Example.

What is the dominical letter for 1769?

But for old stile, 14 (the number of the cycle) stands against D.

22 = A in the old cycle, for new stile.

To shew the truth of this rule for all future ages. Here we keep to the old cycle and position of the letters, without alteration; and find new additional numbers for every succeeding century; because every century (except the 4th) is a common year, and therefore the Julian account is disturbed at

these times, and requires an alteration.

In the Julian account the additional number is perpetually 9, because it was 9 at the beginning of the Christian era. And as the whole contrivance was arbitrary, the first year of the cycle was made a leap year, and set to the letter GF, the 2d is E; the 3d D; the 4th C, the 5th BA, being leap year again; and so on till it come to 28, when it begins again. For if there was only a single change of the dominical letter every year, the cycle would be completed in 7 years. But since in every 4th year there is a change of two letters, therefore this cycle will consist of 4 times 7, or 28 years; which being completed, all the letters return again in the same order.

Now to make a transition from the Julian to the Gregorian account. The stile was altered in that is, D for the end of the year. Now by dropping 11 days, any week day is, by that mans, moved 11 days forward in the alphabet; on 14ther (throwing out 7) 4 days forward. Therefore the Sunday letter, from D (in the Julian) becomes A (in the Gregorian); and being leap year, the letters will be BA. Now against DE in the cycle stands 25, and against BA is 5, which is a places beyond 25; but 9 + 8 = 17; and as we added 9 to the year to find the Julian letter, we must now add 17 (which is 8 more), to find the Gregorian letter, by the old cycle. And this holds till the beginning of the next century, or between 1700 and 1800.

In the year 1800, the last rule would give 25 (ED) in the cycle, but fince it is not to be a leap year, it will be only E. Therefore we must seek in the old cycle for FE, to the end that 4 years after, in the cycle, may be a double letter, and then all will go regularly forward the next century. Accordingly against 13 we find EF. Then counting forward from DE to FF, we shall find EF to be 16 places beyond, and 17 + 10 = 33, or rather (rejecting 28) 5. Therefore being before, we added 17 to the year; we must now add 5 to get the number and letter, between 1600 and 1900.

In the year 1900, by this last rule, we shall find 1 (GF) in the cycle; but not being leap year it must only be G; therefore seek AG, which is at 17, which is 16 before GF; therefore 5 + 16 or 21 is the number to be added, which holds from 1899 to 2100; because 2000 being leap year, makes no alteration.

In the year 2100, we shall find 21 (CB), which must only be C; then find DC in the cycle, which is 16 further; and 21 × 16 — 28 = 6, the additional number for 2100 +, till 2200. Thus

CHRONOLOGY.

Thus adding 16 continually for every 100 years (except leap years), gives so many new rules. But after 100 years, we shall fall upon the same number of the cycle as at first; and the same numbers will return again; for $7 \times 16 = 4 \times 28$. Therefore the numbers to be added, in these several periods of time will be 17, 5, 21, 9, 25, 13, 1. Then 17, 5, &c. over again.

2 RULE.

Add 9 to the year of the Lord, and divide the fum by 28; the remainder being found in the I new cycle below, shews the dominical letter for the new stile, till 1800. Or find it in the II new cycle, shews it after till 1900. When o remains take 28.

For the old stile; thus,

Divide the year its 4th and 4, by 7; What's left substract from 7, the letter's given.

The state of the s	le for 1700, &c.
1 DC 2 B 3 A 5 FE 6 D 7 C 8 B 9 A 10 F 11 E 12 D 13 CB	15 G 16 F 17 ED 18 C 19 B 20 GF 21 GF 22 E 23 D 24 C 25 BA 26 G 27 F 28 E

II new Cyc	le for 1800,
1 ED 2 C 3 B 4 A 5 GF 6 E 7 D 8 BA 10 G 11 F 12 E 13 DC 14 B	15 A 16 G 17 FE 18 D 19 C 20 B 21 AG 22 F 23 E 24 D 25 CB 26 A 27 G 28 F

Examp.

To find the Sunday letter for 1769

14 = A the funday letter in the

I new Cycle.

It has been shewn before, that at the beginning of every century, 16 is to be continually added for a new additional number. Or that the number, finding the dominical letter in the old cycle, is 16 places further on. But this is equivalent to making a new cycle, setting the letters, found at the 17th number, in the first place; the 18th in the second; and so on in order. And this must be done every 100 years; or a new cycle made for each century.

