yd som of
Yet some assert, and from their	
	And keep me clean in every past.

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NBH 2016	1816, 2. C. C.
S. Encona 956. By Mr.	Rich. OLAYS, Manchester.
	While Baochus cheers the Sons of
Care,	War,
For recreation to repair ?	While Kemble plays; or if you 3
Where must it turn, or whither ay?	search, [Church ;
But to thy page, instructing Di,	Perhaps you'll find me at the
There pleasure reigns-but with	
bis tale [hail!	grand [hand,
Your servant comes - Disrians	A lac'd-coat youth yields me his
<b>1</b> am a friend of parts refin'd, ; A leg before and two behind,	And sumbers justly hold belief I oft destroy a minaight thief.
A mouth that's cut my head	
throughout,	When old, how I could fiames
And like a boar I have a snout.	subdue,
Two eyes-wherein teans ne'er	When young his sight I did ass
prevail [a nail.	But mark, I am not an oculist.
But men thro' which pierce many	Sons of the Nine, whose potent
I seldom eat, save in the night,	skill, [the quill,
Then sometimes growl to take a	Deal truth and judgment from
bite;	Whose every glance can clouds
Yet, when the hour of feasting's	
o'er I vomit to make room før more.	And quick a mystic object tell ;
I'm known to act while Senates	Say, what am 1-withdraw the mask
jar,	Which faintly veils the simple
5. ÆNIGMA 957. By	a FEMALE INCOGNITO.
A female hopes to be allow'd	On some occasions I disgust,
Again to touch the lyre ;	To some I yield delight ;
O ! say not she is weak or proud,	By some I'm censur'd as anjust,
In dering to aspire.	Seldom exectly right.
She's by ambition mov'd, 'tis true.	
To mingle with the wise;	Oft murmars at my laws,
Yet would not wander from the	
clue, The path where wisdom lies.	Would prove that I have flaws. Religion says I must be check'd,
And now, thus prefac'd let her	
bring	Ere on the altar, true respect
The thing she has in view;	The offer'd incense gains.
Tho' on a feeble muse's wing,	Kind Gents, your Editor has y
She trusts the traits are true.	shown
In early life I sometimes soar,	A condescending mind,
Rebellious, headstrong, high :	In ott admitting (though and a
Am what reflection must deplore	known)
And heave the heart-felt sigh.	A muse of female kind.
	These six and thirty hits review;
Undisciplin'd by was: "Also! in this untutor'd state,	In forty this shall end, To prove the writer has me too
A secta of angaist sow.	To please a generous friend.
	a merte andere a Benetena stende
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<ul> <li>A second rate of the second sec</li></ul>	and the second s

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6. REALERA 958. By Mr. PHILIP GOVE, Exceed, When vivid lightnings theo' th' etherest space, Display their flashes with terrific glare, And awful thunders theo' the vast expanse.

Tremendous roll, and fill mankind with fear; When whistling whirlwinds do tumultuous rise,

And shipwreeks, dreadful shipwreeks, do abound ; When ocean foaming laves the nether skies,

Tis then I reign and terrors spread around : When hostile navies on the boisterous main,

Engage with fury, and determin'd ire, Or armies on the wide ensanguin'd plain,

Destruction spread with cannon, sword, and fire. When plague and famine lift their direful head,

When earthquakes make convulsive nature groan, When confingrations awful terrors spread,

I reign profound, and triumph on my throne.

I, mighty Victor, hold extended sway,

O'er the vast empires of this spacious ball; My dreadful mandate all mankind obey,

For I encounter, and L conquer all.

5. ZNYG MA 1959. By Mr. W. OATS; St. Just in Penwith, Cornwall. Shall silence over keep her peace- | Next, where Yulcanian clatter does [uses found : ful reign ? [sume in vain] resound, Or shall the trembling muse pre- I'm fashion'd first, for various To veil in humble shades the rus I great and small by turns am. tic theme. [dream.] sometimes made, ftrade : Or scatter graces like a pleasing And very useful in some kinds of - I am a part of this stupendous Tis said a mighty fabric once was {terial worth ; earth risen, [ring heaven: Whose copious breast contains ma- Not 'gainst th' injunctions of uner-From thenes my parent by itself And though my voice did there ja drawn, [known.] make no resistance, [assistance, This seems incredible till fairly For many various friends I give Now quite display'd before the Where mighty concourses of folks are found, [sparkling round, light of day, [survey : Its various process you may now And where the sprightly glass goes Then to the furnace doom'd, where And many with each other do confames elate [fate! tend, fend. With honour spread irrevocable Till I advancing soon the contest 6. ÆNIGMA 960. By Mr. WILLIAM PITTAM, Barby, Northamptonshire.

I once was held in great repute, But now, alas! poor me;

I'm almost banish'd from the world,

By incredulity.

Altho' I'm wise, to say a man Deserves my appellation,

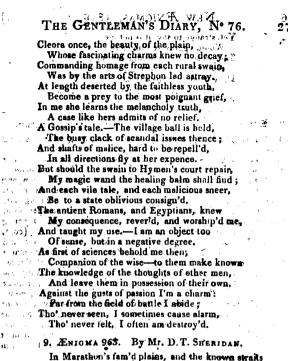
Would doubtless give him great offence,

'And hurt his reputation.

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NEW ANIGMAS 1816 OF THE TRANSPORT 26 Yet, strange to say, it is not me, Cleora once. toi, stor more, int. Staraga blow Tho what I am he woold not beground sentW Nor is it in his power. a set if set busmmed If by what I've already said, the solt we saw You do not guess my name, iesh inggista aa A wager may be safely laid, 505 Sen al You are not what I am. 7. ÆNIGHA 961. By Mr. SAMUEL RINGROSE, Coffingham. In rural life, free from corroding And free from guilt tare stain'd with deepest dyes: [snare,] 1 care My parents liv'd secure from every Into another's service now they're Peace and screnity they then encall'd. [best, and maul'd; And pierc'd, and gash'd anew, and [peace desurov'd. joy'd ; But soon unfeeling man their My scatter'd pasts are now in con-For no alledg'd crime, or moral tact brought, [Throughout. [blood was spilt, I then receive my proper form guilt, • • By murd'rous man my parents' Tho' I am useful found to young And, since that day, my different and old; 1 - 1 [cold, parts do bear I often am exposidato wet and A discipline degrading and severe; And what appears to add to man's For, by a selfish law man has disgrace, Flish'd face, thought fit, [loathsome pit. He oft with dirt, besmears my po-To plunge them in a deep and And when at night I'm put away When took from thence they're to rest, guest ; doom'd to hardships worse, An empty belly is my constant, For now they're best and bruis'd Yet, in the morning, 'tis but fair without remorse ; to say, [thro' the day, I'm so well fill'd I want nought Another master now takes them in [ All that have us'd me find that I'm hand, [command,] And they obey, tho' hard is his expedient, For at his will all cut and gash'd Adieu Diarians, I'm your most they lie, obedient. 8. ÆNIGMA 962., By Mr. W. SPENCER, Sapcote, near Hinckley, Ere from chaotic atoms first did spring Those mighty orbs, whose glories far surpass The state and grandeur of an earthly king, With all the pomp of royalty-I was. Anterior to things created, I Was witness to this world's great natal day : And, highly favour'd of the Deity, Have been in Heaven, as sacred records say. When mortals fail to court my friendly aid, 'Tis doubtful if they're number'd with the wise; For, know, a most impenetrable shade, I cast o'er folly in its deep disguise. By me the bonds of sacred friendship are More closely drawn, and they that will confide, Their secret thoughts to my in fulgent care, watting Shall have no cause to be dissatisfied. Cleora Digitized by GOOS



Of Salamis, where Freedom's sacred flame Inspirid the bosom of each martial swain And made each Greek a hero, I alone Was thought the only adequate reward For such transcendant virtue. Blest with me, The darling meed of many a well-fought day, The happy victor seeks his peaceful home, Where aged parents hail his safe return, And love and beauty bless his future days.

Not always to the valiant sons of Mars Am I confind, the bards whose lotty muse Recorded heroes and their matchless deeds Rewarded virtue and degraded vice. And sung in dulcet softly flowing lays, The various blessings of the rural life, Have shar'd my sweetsst smile. Q Sopholest When all consenting Greece on the bestow'd My blooming charms, thy tond and feeling heart, Oppress'd with transports of extatic joy, Burst with the mighty impulse I fondly view'd

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# THE COMPLETENERS IN THE COMPLETENES IN 76.