It was likewise shewn, that in changing the Julian for the Gregorian stile, that 8 was to be added to the Julian additional number, which is the same thing as reckoning 8 places toward from the first, and making that place, which is the 9th, the beginning of the I new cycle. Thus in the old cycle CD is the 9th place, and in the I new cycle it is the first; and all the rest follow in order. Again the 17th place of the 1 new cycle is DE, which therefore must begin the 2d new cycle. And if you would make a third, it must begin with EF; and a fourth with FG; and so on. Therefore in changing from the 1st to the

CHRONOLOGY.

7th, &c. hundred year; as also from the 4th, 6th, 8th, &c. you move 4 places forward in the last cycle. For 16 + 16 = 32, which exceed 28 by 4. But here it must be remembered, that I except such hundreds as are leap years, because they make no alteration.

The first method shewed you to find the letter, by sinding new additional numbers, retaining the same cycle; and the latter shows how to find it, by finding new cycles, retaining the same additional number. But the first method is easier, because a new number is easier found than a new cycle; but either way will do for the present age.

3 RULE.

Add to the year its 4th part; then divide by 7, and subtract the remainder from 7, gives the number of the letter, from 1700 to 1800.

After the beginning of the year 1800, 1900, 2100, &c. add the 4th part + 6, 5, 4, &c. ref-

pectively.

And in general for every 100 years (not leap years) abate 1. But after 7 fuch hundred years,

the fame numbers return again.

Note, there being two letters for leap year, this rule finds that, for the latter part of the year. And if the year has an exact 4th part, it is leap year.

CHRONOLOGY.

Examp.

Find the letter for 1769.

In any century, by reason of the leap years, 5 letters go over in 4 years, reckoning from any fixt time. Let us reckon from 1700, when the letters were DC. Then in 1701, 2, 3, &c. the letters are B, A, G, &c. Therefore, if to any year (after 1700) its 4th part be added, the sum shews the number of letters elapsed, since that time. And that sum divided by 7, the remainder shews what letter it is, beginning at B, and recircular backwards. The letters being numbered will find thus,

B, A, G, F, E, D, C, B, A

To 1700 add its 4th part 425, then the sum 2125 divided by 7, there will 4 remain. If o had remained, we might have taken the year of our Lord instead of the year after 1700, without any more to do. But since by using the year of our Lord instead of the year after 1700, the remainder will be more by 4; therefore to accommodate this rule to the year

for Lord, we must begin to number four places some, and then we shall fall upon the same letter other way. The numbering will be thus,

E, D, C, B, A, G, F, E, D, C, &c.

2 3 4 5 6 7 8 9 10 11

0 1 2 3 4

That is, the year of our Lord divided by 7, the remainder will denote the letter as above. But fubtracting these remainders from 7, we shall find for A, 1; for B, 2; for 3, C; &c. in the order of the

alphabet, as laid down in the rule.

In 1800 (not being leap year) and the following, the letter falls 1 short; therefore the remainder must be diminished by 1, or the year itself diminished by 1; for the same reason, 1900 and the following years, must be diminished by 2; 2100, &c. by 3, and so on. Or it comes to the same thing if 1800, &c. be increased by 6, 1900, &c. increased by 5, 2100, &c. increased by 4, and so on. For 6, 5, 4 are the compliments of 1, 2, 3, to 7.

Cor. 1. The sun's cycle being known, the Gregorian letter is known, by adding 8, and finding the sum in the old cycle, gives the letter; till 1800.

for the new stile is had by adding 4 letters. This kell 1800.

A Table shewing the Sunday letter till 1800.

years	lett.	years	lett.	years	lett.	years 1790	lett.
1760	FE	1770	G	1780	BA .	91	B
61	D	71	F	81	G	92	AG
62	C	72	ED	82	F	93	F
63	В	73	C	83	E	94	E
64	AG	74	B	84	DC	95	D
65	F	75	A	85	В	96	CB
66	E	76	GF	86		97	A
67	D	77	E	87	G .	98	G
68	CB	78	D	88	FE	99	F
69	A	79	C	89	D	1880	E

PROB. V.

To find the golden number for any year.

The golden number or prime, is a cycle of 19 years, increasing 1 every year, till it be completed; after which it begins again. This period of 19 years being ended, the new moons, and full moons, fall on the same day of the month, as they did 19 years before; and therefore it is called the moon's cycle. To find it,

RULE

Divide the year of our Lord by 19, and to the remainder add 1, gives the golden number, for both old and new stile.

Examp.

What is the golden number for 1769.

13 the golden number.

A Table of the golden Numbers till 1800.

years	G.N.	years	G.N.	years	G.N.	years	G.N.
1760 61 62 63 64 65 66	13 14 15 16 17 18 19 1	1770 71 72 73 74 75 76 77 78	4 5 6 7 8 9 10 11	1780 81 82 83 84 85 86 87 88	14 15 16 17 18 19 1 2	1790 91 92 93 94 95 96 97 98	5 6 7 8 9 10 11 12
TO A	3	79	113	89	4	1800	14

PROB. VI.

To find the Epast for any year.

The epast is the number to be added to the lunar to make it equal to the folar. This is a cy-

wile compleated in 19 years. It increases 11 every year, rejecting 30 when it is above that; but the epact never exceeds 29. Its use is for finding the new moons in March, and from thence in every other month.

I RULE.

Take I from the golden number; and then multiply the remainder by II, and divide the product by 30, and the remainder is the epact, for the new stile. When o remains take 29.

This Rule holds from 1700 to 1900, after which the epact so found, must be lessened by 2, and for every 240 years after, it must be sessened by

more, continually.

For the old stile, multiply the golden number by

Examp.

What is the Epast for 1769?

The golden number 3 fubl. 1

2 11 30)22(0 0

A fynodic revolution of the moon is 29.53 + days, and 12 fuch revolutions are 354.37 days; and the Julian year is 365.25 days, which exceeds these 12 revolutions by 10.88 days. Hence if the moon changes at a certain time in one year, the next year she will change 10.88 days sooner; and the next; 21.76 days sooner; and the next, 32,64

Therefore in any number of years after, if 10.88 be multiplied by that number, and the product divided by 29.53; the remainder will shew how many days the change happens before the fixt time in the first year. But because we do not want to know the fractions or parts of days, but only in general, what day the change happens on; therefore, in-

After beyears are expired, the cycle begins adain, and the changes happen on the same day, and altrest on the lame hour, as they did 19 years before. For in 19 years, the moon performs 235 revolutions, and 235 × 29.53 + = 6939.69 days, and 19 × 365 = 6939.75; the former falling short only about .06 of a day, which is 1h 28m. So that in 19 years, the new moons happen near an hour and a half fooner; which in a little more than 300 years, will be a day fooner. And fince the Gregorian is shorter than the Julian year by three days in 400 years, or nine days in 1200 years; and the new moons happen fooner by near four days in 1200 years; it is plain, the new moons will happen later in the Gregorian account by (9 - 4 or) near 5 days in 1200 years; or 1 day in 230 years. Therefore the numbers of this cycle being once adjusted to the golden number, for the year 1700, it will continue he same for above 200 years. And hear the first number of the epact is o or 29, and then all . the rest follow of course; whence we get the rule above And fince the epacts are to shew how long before a fixt day the moon changes; it is plain the pact is to be diminished 1 in every 230 years.

Seek the golden number for the year in the following new table of epacts, and against it, is the epact fought. This table continues in force till the year 1900; after which the epact must be lessence by 1.

Examp.

Suppose 1769. The golden number for this year is 3, against which is 22, the epast for the said year.

3 R U L E

Diminish the golden number by t, the die temainder in the first column of the old miles below, against which is the epact.

Ex.

In 1769, the golden number is 3, therefore against 2 is 22 the epact.

Old 7	Γable.	New	Table.
G.Num.	Epact.	G.Num.	Epact.
I	. 11	. I	29
2	22	2	11
3	3 -	3	22
4	14		3
4 5 6	25	5 6	14
	6	11	25
7 8	28	7 8	17
9	9	9	28
10	20	10	9
11	I	11	1 20
12	12	12	1
13	23	13	12
14	4	14	23
15	15	15	4
16	26	16	115
17	7	17	26
18	18.	18	7
19	29	19	1 18

CHRONOLOGY.

new stile may be found by subtracting 11 from the old one.