My lovely form, and with a smile expired in the W While Rome in virtue, as in arms excelled to the start And her victorious chiefs alike subdued to the start W The fields of Ceres and of from ing Mars and instit
While Rome in virtue as in arms excelled,
The fields of Cares and of Froming Mars 19 11911
'Twas I with godlike ardour fir'd their souls, north
And gave them conquest. Let the shield of Rome.
Let brave Dentatus and Camillus speak,
Who in so many sangunary helds
have often woold me, and as often won i
in Britein too I ten the heav'n v tieme
Of learning and of freedom. Sweet the bliss
When I reward the long laborious toil Of patriots, bards, and herces. I with ease,
As with a magic wand, from vulgar minds
Imput d with science and the libital arts
To day adorn'd, to-morrow thrown aside, But the companion of exalted man
But the companion of exalted man
$(b) \in \mathcal{F}$ That soothes his sorrows and augments his fame, $b \in \mathcal{F}$ where i'm neglected, all th' ignoble weeds $(b) \in \mathcal{F}$
That choke and canker virtue, rankly grow
The close and cancel virtue, lankly grow the set of the set
To foul luxuriance. Ah ! ye great, beware How ye despise for baubles of mere pride
is a My sterling worth and influence divine.
10. ENIGHA 964. By Mr. W. D. SNOOKE, Woolbridge.
IV. ZENIGRA 909. Dy WIT: W. D. SNOORE, WOUDELUGE,
Your servant, Gents.—Permit me as a friend that if your A.
Whilst briefly I my properties pourtray, see the first of the
That should we chance to meet another day,
In spite of this disguise in which I'm dress'd,
that i, I may be clearly on your mind impress'd.
Know then, I've almost constantly a seat set of A
$d_{1}$ , d Within the stately mansions of the great, $d_{1}$ , $d_{2}$ , $d_{3}$ , $d_{4}$ , $d_{5}$ , $d_{1}$ , $d_{1}$ , $d_{2}$ , $d_{3}$ , $d_{4}$ , $d_{5}$ , $d_{1}$ , $d_{1}$ , $d_{2}$ , $d_{3}$ , $d_{4}$ , $d_{4}$ , $d_{1}$ , $d_{2}$ , $d_{3}$ , $d_{4}$ , $d_{1}$ , $d_{2}$ , $d_{3}$ , $d_{4}$ , $d_$
many There I reside, there I delight, and not serve a
and the second s
man To pride and luxery; or an confin'd the the second and f
To spacious courts, With innecence I prove observation of the
of the Companion oft, amid the shady grove. Any to draws to weak
Here, when the love-sick maid, oppress d with sain Y and
non. With rural pipe deplores her absent swain, OD-10
I add a swaetness to the plaintive strain.
In gothie zuins, muss-clad tow'rs, I dwells, E act as
Or where the stream meanders through the vale. In globmy cavera I am often found
In globmy caverns I am often found ; On craggy chiffs, or by the lolty mound.
Though seldom am I on the barren plain : ( 3403
If there you seek me, you may seek in vain. "Have A
Though self-om ant I on the barren plain ; Curolt If there you seek me, you may seek in vail. If there you seek me, you may seek in vail. When
Suproanos teacon and teate are to see the funder of
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,  $\mathbf{y}^{\prime}$  When light with a state and dear after livid del beals, Perchance I then surround the heighb duite heigh. When bounds and huntsmen in the chace combine. Their sentral noise chorus oft I join ; Aneonget the joyist chorus oft I join ; Aneonget the joyist chorus oft I join ; Aneonget the joyist bloods I there attend, And to their clam'rous mirth assistance lend. So when the war-whoop angry heroes swell, My voice is heard amid th'astounding yell. Yet say not hence, I nought but vice pursue, For I'm at church as constantly as you ; When there, petitions jointly you prefer, These hints remember, (for I close them here,) And know me when I next salute your car.

## 11. ÆRIGMA 965. By Mr. SAM. TREEBY, Plymouth.

Geometers their senses strain	For mother Eve without my aid,
My simple being to explain ;	
Yet they have proved, all you can	
	The orator can't speak with grace,
	Except he put me in ary place.
By this you'll think I'm great,	Demosthenes could never plead
but, no-	Without my friendly helping aid :
The least of any thing you know.	
And, yet their fame, howe'er so	
	Grammariums say I moasure time ;
Without my aid were incomplete.	
The architect can't columns rear	
Nor plans can draw, without I'm	
	I claim, with every think of worth,
And Newton said by me alone,	
His fluxions could be quickly	Here you may wonder, but be-
kuown, an an an a	tiold ! [told,
But not alone to man a friend,	
Each lady will my use commend,	Fin large. I'm small: I onickly fly:
I make them well employ their day,	Employ me well before you die :
Assist in needlewook and play at	
In needlework there's not a shadey	
That without me could e'er be	
inade.	Maria and a shin britter to 3
	My same e'er this is open laid.
1	
PRIZE ÆNJOMA. By Mr.	JOHN SIBSON, W. Boldon.
Ye British votiths whose of	ten rous bosoms glaw
When dies Affinition talls	Part in the standard Buddhers (1)

When dire Affliction tells her tale of wee i gent at 'Fore your august tribunal Lappear A supplight negroy, and a wretch sincere; assail Urg d by despair, I reise the mournful strain :

asa'il

Of racks, and blows, and fires, and floods, complain :

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# 31 W. NEW FRIGMAS, 1816, 41 C

Fix'd in the centre of surrounding fires, Where all the rage of Phlegethon conspites : """ Where bubbling waters hiss, and thunders roar, Black whirlwinds rise, and shake the solid shore; There while around the pois'nous vapours play, And clouds on clouds, commingling hide the day ; Unmov'd I stand-so tyraut man ordains, Mocks my distress, and aggravates my pains. From grand-ire Jubal, first I bore abu e Who doom'd my race, subservient to his use, My lot appointed, and my form design'd My limbs distorted and my parts disjoin'd, Dubb'd me, O Heav'n , vile man's eternal slave To serve him from the cradle to the grave. If from my cell, I turn on Heav'n my eye; What pitchy pirals intercept the sky. Below --- what heaps of peaceful dust are laid ! (The prime material of which man is made !) Around-how blest, magnificent the scene ! The roast goose sparkling and the young pea green Great sitioin recking, from the murd'rous knife, The glitt'ring tea trays and the frugal wife .-- \* Top oft alas at Persecution's call 1 rust in state, on prison's dreary wall A constant sentinel --- unknown to change ; I mark the bounds for criminals to range : Arrest in dog days, Sol's meridian glow, , And o'er the clanking rooms a dubious twilight throw. To fill my maw, to mend the fatal spoil, Nosthumbria sends her sable sons to toil In darksome caves-insatiate I devour Mountains of food, and hourly long for more. ... Sometimes immurid, where nightly plunderers stray, I rob Grimalkin of her lawful proy; Attend the sickly artist at the loom : A sure companion at the drawing-room : With Cooke I sail'd the wast Pacific o'er, And cheerid his toils on Nootka's stormy shore. A curious Infidel, my Creed is such, I love the parson, yet renounce the charob; Protect him from December's deadly rage-Assist his studies and illume his page. h. A By curves I'm guarded, and by cook-maids spumid, By children dreaded, and by poets shund. The ' tuneful fool,' that in descriptive song Roams woods and wilds,' and b inks,' and breams among, Calls from dame Nature her serenest flow rs And into rhyme the frenzied spirit pours. Bay, is it just, with more than poet's rage My form be exil'd from his polish'd page.---Me should the muse in lovehest garb array

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And sense demand me with imperious sway, Should grave authority to nerve his rhymes, Auest my merits in Milfonian times— Tgnoble wretch ! of shape uncouth and mean; By bards rejected, and in books uncen, Go frame in Billing gate the loud rough roar, And add to blacksmiths bill one item more."

#### NEW CHARADES AND REBUSES,

#### 1. CHARADE. By Mr. J. HAWKES, Finedon.

My first at the door gives old Gripus relief, And aids to secure him from rogue or from thief: Yet the charms of my next so bewitches the elf, That he gradges all others and half starves himself, Nor yields to my whole with a downight good will, Unless it contributes his coffers to fill.

#### 2. CHARADE. By Mr. JOHN HERDSON, London.

My first and my second are each known to be A load for a horse, and that you will see; But great is the contrast when joined together, They almost become as fight as a feather.

#### 8. CHARADE. By HINCKLEIENSIS, addressed to Mr. SPENCER.

Once more a new charade I send, My tidy 'sécond 'may be found In hope it will amuse my friend : Where woods and coppices abound. To read it 'o'ër' he'll not fefaise, Bétatase his bent instead of newit A smiling infant farmy first When by its tender mother nurst; Will help to pass the time away.