A Table of Epacts till 1800.

epact	years	epact	years	epact	years	epact	years
14	1790	23	1780	3	1770	P 12	€ 60°
25	91	4	81	14	71	23	61
6	92	15	82	25	72	4	62
17	93	26	83	6	73	THE R.	63
28	94	7	84	17	274	Allega	64
9	95	18	85	28	25	71	65
20	96	0.29	- 86	0	476	-18	60
1	97	11	87	20	77	0.29	67
12	98	22	88	I	78		68
23	99	3	89	12	79	22	69
1 4	1800			- 1	200		

PROB. VII.

To find the day of the moon's changing in March:

RULE.

Add I to the epact, and subtract the sum from 30, the remainder is the day of the change.

Exam.

The change is required in March 1768.

Ep.	act	11	
	•	12	
1		18	day
	-		

CHRONOLOGY

In the year 1700, the moon changed on 18 section, near four in the afternoon, by the Gregorian stile. The epact then must be 9, that 9 + 430 to 10 being substracted from 30, there may remain 20, for the day of the change. But the golden number is 10; therefore setting the epacl or against the golden number 10, all the other humbers in the table of epacts will follow of course.

PROB. VIII.

To find the day of Easter full

Easter full moon is the first full moon and the 21st day of March, and is all the moon, or Easter limit. And it is denoted by the number of days from the beginning of March.

I RULE.

By the last Prob. find the change day in March for the given year, to which add 15; and if the sum be more than 21, this will be Easter full moon: if less, add 30 to it, and it gives Easter limit.

Examp.

Find Easter full moon for the year 1769.

The day of change March 7 add 15

Easter full moon 22d of March

2 RULE.

Find the epact for the year, and subtract it from 44; if the remainder is equal or greater than 21, it is the day of full moon: if less, and yo to it, and it gives Easter limit.

CHRONOLOGY.

For the old stile, subtract the old epact from 47.

Examp.

Let the year be 1769.

epact 22

Easter limit 22d day of March.

For the ew moon in March is 30 — 1 + epact = 20 — epact; and adding 15 days for full moon, 29 + 15 — epact or 44 — epact = time of full moon from the beginning of March.

3 RULE.

Find the epact in the first column of the following Table, against which in the second column is the day of the paschal full moon; and the letter for that day. This Rule holds till 1900. N. Stile.

Epacts.	Paf. full Mo	on.
1	12 April	D
3	10 April	В
	9 April	A
6	7 April	F
7	6 April	E
9	4 April	C
11	2 April	A.
12	A pril	G
14	30 March	M.
15	29 March	100
17	1 37 M	R
18	26 March	A
20	24 March	F
22	22 March	D
23	21 March	C
25	18 April	C
26	17 April	B
28	15 April	G
0.29	13 April	E

Examp.

In 1769, the epast is 22, against which we have March 22 for the full moon, and its letter D.

This table is constructed by the 2d Rule.

SCHOL.

It is ordered by Act of Parliament, that the parchal full moon is to be the first full moon after the 21st of March. But it had been more agree the to the coelestial motions, to have made it the full moon after the vernal equinox. For the equinox is not on March 21, but on March 20. For this reason, the rule laid down in the Act, sometimes fails, as it did in 1761, when the Easter full

39

moon fell on March 20, a little after the equinox; being agreeable to the Table, but different from the Rule.

PROB. IX.

To find Easter day in any given year.

East day (by Act of Parliament) is the first Sunday after the first full moon, next after March that full moon be on a Sunday, Easter day is Sunday following.

But instead of March 21, it should have been the senal equitor, to make the Rule universally

true.

Or Easter day is the first Sunday after the paschal full moon, or Easter limit.

RULE.

Add 3 to the day of Easter full moon, or Easter limit (found by the last Prob.), and divide the sum by 7, and substract the remainder from the dominical letter, (borrowing 7 if need be); add this last remainder to Easter full moon, gives Easter day, reckoned from the beginning of March, N. S.

Note, If the last remainder be o, take 7 for it; and in leap year, take the letter which serves for the latter part of the year.

The fame rule ferves for the old stile, using the

Julian Calendar, &c.

CHRONOLOGY

Exam.

When does Easter fall, in 1769?

Easter limit 22 March

7)25(3 21

Letter A = 1 or 8

Last Rem.

Easter day 26 March.