.4. CHARADE. By Mr. JOHN SMIPH, ARON Park.

My first's a material of very great use; Through my next often flows a delectable joice; My whole pays our island an annual visit, And is greatly esteem'd.—Diarians, what is it?

5. CHARADE. By Mr. WILLIAM WHITAKER, Halifax.

My first existed ere mankind had birth, Aild reigns alternately o'er half the earth : My next în Paradise a pasture found,

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Stretch'd in the shade, 'or bounding o'er the ground : 'My whole, his! when e'er its powers courtessid, 'Malignant, provat a direful foe to rest.

1. REBUS.

New REBUSES, 1816, The CENTREMAN & DIARY, No 76.

# 1. REBUS. By ELARS DRAMEIR.

In me is often seen a gentleman's deligh Behead me, then you have the thing on Oncy more my load takes off, 60 years and What soldiers all should be when they a But if you then transpose and place the -A Christian name for men will soon apport + (1)	which I write; lations: dypear to to the war. letters right; (1) per inveight; (2)
I'm known to seaman, it is clear, For I direct thom how to steer. Cut off my head, and then behold, An animal just six years old : Now cut again, and you will find What Nature ever leaves behind. If still another hint you wish, Curtail me, and you'll find a fish.	Availle average of the officer off
Read Holy Writ my first to see, There pious Job doth mention me, Then join a letter to the same, The whole will form a poted uame	Barnes scillen i laneon Mr. John 22 - 5 the supporting 2 of
d 1001 100 By Diary Banded down to fame. Super structure of the sector and the structure of the sector and the sector of the Cost generally What was the nature of the Cost generally	
name of Constantine? Was it real or imaginary II. QUEST. 332. By SAPCOTIEN Hops and Kidney-beans wind in different dir supporters: can any natural reason be assigned III. QUEST. 533. By Mr. JOSEFH SUPPOLK,	sis. wettens round their why they do so ?
Generally, about sun-setting, the clouds in t pear parallel to the horizon. Why do we not see al any other time of the day? other time of the day? IV. Qu. 334. By CLENTONS IV. Qu. 334. By CLENTONS IN Port Chancellor King's Enquiry relative to the Primitive Church, page 15, that learned aut anglegy of the Greek, we were not larger the Way the informer, so far as the meaning of the	he westerin skyl ap- themin that pusition. A. D. J. L. S. D. Johannen and S. T. J. Johannen and S. T. J
bitized by Bool and a set	shadows. Put dimesin

# The GENTLEMAN'S DIARY, Nº 76.

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TE SAME to the Quartons proposed last Yeat.

(1) Quest. 1036. Answered by investmention, the Proposer. Euppose the quantity  $a = [n_a/a - (n+1) \sqrt{a}] = n^2a - 2$   $(n+1) a + (n+1)^2 a$ ; that is, dividing by a,  $1=n^2-2n(n+1) + (n+1)^3$ . Then, this equation will be true if n be any, integral positive monibilities n=1; then  $a = [\sqrt{a-2}\sqrt{a}]^2 = a - 4a + 4a$ ; and therefore  $\sqrt{a} = \sqrt{(a-4a+4a)}$ . Taking the root by the usual method,  $a - 4a + ia(\sqrt{a-2}\sqrt{a}) = -\sqrt{a}$  the negative root. we have a

2 a - 2 a - 4a + 4a + 4a + 4a

And an analogous result would flow from assuming n = 2, 3, 4, &c.

Similar to this were the Answers transmitted by Messrs. Lamplugh. Edward Page, R. Prance, John Smith, and R. Taylor.

Öther solutions were received from Messis. Ambulator, John Baines, jun, Rev. J. Furnass, Ab. Jaques, G. Jones, and John Williamson.

Mr. John Abram, of Canterbury, gave an ingenious answer, upon the supposition that it was required to find the root  $\frac{1}{\sqrt{a}}$  by a direct method, instead of taking it equal to  $\frac{1}{a}\sqrt{a}$ . We regret that his curious investigation is too long for insertion here.

Some of our Correspondents refer to No. 13 of Leyboun's Repository for a good solution to this question by Mr. White; but the Proposer of the question in this Diary could not be aware of that solution, as is evident from the date of the respective publications.

(2) QUEST. 1037, answered by Mr. W. G. HORNER, Bath.

# The Materian Similar 10 76.

Ab=== 10 feet. Then AF=== , and Ac== + c. By Trigonom. tan. BEA  $\overline{x_{+}}$ , and tan.  $beA \xrightarrow{q_{+}} W$  But, by reason of the tan  $x_{+}$  where  $x_{+}$  but, by reason of the sparse distance, be and BE may be regarded as parallels, and consequently these two tangents will be equal; that is, Hence  $x = \frac{bc+c}{a+b-1} = 50.98076$  feet, the length of the pole. Again, by Mr. MATTHEW LAMPLUCH, Walkington, and Mr. EDWARD PAGE, Westwood Cottage, near Beverley.

AB and Ab being, as before, the two positions of the pole, we . have bAB=30°, and bAe=60°. But AD=Ab=AB, therefore the trisingle AbD (see the preceding figure) is equilateral. De=DE is given , = 10 feet. Also, by the question, BE and be are parallel; as are, likewise, AB and Cb, and AC=CD. By similar triangles, Ce : Cb AE: AB, or AD-10: AD A: AD-10: AD. Consequently, AD+10=AD/2-10/2, and AD=AB=50 9808 feet, the length , of the pole.

\*\*\* It is too remarkable for the Editor to omit noticing the circumstance, that not only the above solution, but every solution in their respective sheets, is precisely the same as communicated by Mr. Lamplugh and Mr. Page: the diagrams are alike, letters of reference the same, language the same, contractions the same. A coincidence of this kind always excites unpleasant suspicions; and the Editor hopes it will not occur in future.

Other answers to this question were contributed by Messrs. J. Abram, W. Bagshaw, Jn. Baines, jun. Jn. Butterworth, Phonas Charlton, A. Cook, Jon. Crowther, Arthur Daniel, jun. Rev. J. Furnuss. Abr. Jaques, G. Jones, R. Maffett, P. Nicholson, R. Prance. D. T. Sheridan, W. Shires, W. Stringer, R. Taylor, S. Treeby, W. Weston, Jn. Williamson, Jesse Winward, &c.

(5) QUEST. 1038, answered by Mr. JESSE WINWARD, Seri, Schoolmaster.

Geometrical Analysis. Suppose it done, and ٢F the points C and D found as required, crect the Di=DC, join AE, and produce it to-meet BF\_AB in F; now AC CD ... m n, a given ratio by the question, and by composition AD **A** C D B : DC=DE:: m+n; n: but by similar **A A** D: DE:: AB: BP, wherefore m+n; n: AB: BF a given ratio, and AB is given, ... BF is given, and AF given in magnitude and position : join BE, then CD2+DB2=DE2+DB2=BE3= a min., or BE a min. and the point B being given, and AF given by position, this will evidently be the case when BE is perpendicular to AF; hence this

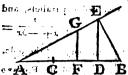
5:1 Construction. Draw BF perp. AB, and take BF a fourth proportional to m+n, n and AB, join AF, and upon AB describe a semicircle cutting AF in E; draw ED perp. AB, and take DC=DE, and "" the thing is done; the truth of which is sufficiently obvidus from the Dinitized by GOOgle .... المتر والم والم

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# The Matheinstical Repository, Nº 76.

monogisT. A. by Messes. John Burren Wonth, ANT. Cook, Rev. 4 ont to more TERRNASS, W. STEINGER, and W. WRIGHT. LUL ast

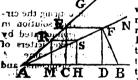


Analysis. Suppose it done, C and D he required points; erect DE perfenditular to AB and = CD, and draw AE; now CD AC being a given ratio, CD, and consequently DE AD a given ratio (see Buchid's Data, Prop. 7.) Hence AE is given in position, and CD<sup>2</sup> BD<sup>2</sup> BD<sup>2</sup> BD<sup>2</sup> BD<sup>2</sup>, is to be a minimum, which it

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when Retpendicular to AE. Hence the following Construction. In AB take AF of any length, and perpendicular to AB take EG AF .: DE AD; through A and G draw an indefinite right line, perpendicular thereto draw BE; denne DE perfendicular to AB, divide AD in C so that AC C D may be the ratio given by The question, and it is done.

digast out its Another solution, by Outcron, of Penrith.