For fince March begins with D, adding 3 to Easter limit, makes the reckoning commence at A. And dividing the whole by 7, the remainder shews how far Easter limit was advanced in the alphabet A, B, C. Let R be that remainder, S the Sunday letter; then S—R the last remainder, shews how much the reckoning falls short of Sunday; which therefore must be added to the limit, to find Sunday; and the sum will be the distance of Faster day from the beginning of March.

Months,	Sun.
1	1000
Days.	Let.
	C
200	D
	E
100000	F
1	A
1	В
	C
	CD
	E
131	F
Mor. I	G
- 600	A
- 3	B
4	C
- 5	D
S. 1. A. A. S. 1.	E
7	F
	G
	B
27500	C
	D
177	E
-14	F
15	G
	A
17	B
	C
	D
	E
The second second second second	ABCDEFGABCDEFG
The second secon	A
24	A B C
	C
	- 5 6 7 - 8 9 10 -11 12 13 -14

2 RULE.

Find the golden number in the first column of this Table; against which in the 2d column stands the day of Easter full moon. Then look in the 3d column for the Sunday letter next following; and the day of the month, standing against it in the 2d column, is Easter day. This holds from 1700 till 1000, I. S.

And If the full moon happens and landay, the next funday is Easter day. In leap year, take the letter for the end of the year.

Example.

o To find Easter day in 1769.

The golden number is 3, and funday letter A. Against 3, stands Mar. 22 and D; and looking down to A, it stands against Mar. 26, which is Easter day.

The same Table will serve to find Easter from 1900, till the beginning of the year 2200, by only placing all the numbers in the first column (except the two last), a line lower. And for each following 100 years, a line lower still.

This Table is taken from the acto 1750, for altering the stile; and must always stand good; even tho' it disagree with astronomical calculations.

3 RULE.

3 RULE.

In the following Table, find the golden number of the fide, and go crofs over, 'till you come under the funday letter at top; and there you will have the day and the month towards the left hand, when Easter day is. N. S.

A Table to find Eafter till 1905.

gold.	A	В	С	D	Е		9.
I	Apr. 16	17	18	19	2	20	1,
2	Apr. 9	3	4	5		7	8
3	Mar. 26	27	28	29	23	24	25
4	Apr. 16	17	11	12	13	14	EUROPERSON STATE
5	Apr. 2	3	4	5	6	Mar.31	Apr. 1
6	Apr. 23	24	25		20	21	20
7	Apr. 9	10	11	12		-14	8
8	Apr. 2	3	Mar.28	29		31	Apr. I
9	Apr. 16	17	18			21	22
10	Apr. 9	10	11	5		7	8
II	Mar.25	27	28	29		31	25
12	Apr. 16	17	18	19	-		15
13	Apr. 21	3	4	5		7	8
14	Mar.26	27		22	23	24	25
1.5	Apr. 16	10	11	12	13	14	1 25
16	Apr. 2	3	4	5	Mar.30		A 570 X
17	Apr. 23	24	1.8		20	21	22
18	Apr. 9	10	the same and the s	12		7	I S
19		Aar. 27	28			21	Anr

Examp.

In 1769, the golden number is 3, and ambiecal let-

Under A and against 3, is March 26 for Fast, day.

CHRONOLOGY.

This Table is easily composed from the last, thus. Let the golden number be 1; against it we find for. 13, and the letter E; which being sunday letter, Easter sunday is Apr. 20. But the sunday letters being F, G, A, B, C, D; we find Apr. 14, 15, 16, 17, 18, 19, for Easter sunday, respectively. And so of the rest.

A The for finding Easter day till 1800.

car L	year Eaft. 1.	year	East. d.	year	East. d.
62 Apr. 62 Apr. 63 Apr. 63 Apr. 65 Apr. 766 Mar. 30 67 Apr. 19 68 Apr. 369 Mar. 26	73 Apr. 15 74 Apr. 3 75 Apr. 16 76 Apr. 16 76 Apr. 16 77 Mar. 30 78 Apr. 19 79 Apr. 4	81 82 83 84 85 86 87 88	Mar. 26 Apr. 15 Mar. 31 Apr. 20 Apr. 11 Mar. 27 Apr. 16 Apr. 8 Mar. 23 Apr. 12	91 92 93 94 95 96 97 98	100

Cor. 1. Hence, the times of all the moveable feasts, that depend upon Easter, may be known.