Analysis. Let the given line AB be divided in the points C and D in the manner required, so that AC CD may be a given ratio, and CD<sup>2</sup>+DB<sup>2</sup> may be a minimum. Draw CE perpendicular to AB and equal to CD, and EF parallel to AB and equal to CD or CE, and draw FD perpendicular to AD; then the figure CEFD is a square,

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Join AE, AF, BF; then since AC CD is given ratio, and CD=CE, therefore AC CE is a given ratio: 1. 27820.W hence the locus of the point E is a straight line, AEG, given by position, and the triangle AEC is given in species. Therefore the ratio sof AE CE or FE is given, and the angle AEF is given : therefore the locus of the point F is also a straight line AFN given by position: also, CD<sup>2</sup>+DB<sup>2</sup>=FD<sup>2</sup>+DB<sup>2</sup>=BF<sup>2</sup>, to make which a mini-"min, since the point B is given by position, the line BF must evi-

dently assume a position perpendicular to AFN. Hence this bus Ganstruction. In AB take any point M, from which draw MR sd; perpendicular to AB, and make AM : MR in the given ratio of AC (5) GD; join AB, and through the point R draw RS parallel to AB and any equal to MR; join AS with the indefinite straight line ASN, from the GA point B draw BF at right angles to ASN, and through F draw FE parallel to AB, meeting AR or AR produced in E; from the points HI E and F draw EC, FD, each perpendicular to AB; then is AB divided ; noin the points C and D in the required manner.

Demonstration. For, by parallel lines AE AR : EF RS : EC : 1.... TEMs, hut RS\_RM, therefore BF=EC=ED; and AM MK AC -10. J.DB-BF, which will be a minimum, since BF is the least line -itt which can be drawn from the given point B to the straight line AFN. ban Siven by position.

Apswers to this problem were likewise sent by Messrs. Abram. ed: Bagshaw, Daniel, jun, T. H. Horner, Jaques, Jones, Lamplugh, Maffe Other-

### The Mattan disalw Rapadite pull' 76. 92

Maffett, Nichalson, Hage, Prance, Sheridan, Snooke, Taylor, Treeby, Williamson, Young, Scc. and Make

(4) QUEST 1039, answered by Messrs. JONATHAN CROWTHER, of Woodhouse Grove; GRIFFITH JONES, of Warrington; and D. T. SHERIDAN, of Stafford.



Let ABC be any triangle, right angled or not, having the given base AB and the given vertical angle ACB; bisect the angles CAB, CBA, by the straight lines AD, BD, intersecting each other in D; that, by a well known proposition will be the centre of the inscribed circle. Then, since the angle ACB is given.

the sum of the angles CAB and CBA is also given, and therefore the half of this sum, or the sum of the angles DAB and DBA, is given; and consequently the angle ADB is given. The points A and B also, are given; therefore the locus of the point D is the segment of a circle capable of containing an angle equal to the given angle D, that is, containing an angle equal to the supplement of half the given vertical angle.

vertical angle. Answers, for the most part similar to the above, were given by Messrs. Abram, Ambulator, Bagshaw, Baines, jun. Butlerworth, Cook, Furnass, T. H., Horner, Jaques, Lamplugh, Maffett, Nichalson, Omicron, Page, Prance, Stringer, Snooke, Taylor, Treeby, Williamson, Weston, Winward, and Youle.

(5) QUEST. 1040, answered by Mr. JOSEPH HINE, the Proposer, Mr. THOMAS CHARLTON, of Newbrough, and Mr. JOHN SMITH, of Alton Park,

Let AB be the horizontal plane, AC the vertical wall, and BC the bar. Through G, its centre of gravity, draw DE parallel and equal to AC; then, by mechanics, the weight of the bar and its pressure at B are respected to the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the destination of the bar and its pressure at B are respected by the inclination required.

Another solution, by Mr. JOHN BUTTERWORTH, Haggate, Gnear Oldham.

This Gentleman, assuming the same principles, remarks that the forces act in the directions CE, ED, and CA, and are as the sides of the right-angled triangle BDE. But the pressure at B is double to the force acting in the direction ED; therefore BE=2ED, or ED: BD::  $1:\sqrt{3}$ . But BG being equal to GC, EG=GD, therefore, GD: BD::  $1:2\sqrt{3}$ ; whence the angle BGD is found =  $73\circ53'52'$ , or GBD= $16^{\circ}6'8''$  nearly, the inclination of the bar required.

#### The Matematical Repeating UN 76. > 375

THAN CROATHER. OF Water D. T. D 70 19Yig nwond

Maffett, Nandronathell, O'Heath any the day the day Any particular case may be deduced from the following searces B construction. Let ABCD represent the beam or bar, and lat G beathe centre of gravity, A the point which will rest on the horizontal plane, B that which will touch the vertical plane. On AB construct the A ABH, right / at A, and having AB ! BH in the given ratio of the weight to the pressure. Then GH will be a vertical line, and if BR.

AE be drawn liand 1 to GH they will represent the planes, in situ. For thaw BK BE, meeting HG in K, and join AK; also let F be the intersection of HG, AE. Because of the equal LIHAB, HKB. the points HAKB lie in a circle .: \_ AKH or AKF=ABH; where fore the right ZdAs AFK, ABH, are similar; and KF KA ("BH "BA) and the weight the pressure against AE. Which is the proportion in case of equilibrium (Emerson's Mech. Prop. 63.) Calculation. Draw Gs [AB, and let r be the intersection of AB

HG. the siln. As ArH, Grs, ABE, AH . Gs .: Ar : rs. Multiplis construction, and Gs, As, from the nature of the solid ABCD.

. When the Bartis a genetzical line, a spindle, or of any other such form that a is the middle point of AB, Games Ar And AB

and AH ( $\pi AB\sqrt{3}$ ): Ar ( $\pi AB$ ): rad =1:  $2\sqrt{3}$  = tang. Hold AM This was probably the case intended, as it is the only bas that oan be resolved independently of the dimensions of the body. Ingenibus answers were likewise sent by Messrs. Jn. Boines, jun. And Cook, Jonathan Crowther, Rev. J. Furnass, Ab. Jaques, G. Jones, M. Lamplugh, E. Page, R. Pronce, W. D. Snooke, J. T. John Williamson, Jesse Winward, Thomas Yardley, Scc.

161 (6) QUEST. 1941, answered by Mr. W. WEBTON, Bhimingham.

E D C Let BCA be the rod, CA perpendicular to the horts zon, and bent at C in an angle of 90°, CE = 50 inches, DB = 60 inches, then by the lever we have **4** O CE.W CE.W the vertical pressure at D and the AY. and that the guestion by the guestion B', but by the guestion CE.W 33 hc si les , and by reduction, we have Open BC CD alduois s. Stouble BC RETERD, or =3600, or 5BC\*==14400, or BG ; but BC2--OD, there-=53.67 Inclies wid CD::::26,835. • CEL Marel "з ind odi to noitenioni site disent " See 139 ed. 3d. 730 53 GOOg[Another

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### 36 AT Questions answered out 1816. od T

Another answer; by Mesers. J. Baines, joh. of Hunding) W. Badshaw, of Litton; JONATHAN CROWTREE, of Woodhouse Grove; R. PRANCE, of Plymouth; and W. D. SNOOKE, of Woolbridge.

Let ACE represent the bent rod, DB the spur, and W the weight Put CE==a=50,DB==b=60, and CD=x, then Vb2-x==Be, und aW bal IU CEXW by Ex. 7, p. 354, vol. III. Hutton's Course, − ==the ver-CD r CEX W tical pressure of the horizontal arm on the spur, and BC , IA à₩ =the horizontal pressure against the vertical arm; there-/ 8 2 T e it inch aW 2aW 5-15-26.8328 inches == CD. ---- DE . or z== 23.1672 inches.

Otherwise, by Mr. ABRAHAM JAQUES, of Penrich; and Mr. Jours SMITH, Alton Park.

By the principles of Mechanics, sin. CDB; sin. CBD; vertical pressure of CE on DB; horizontal pressure of DB against AC (see the preceding diagram). These pressures are, by the question, as  $2\cdot1$ . Therefore, (the sides of triangles being as the sides of 3be opposite angles) CB=2CD. Assume CD=1, then CB=9, and DB = $\sqrt{5}$ . But DB=60; therefore it will be

Answers were likewise contributed by Messrs. John Bullerworth, Thomas Charlton, Ant. Cook, Rev. J. Furnass, W. G. Henner, Griffith Jones, M. Lamplugh, R. Maffett, Edward Page, J. T., S. Treeby, and John Williamson.

(7) QUEST. 1042, answered by Mr. P. NICHOLSON, MICHIECE, 10, Oxford Street, London, and Mr. RICHARD TAYLOR, Carlisle.

Demonstration. Bisect AD in O; produce AD and TL till they meet in Q. н Then, by sim. tria. BQ : DQ :: BT == 2BH DL 2AB AD; ... BQ DQ B D 2AB : AD; and BQ : DQ : AB : AO; (AB - DQ) = BD : BQ : (AB - DQ) = BD : (AB - DQ) = B $AO) = OB \cdot AB, \dots AB \cdot BD = OB \cdot BQ$ Now the equality of these rectangles in-H dicates TL to be a tangent at T, in both curves. (Simson on the Ellipse, Propa17, Cor. 1; and Hyperbola, Prop. 35.) B D Q 3. And B. L. S. B. Digitized by GOOg Mother · ...' ;

## The Mathematical Bepository, Nº 76.

Another demonstration, by the Rev. U. Furnass, of Pontelandicand : szerð szucaber PMr. W. G. Heinen, of Bath. which in 2 . .... as birdly V to reason of H hay

1. 1. 1. 1. 1. . . Let O (figure to the preceding answer) be the centre of the ellipse proportiola, Q the intersection of TL with the axis, or of their continuations. By similar triangles, QD : QB .: DL : (BT=) 2 HB and Bd. ; HB ;; (AD=) 20D ; AB, Es seque, QD ; QB ;: OD ; AB. Alterna. QD ; OD ;: QB ; AB.

Compo. & Divi. (OD+QD=) OQ : OD : (AB+QB=) AQ : AB.Alterna. GO QA GD AB.

Divi, QO (QA - QO = AO =) OD (AB - OD = AB - AO =)BO:

And this last proportion comprehends a well-known property of the tangent to an elliptic or hyperbolic curve. See Hutton's Course, vol. ii. Th. 7. Ellipse and Hyperbola.

Cor. (by Mr. Horner.) In the parabola A is at an infinite distance, therefore HL is there parallel to QB, and consequently DL= HB={BT. Therefore QD={QB, the known property of the tangent to this curve.

The Editor regrets much that he was obliged to omit the elegant "demonstration of Mr. Moore, the proposer, applicable to both curves : aralso that he can only specify the names of the following ingenious . Gentlemen who favoured him with demonstrations, viz. Messrs. W. Bagshaw, J. Baines, jun. John Butterworth, Ant. Cook, G. Jones, Matt. Lamplugh, Edward Page, D. T. Sheridan, W. D. Snooke, W. Stringer, W. Wright, and Edward Young.

(8) QUEST. 1043, answered by Messrs. ANT. COOR, JONATHAN CROW-MHER, ABRAHAM JAQUES, GRIFFITH JONES, and JOHN WILLIAMSON.

Let x = com, diff. and nx = the middle number, then nx - 3x, "nx-2x, nx-x, nx, nx+x, nx+2x, and nx+3x are the numbers, • and  $7n^3x^4 + 84nx^3 =$  the sum of their cubes, which is to be a bi-7n.(nº+12) 33 quadrate number: suppose it  $= m^4x^4$ , then x =

where n may be any number greater than 3, and m any number taken at pleasure, if n=4, and m=2, then x=49, and the numbers will be 49, 98, 147, 196, 245, 294, and 343, Again, if n=6, and m=12, then a= 126, and the numbers will be 378, 504, 630, 756. 4 882, 1008, and 1134.

... Otherwise, by Mr. JEsse WINWARD, of Mullingar, and Messrs. ROBERT MAFFETT and SANUEL TREEBY, of Plymouth.

"Put s; 2r, 3x, 4x, 5x, 6x, and 7x, for the numbers required, which " are obviously in arithmetical progression; the sum of the cubes of ""these is  $784x^3$ , and this per question must be a biquadrate whole 12 6 21 11 784 Fingenberrer Equate it to atx4, and there results = \_\_\_\_. Whence the required numbers will be expressed by this fraction multiplied into 1, 2, 3, 4, 5, 6, and 7, respectively, where a may be assumed at enligaA plea-

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pleasure. If a be taken = 2, there will result 49, 98, 147, 196, 245, 294, and 343, for the least integer numbers that can be found.

Solutions to this que tion were also received from Messrs. Bagshaw, Baines, jun. Butterworth, Furnass, Horner, Stevenson, (the Proposer,) and Wright.

(9) QUEST. 1044, answered by Mr. W. WRIGHT, Bonby, near Barton.

> Analysis. Suppose ACB the triangle sought, HN the diameter of its circumscribed circle bisecting AB in K, draw CD perpendicular to AB, which continue to meet the said circle in G, draw GT and CM both perpendicular to HN, also HL perpendicular to AC, draw CH B cutting AB in F and bisecting the  $\angle$  ACB, and let E be the place where the inscribed circle touches AB. By similar triangles CF MK CH MH, and FH KH CH MH

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by compounding CP. FH: MK. KH: CH<sup>2</sup>: MH<sup>2</sup>. But by the charge cle CF.FH ::: AF.BF == by the question a given space; and by 'gin known proposition MK.KH == AE.BE in like manner a given space; and hence CH<sup>2</sup>: MH<sup>2</sup> a given ratio, and the  $\angle$  CHM ==  $\angle$  AHL=bd diff.eft: the  $\angle$  : at the base is given; now, by the circle AD.BD==CD. DG=to<sup>2</sup> (by parallel lines) MK.KI is given by the question; therefore KT: KH and by div. TH: KH a given ratio, but it is well known that IH.KH==AL<sup>2</sup>, hence IH: AL and thence to AH a known ratio, outsequently, the  $\angle$  HAK== $\frac{1}{2}$ /ACB is known, and from theme all the set angles, and a construction from any of the data, very obvious.

Otherwise, by Mr. JOHN BUTTERWORTH, of Haggate, near Oldham.

Analysis. Suppose the thing done, and ACB (preceding figure) the required triangle : let CD be perpendicular to AB in D, and CF . the line bisecting the angle ACB; also let K and E be the middle of of AB and the point of contact of the inscribed circle. Then AK<sup>2</sup>-KP=AF FB is given, and AK2-KIS=AD DB is given. Therefors, (AK\*-KP\*)-(AK\*-KD\*=KD\*-KF\*=(KD+KF). (KD--KF) is given. Again, AK2-KE2=AE. EB is given ; therefore, (AK4-KF2)-(AK2-KD2)=KD2-KEt is given. But it is well known that KE<sup>2</sup>=KD. KF: therefore, KD<sup>2</sup>-KD: KP=KD (KD--KF), is given. Hence the ratio of (KD+KF) (KD-KF) : KD (KD -KF), or KD+KF \* KD, or KD \* KP, is given. But KD4-KFs is . given; therefore KD and KF are given, and consequently AK, and its double AB, are given. Hence, there are given the segments AD,DB, and the ratio of the sides AC to BC; to construct the triand angle ACB. Thus is the matter reduced to a well-known publicat. Other solutions to this problem were received from Measure Barner, 12

Jun. Cook, Crowsher, Furnass, T. H. Horner, Jones, Sheriden, (the Proposes,) Taylor, and Winward.

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baue and the Revis, Formate, of Ponteland, and the set
Manager Brand and Antonio and Brand Brand Born
the ordinate MP=y, the equation to the
Ma $x$ curve is $y = \frac{b+x}{\sqrt{u^2 - x^2}}$ . Therefore area
$\frac{1}{\left(\frac{b+x}{x}\right)^{2}} = \frac{1}{\left(\frac{b+x}{x}\right)^{2}} \left(\frac{b+x}{x}\right)^{2} = \frac{1}{\left(\frac{b+x}{x}\right)^{2}} \left(\frac{b+x}{x}\right)^$
$\begin{array}{c} \mathbf{B} / \mathbf{D} & \mathbf{Y} \\ \mathbf{B} / \mathbf{B} / \mathbf{D} & \mathbf{W} \\ \mathbf{B} / \mathbf{B} / \mathbf{D} & \mathbf{W} \\ \mathbf{B} / \mathbf{B} / \mathbf{B} / \mathbf{B} \\ \mathbf{B} / \mathbf{B} / \mathbf{B} \\ \mathbf{B} / \mathbf{B} / \mathbf{B} \\ \mathbf{B} \end{pmatrix} $
$-\frac{a^{2}bx}{x\sqrt{a^{2}-x^{2}}} = \text{fts.} \left(-\frac{a^{2}bx}{x\sqrt{a^{2}-x^{2}}} + \frac{bxx}{\sqrt{a^{2}-x^{2}}}\right)$
$x \sqrt{a^2 - x^2} \sqrt{a^2 - x^2}$
$= \left(\frac{1}{2}ab + hL\frac{a + \sqrt{a^2 - x^2}}{a - \sqrt{a^2 - x^2}}\right) = \left(\frac{1}{2}ab + hL\frac{a + \sqrt{a^2 - x^2}}{a - \sqrt{a^2 - x^2}}\right) - \frac{1}{2}ab + hL\frac{a + \sqrt{a^2 - x^2}}{a - \sqrt{a^2 - x^2}}$
$b\sqrt{a^3-a^4+1}$ segment to radius a and cosine $t_{\rm e}$ . When some the set of the set
<b>Z</b> .
section, When and, the infinite area becomes 1 ab. hL - ab +
quadrent to radius a; where the first term being an expression of infi-
nite readers the remaining two of no significancy in comparing the
anse accession ding to different values of AB; and the area will con-
But co-dis a given quantity and, or AC, must be bisected in B.
A Part State La Manual Deservice Towns and Sum Coord
Another, solution, by Messrs, GRIFFITH JONES and ANT. Cook.
But GREENC BAILD, CAREN, 7854mm, the abscissa = z, and the
Dat (Bona, BA=); GAmm, 7856mm, the absoissa = s, and the coarts fourling: onlinate = y. Then by Simpson's Flucions, art.
<b>Dut GEnergy BArrow</b> , GAmm, 7856mm, the abscissa $\Rightarrow$ s, and the coarts planting; continuate $\Rightarrow$ y. Then by Simpson's Flucture, art.
<b>Put (Barroy: BA==); CArrm, 7856=n, the absoints = s, and the</b> <b>contractionalistic contractions:</b> y. Then by Simpton's Fluctures, art. 131, $\frac{d^2}{dt} \frac{f(B^2-y^2)}{15 - dt} + \sqrt{(b^2-y^2)};$ whence $y^2 = -\frac{db^2y}{3\sqrt{(b^2-y^2)}}$
<b>Put (Barroy: BA==); CArrm, 7856=n, the absoints = s, and the</b> <b>contractionalistic contractions:</b> y. Then by Simpton's Fluctures, art. 131, $\frac{d^2}{dt} \frac{f(B^2-y^2)}{15 - dt} + \sqrt{(b^2-y^2)};$ whence $y^2 = -\frac{db^2y}{3\sqrt{(b^2-y^2)}}$
<b>Put (Boxes:</b> BA=b): GAmm, 7854=n, the absoissa = s, and the coarts familing: collimate = y. Then by Simpson's Fluctons, art. 131, $\frac{db^2y}{db} + \sqrt{(b^2 - y^2)}$ ; whence $yx = -\frac{db^2y}{3\sqrt{(b^2 - y^2)}}$ $\frac{db^2y}{3\sqrt{(b^2 - y^2)}} + \sqrt{(b^2 - y^2)}$ ; whence $yx = -\frac{db^2y}{3\sqrt{(b^2 - y^2)}}$
<b>Post (Barroy:</b> BA==0; CArram, 7856=n, the absoiss = x, and the contrapionaling: continue = y. Then by Simpson's Flucture, art. 131, $\frac{dy}{dy} \left(\frac{2x-y^2}{2y}\right) + \sqrt{(b^2-y^2)}$ ; whence $y\dot{x} = -\frac{db^3y}{2y\sqrt{(b^2-y^2)}} - \frac{db^3y}{2y\sqrt{(b^2-y^2)}} - \frac{db^3y}{2y\sqrt{(b^2-y^2)}}$ . (b) $\frac{db^3y}{dy}$ , for, potting $x=\sqrt{(b^{31}-y^2)}$ , we have $y\dot{x}=\frac{db^3y}{b^2-y^2} + 2y$ . (b) $\frac{db^3y}{dy}$ . The fluent of the first part of our given quantity in an
<b>Dut (Barroy:</b> BA==5); GArram, 7856==n, the absoiss = $x_1$ , and the contribution of the first part of our given quantity in an infinite, peries is = $ax \times (1 + \frac{x^2}{2b^2} + \frac{x^6}{5b^4} + \frac{x^6}{5b^6} + \frac{x^6}{5b$
<b>Put (Burne, BA=5)</b> ; GAmm, 7854=n, the absoiss = $x_1$ , and the contrapienting; continue
<b>Prot (Burne, BA=5)</b> , CArram, 7856=n, the absoiss = $z$ , and the contrapionaling combinate = $y$ . Then by Simpson's Flucture, art. 131, $\frac{e^{i\beta y}}{b^{1/2}} \frac{1}{15} \frac{1}{0} + \sqrt{(b^2 - y^2)}$ ; whence $y\dot{x} = -\frac{ab^3 y}{y\sqrt{(b^2 - y^2)}} - \frac{ab^3 y}{y\sqrt{(b^2 - y^2)}} - \frac{ab^3 y}{y\sqrt{(b^2 - y^2)}}$ . (At $y = -\frac{ab^3 y}{y\sqrt{(b^2 - y^2)}}$ , we have $y\dot{x} = -\frac{ab^3 y}{y\sqrt{(b^2 - y^2)}} - \frac{ab^3 y}{y\sqrt{(b^2 - y^2)}} - \frac{ab^3 y}{y\sqrt{(b^2 - y^2)}}$ . (At $y = -\frac{ab^3 y}{y\sqrt{(b^2 - y^2)}}$ , we have $y\dot{x} = -\frac{ab^3 y}{y\sqrt{(b^2 - y^2)}} - \frac{ab^3 y}{y\sqrt{(b^2 - y^2)}} - ab^3$
<b>Dut (Borno, BA==)</b> ; <b>GArran</b> , 7854=n, the absoiss = $z$ , and the <b>contrapioning</b> ; continues = $y$ . Then by Simpton's Fluctures, art. <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b>
<b>Dut (Burne, BA=5)</b> , GAmm, 7854=n, the absoiss = $z$ , and the contribution of the first part of our given quantity in an infinite, series is $=ax (1 + \frac{a^2}{3b^2} + \frac{ab^2y}{3b^2} + \frac{ab^2y}{3b^2} + \frac{ab^2x}{3b^2} + \frac{ab^2x}{$
<b>But (Burne, BA==)</b> , <b>GATER,</b> 7854=n, the absoiss = $z$ , and the <b>contributions</b> ; continues = $y$ . Then by Simpton's Fluctors, art. <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b> <b>131</b>
<b>Dut (Burne, BA=5)</b> ; GAmm, 7854=n, the absoissa = z, and the contreptoning combinate = y. Then by Simpton's Fluctures, art. $\frac{dy}{dy} \frac{(b^2 - y^2)}{(b^2 - y^2)}$ ; whence $yz = -\frac{bb^2y}{s\sqrt{(b^2 - y^2)}} - \frac{bb^2y}{s\sqrt{(b^2 - y^2)}} - \frac{bb^2y}{s\sqrt{(b^2 - y^2)}}$ (by the first or, putting $s = \sqrt{(b^2 - y^2)}$ ; we have $yz = -\frac{bb^2y}{s\sqrt{(b^2 - y^2)}} - \frac{bb^2y}{s\sqrt{(b^2 - y^2)}} - \frac{bb^2y}{s$
<b>Dut (Burne, BA=5)</b> ; GAmm, 7854=n, the absoiss = $z$ , and the contributing combinate = $y$ . Then by Simpton's Fluctors, art. $\frac{dy}{dy} \frac{dy}{dx} \frac{dy}{dx$
<b>Dut (Borno, BA=5)</b> ; GAmm, 7854=n, the absoirs = s, and the contributing continuate = y. Then by Simpton's Fluctors, art. $\frac{e^{-2}}{25} \frac{f(B^2-y^2)}{25} + \sqrt{(b^2-y^2)}$ ; whence $yz = -\frac{ab^2y}{3\sqrt{(b^2-y^2)}} - \frac{ab^2y}{3\sqrt{(b^2-y^2)}} + \frac{ab^2y}{3$
<b>Dut (Burne, BA=5)</b> ; GAmm, 7854=n, the absoiss = $z$ , and the contributing combinate = $y$ . Then by Simpton's Fluctors, art. $\frac{dy}{dy} \frac{dy}{dx} \frac{dy}{dx$

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# 2 . ar 'A Questions' answered. 1816.9d [

(II) QUEBT. 1046, answered by Messrs. John Smith, Robert Mag-PETT, SAMUEL TREESY, and JOHN WILLIAMSON.

ture ids,
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Put a = 5 in.  $= \frac{1}{180}$  fit the area of 'the aperture,  $g = 16\frac{1}{12}$  fit d = AE= 9 ft. A = the area of the surface of the water, and t = 6h = 31600'', the time of running; then (by Prob. 16, Exercises on Forces, Hatton's Course, vol. II.)  $t = \frac{A}{a}\sqrt{\frac{d}{g}}$ : hence  $A = \frac{ta\sqrt{g}}{\sqrt{h}} = 100.26$ . Then 100.26 (9 + 4) = 1303.38 ft. the content of the reservoir.

Again, by Messrs. ANT. Coqu, W. BASSHAW, GRIFFITH JONES, AB. JAQUES, and JESSE WINWARD,

By Prop. 70, vol. 11. Hatton's Course, we have  $AE : BE :: 4AE^{\circ}$ : BG<sup>3</sup> BG<sup>3</sup>, whence AE = 4BE = 9 feet. Put AE = a, 321 feet = g,  $\frac{1}{2}$  eq. inch  $= \frac{1}{11}$  squ. foot = n, 6 hours = 21600'' = t, and the area of the base BC=A: then, by art. 443, vol. I. Dr. Gregory's Mechanics, the time of emptying the part AEFD at E is  $= \frac{A}{n} \sqrt{\frac{2a}{g}}$ , this by the

quest. is = t; hence  $A = tn \sqrt{\frac{g}{2a}} = 100^{\circ}2600^{\circ}5^{\circ}$  feet, the area of the base, which, multiplied by the whole height BA = 13, gives 1303 330975 feet, the solidity of the reservoir.

Note. The above solution is on the supposition that the velocity of efflux is that due to the whole height of the fluid above the hole. Dut if the result be diminished in the ratio of  $\sqrt{2}$ . 1, it will give .921.63836 feet the solidity, on the hypothesis that the velocity is that due to half that height.

Ingenious answers were likewise received from Messrs, Abram, Baines, jun. Butterworth, Charlton, Crowther, Furnars, Horner, Öniaron, Sheridan, Snooke, Taylor, (the Proposer,) T. While, and Wiseman.

(12) Gonsr. 1047, answered by Mr. Thomas White, the Proposer.

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It is known that the locus of c is an ellipse; and which may be thus shewn: Drop  $\perp cn$ , and produce it to cut; in o, io || to ac; then ao is a parallelogram. About i, with the distance io, describe the quadrant poq. The line no is bisected by the joint c, and k bisects iq. Hence c is an ellipse, of which the semataxes are 2ki and ki.

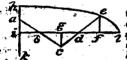
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For the bouns of s: drop lem; and l being in the ourse, we have pl, or  $2k_{i} = m_{i} - m_{i} + m_{i}$ . By the ellipse pck,  $4k_{i}^{3} \cdot k_{i}^{3} \cdot m_{i} \cdot (4k_{i} - m_{i})$ ;  $m_{i}^{2} - m_{i}^{2} + m_{i}^{2}$ . By the ellipse pck,  $4k_{i}^{3} \cdot k_{i}^{3} \cdot m_{i}^{2} \cdot (4k_{i} - m_{i})$ ;  $m_{i}^{2} - m_{i}^{2} + m_{i}^{2}$ , beace  $pn = 3k_{i} + 2\sqrt{k_{i}^{2} - em^{3}}$ ; and  $dn = dm = \sqrt{k_{i}^{2} - em^{3}}$ ; and  $m! = 4k_{i} - im$ ; and the above equation becomes  $2k_{i}$   $= 2\sqrt{k_{i}^{2} - em^{3}} - 2k_{i} + 2\sqrt{k_{i}^{2} - em^{2}} + 4k_{i} - im$ ; the upper sign gives  $im = 1 - k_{i} - em^{3}$ ; and the under sign gives  $im = 4\sqrt{k_{i}^{2} - em^{2}}$ ; hence em is  $= \frac{k_{i}}{4k_{i}} - 16k_{i}^{2} - im^{2}$ , belonging to an ellipse, semiaxes  $4k_{i}$  and  $k_{i}$ .

: Scholium: If a'bc'; c'dc' be jointed rigid rods playing freely around the pivots or pins, b, d, it is plain that the groove becomes unnecestary; and a and a' being moved respectively on hiand ik, in opposite directions, the system will act as before, and the joints will describe sollipses, and the pins will describe a rectilinear line, and the progressive velocities of c' and c', or of n and m, are as the Nos. 1, 2. Moreover, when c and c' meet at l they will hold an object there with stately the same force as that which brings a and c' together; but they will dart, as it were, to b, netwithstanding a and c' are brought comparatively slowly together.

Otherwise, by Mr. P. NICHOLSON, Architect, 10, Oxford street, and OMSCRON, of Penrith.



Let the figure be drawn as directed in the question, and let *abcde* be any position of the moveable lines. Draw *ef*, *cg*, perpendicular to *il*. Then, when the point *a* arrives at *i*, the point *a* will coincide with *l*, and *il=4 ab*; and since ab = bc = cd =

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de, therefore  $ai \equiv cg \equiv cf$ , and  $ib \equiv bg \equiv gd$  = cdf. Hence, putting  $f \equiv x$ , and  $ef \equiv y$ , and  $a = zhi \equiv xa$ , we shall have if = 4a = -x,  $4b \equiv a = -1x$ , and  $y^2 \equiv a^2 = -(a^2 = \frac{1}{2}ax + \frac{1}{12}x^2) \equiv \frac{3ax - x^2}{16}$ . Therefore  $y \equiv \frac{1}{2}\sqrt{(8ax - x^2)}$ , an equation to the ellipse, the manjor axis of which = 8a, and minor axis = 2a; that curve is, therefore, the locus of the point c.

<sup>1</sup> The Editor much regrets that he has not room for some of the other ingenious solutions by Messrs. W. Bagshaw, J. Baines, jun. J. Basterwarth, T. Chashlon, Ant. Cook, Jon. Crowther, J. Furnass, W. G. Horner, Ab. Jaques, G. Jones, R. Maffett, D. T. Sheridan, W. D. Snøke, W. Stringer, R. Iaylor, S. Treeby, J. Williamson, Jesse Winter, W. Young, &c.

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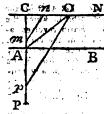
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# The Mathematical Representations answered. 1816.

1980 (19) Wisst 10088, answered by OMICRON, of Penrich,



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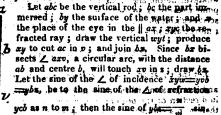
Analysis. Let AB be the surface of the water, A the required position of the eye, CAP the rod immersed in the pool, the longer part of which AP is in the water, the apparent place of the lower extremity of the rod. Through C, the upper extremity of the rod. Through C, the upper extremity of the rod. then since AC and Ap appear equal to the eye at O, the angle COA=AOp, and since from the principles of optics AP : Ap in a frontstart ratio, in the present instance as A : 3, and

AP is given ... Ap is also given, and consequently the point p, and since the angle COp is bisected by AO... CO  $O^{+}_{+}$  CA  $A_{+}$  a given ratio, and the points C and p are given, and the straight line CN is given by position ... the point O is also Siven, hence.

Construction. Through the upper extremity of the rod C drams CN parallel to AB, in AP, the part of the rod immersed, take Ppupe  $\frac{1}{2}$ AP, and in CN take any point *n*, from which to the straight limits CAP apply *nm*, which has to Cn the given ratio of Ap  $\frac{1}{2}$  AC(1) and 1) through the point *p* drawn Op parallel to *nm*, meeting CN in O, then required positions of the eve.

required position of the eye. Demonstration. For from parallel lines  $C_n$ :  $nn \in C_n \cap p$  if idder "Ap ... the angles COA, AOp are equal, and consequently RC angles Ap appear equal to the eye at O, and since  $Pp==\pm AP$ , p is the appasent place of P. ... & co,

Otherwise, by Mr. TROMAS WHITE, of Dumfries.



∠c. We have 1-sin.<sup>9</sup>c<sup>4</sup> bc<sup>3</sup> ar sin.<sup>9</sup>c<sup>5</sup> bd<sup>3</sup> na... in 2... in

Hence,  $1 - \sin^{\frac{n}{2}}c: \sin^{\frac{n}{2}}c(1 - \frac{n}{m^2}\sin^{\frac{n}{2}}c) \overset{\circ}{,} bc^{\frac{n}{2}} \cdot ab^{\frac{n}{2}};$  from which a construction may readily be deduced.

It was with great reluctance the solutions to this problem by Messre. Kayas (the Proposers) Jaco Winwards, and Wallinghit mit as omitted.

Other good answers were given by Messrs. Bagshaw, Baines, jun. Butternorth, Gooh, Furnage, Harper, Jupica, Jones, Mafor, Treeby, and Wischam, S.

# The Mathematical Repository, N. 76.

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PRIZE QUESTION, answered by OMICRON, of Penrith, the Reposer.

ADAB Je We surface of the wa-12**4**701 I the eye, CAP The longer part 10 e apparent he rud f i 1 197 A0, a 979 9 1 1 0 **4** 60 M Mirea the 331.CC Inclant ٠. 14 bue Ł. ×. bon .e.m. AP 2 Eiven 21 V.O. 300



Let ABG be the orbit in which the Earth revolves about the centre of force S infinitely distant from P. the

place of the Earth at any proposed time, so that all lines drawn to it from P\*:may be considered as parallel. Draw PY a tangent to the Earth's orbit at P, and suppose SY drawn perpendicular to this tangent. Let Si be the true place of any Star, and from St

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draw S's parallel to PY, and make it proportional to the velocitys of fine sevolving body at P in its orbit APG, then will s be the apparent place of the Star S1 upon a plane parallel to the plane of then ecliptic. Draw any straight line ab perpendicular to the axis of the carbis ASI, upon which, as a diameter, describe the circle bca, make be perpendicular to ab, and from b draw be parallel to PY. meeting this circle in c, join ac meeting bd in d; draw also Sm parallel 16 aM, and Sip, may parallel to ab. Then from similar trisigles SP : SV : ab : ac : ad : ab . SP × ab=SY × ad . since SP -series and it is and ab are constant  $\frac{1}{SY} \propto ad \propto$ velocity of the Earth at Pochi,

whatever be the law of the force, and the angle dbc=dab=mS's ... the point s describes about S'm a line similar to what the point d describes about ab, but the point d moves in a straight line ... the point s moves also in a straight line.

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at the set Standard and Otherwise, by Mr. THOMAS WHITE.

Let the equation " of the earth's orbit" be y= V 2ax - 22; #. analy originating in the extremity of the greater axis  $a_f \bullet$  the force in direction of the ordinate y towards the transverse ; w the velocity therein in a contrary direction; a the initial value of v;  $\beta$  the velocitz in direction of the transverse, which must be invariable, because no force acts in this direction;  $\epsilon$  and  $\beta$  are assignable, and cannot be assumed; also, let the time be i. We have  $i = y_{-}$ and er • ธ ส่วเสส สสะนั - D - 1 19.9 - ., for v decreases. Hence  $e^2 - v^2 = 2/\rho_y$ , where  $\phi$  may be a shis problem by حاديقي العارف any function of a or y: By the other equation of: and, ... See 1 Sugarow, Brines, jun. subattining fordes wer Have frait <u>.</u>Я PRIZE

# The Mathematical Report Werk

 $2/\varphi y$ , which must be invariable for every value of  $x_1$  taking the fluxion  $a^2_{-1}(\varphi^2_{-1}-2(\varphi_2)-\varphi(a-x)^2_{-1}=0$ ; therefore  $e^2$  is = the value of  $2/\varphi y$ - $\gamma(a-x)^2_{-1}=0$ ; therefore  $e^2$  is = the value of  $2/\varphi y$ - $\gamma(a-x)^2_{-1}$ , when x is taken therein = 0: Hence,  $\beta^2_{-1}$  is known,  $being = \frac{a^{2}}{a^2} \cdot \frac{\varphi^2_{-1}}{a-x} \cdot \frac{\varphi$ 

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Solutions, were likewise cent by Messrs. Furnass, Maffett, Treeby, and Young.

New Mathematical QUESTIONS, to be answered in next Year's Diany.

(1) QUEST. 1050. By AMBULATOR. ... MAR BO MAR

To find two whole numbers, such that the difference of theil?" squares, and the difference of their cubes, shall be both systematic being

(2) QUEST. 1051. By Mr. SAMUEL TREEBY, Plymouth.

It is required to exhibit a more concise practical rule for conic and pyramidal frustums, than has yet been given in any treatise of mensuration.

(3) QUEET. 1052. By Mr. W. WESTON, Birmingham.

Let BAE be a direle, AB the diameter, and CPA a similar circle, touching the former internally at A, CDA its diameter; from D, the centre of the larger circle, draw DFE at right angles to the diameter? AB, cutting the small circle in F and the large one at E, the intercepted parts FE and BC are given to determine the two circles geo metrically.

(4) QUEST. 1053. By. Mr. JOHN BAINES, jun. Reading.

In what latitude is the angle included between the hour lines of 12 and 1 on a horizontal dial, double of that included between the said, hour lines on a vertical South dial?

(5) QUEST. 1054. By Mr. D. T. SHERIDAN, Stafford,

In every right angled triangle, it will be as the perpendicular is to its adjacent segment of the base made by the line bisecting the vertical angle, so is the base to the difference of the hypothemuse and perpendicular. Required a demonstration

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#### (6) QUEST. 1055. By Mr. RICHARD TAYLOR, Carlisle.

To lite that, by a geometrical process, the distance of a planet from the san, such a time of its nearest approach to the middle of the eccentricity of its given elliptical orbit.

(7) QUEST. 1056. By Mr. JOHN BUTTERWORTH, Haggate, near Oldham.

Having given the point P in a right line given in position, and having given a circle in magnitude and position, it is required to flud another point C in the said right line, so that if CB be drawn parallel to another line given in position, meeting the circle in A and B, PC-4-AB may be either equal to a given line or a maximum.

(8) QUEST. 1057. By Mr. PETER NICHOLSON, 10, Oxford Street.

Let ABC be any given angle, and let D, D, be any number of given points in the line AB, let perpendiculars DE to AB be so drawn as to meet BC in the points E, E; then, if a number of circles of equal radii, be described from E E as centers, and tangents D M be drawn from the several points D to their respective circle, and DF be set off upon DE equal to the corresponding tangent DM; it is required to determine the locus of the points F, F, &cc.

(9) QUEST, 1058. By Mr. THOMAS WHITE, Dumfries.

Let the element, or fluxion, mc, of a curve bounding a plane mMc be projected on a plane aMb by perpendionlars ms and cb, and let the angle aMb be equal to dv qr v; the tangent of the angle mMa=s, and the radius vector Mm=r; then  $cm^2 = \frac{r^2 dv^2}{1+s^2+dr^2+r^2 ds^2}$ . (See Laplace, Mecan. Celeste, tom. i. p. 206.) Required the proof?

#### (10) QUEST. 1059. By OMICBON, of Penrith.

Let the body M move uniformly from A towards Q with the celerity  $m_{e}$  and let another body N proceed from B at the same time with the celerity n. To determine, gcometrically, the direction of the latter BD, so that the distance MN of the two bodies when the latter  $m_{e}$  in the way or direction AQ of the former, may be the greatent possible. (Simpson's Flurions, Prob. 14. de Max. et Min.)

(11) QUEST. 1060. By Mr. W. G. HORNER, Bath.

In any right line AD, make AB==DC, and draw the indefinite perpendicular BZ, to any point E, of which draw CE, DE, and produce CE to P, till CP==DE. Required the quadrature of the curve APX, which is the locus of P, and the situation of B and C when the infinite area between the curve and the asymptote is a maximum a solution because

(12) QUERT, 1061. By Mr. THOMAS WHITE, Dumfries,

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### New Questions, 1816.

vexities BC and B'C' fronting each other. The line CC', as also the point P therein are given. What is the equation of the loous of P? N. B. This is not a question of mere speculation, but has reference to a well-known mechanical construance. See Gregory's Mechanics, ed. 3, pl. 39, vol. 11. No. 9\* D.

(13) QUEST. 1062. By Mr. GEORGE HARVEY, Plymouth.

Required the relation of v to y in the equation  $yv - vv + x^4y - 2vyv$  $2v^3y - v^4yv - v^2y$ .

#### PRIZE QUESTION. BY PATER FAMILIAS.

Notwithstanding the various solutions which have been given to the problem of the *shortest twilight*, it is imagined that there is still room for improvement in point of simplicity. It is required, therefore, to give a new solution from the obvious principles of spherical trigonometry or of projection.

#### \*\*\* The Prizes have this year been allotted thus:

Ten Diaries to Omicron, of Penrith, the first Math. prize.

Eight Diaries to Mr. W. G. Horner, of Bath, the second do.

Nine Diaries, to A Female Incognito, for answering the Prize Enigma.

Nine Diaries to Mr. John Smith, Alton Park, for his Gen. Answer. They will please to send for their respective prizes to Mr. GROBER GREENHILL, at Stationers' Hall.