Septuagesima Sunday is 9 weeks

Sexagesima Sunday is 8 weeks

Shrove Sunday, or quinquagesima, is 7. weeks

Shrove Tuesday, Ash-wednesday, next following

Quinquagesima is 6 weeks

Palm Sunday a week

Bood Friday 2 days

Rogation Sunday is 5 weeks

Chursday after Rogation, the

Whit funday is 7 weeks Trinity Sunday is 8 weeks after Easter.

Then

Then follow all the Sundays after Trinity in order. The Sundays between Afterwedn day and Eafter, are called Sundays in Lent and the Sundays between Eafter and Whit-funday, are called Sundays after Eafter.

Note, The diffance of Easter Sunday from March 21, is by some called, the Number of Direction.

Cor. 2. From the Table, Rule 2. it as a Easter can never fall sooner than Mar than Apr. 25.

SCHOLIUM.

I have not shewn how to find any of the common chronological notes or numbers, for years before Christ; as it is more material to know what is to come, than what is past. But that is easily done, by reckoning backward, so far as we need to go. Remembering that the fact year current before Christ, is the next (backward) to the first year current after Christ. Before 1562 there was no Gregorian year, and 46 years before Christ, there was no Julian year. And to what purpose can it be, to seek for any note, according to either Julian or Gregorian year, at a time when there was no Julian or Gregorian year, at a time when there was no Julian or Gregorian year existing.

If the arithmetical rule, for finding Laster, have pens to differ from the table in the ad rule, it must be set aside. For that table is settled by she stille act, to be the general rule; althor the act at the same time lays down another, which is sometimes inconsistent with the table. For the act says that Easter day, is to be the first Sunday after the first full moon, next after the asset of Marcha Which rule would have made Easter a nonth later than by the table, in the year 1761. Whereas if had been mentioned, after the first sull moon, asset

after the vernal equinox, which was the 20th of March; then the rule would have agreed with the table. And more instances of this kind may hap-

pen But after all the fuss that has been made for finding a rule for the observation of Easter; the prefent rule is certainly a very ill contrived one; and had been better fixt to some Sunday, at a certain time of the year. Jefus Christ did but suffer once, and rife once; which therefore must have been at one certain ime of the year. And if that time would most properly be Easter Sunday; which oure have been fafily known. But our rule makes it vary 5 weeks from the time, as observed in dif-

ferent years.

It is extremely probable that his passion was in the year 34, on Friday the 14th day of the Month Nisan, which by the Julian account, was on Friday April 23; and at that time the equinox was on March 24. But with us now, the equinox is upon the 20th of March, which is 4 days fooner. Therefore bringing the passion back to our way of reckoning, it will fall on April 19, and confequently the refurrection would be on April 21. Therefore if the nearest Sunday to April 21, had been set apart for Easter day, it would have been an exceeding eafy rule, and very near the true time; and I think this time might have been as well commemorated by an eafy and plan rule, that comes near the true time; as a perplext one, that runs further from it.

PROB. X.

To find in what year Easter de Wall fall a store 25th of April.

Suppose the present year to be 1769, the cycle of the sun is 14, dominical letter A, golden number 3.

But by the last table in Prob. IX. when faster day falls on April 25, the dominical letter is C, and golden number 6. Therefore is new cycle (Prob. IV), and reckon from 14 to 15 the places where you find C, which will be steed 4, 10, 15, 21 places; and that is 4, 10, 15, 21 years after 1769. Then if a be the revolutions of the sum of the fun's cycle, e the revolutions of the golden number; and fince the golden number 6 exceeds the present golden number (3) by 3; the time will be expressed by any of the following equations. Therefore if a or e be found, the time will be known.

$$\begin{vmatrix}
1.28a + 4 &= 19e + 3 \\
2.28a + 10 &= 19e + 3 \\
3.28a + 15 &= 19e + 3 \\
4.28a + 21 &= 19e + 3
\end{vmatrix} = \text{number of years heace.}$$

Therefore by reduction, we get the following equations.

$$1.28a + 1 = 19e$$
.
 $2.28a + 7 = 19e$.
 $3.28a + 12 = 19e$.
 $4.28a + 18 = 19e$.

These equations being resolved, and the least values of a found, we have 1.a = 2, 2.a = 14, 3.a = 5, 4.a = 17. Here 2 being the least value of a, 28a + 4 = 60, and 1769 + 60 = 1829

for the year; which shews, it will not happen in

this century.

Again in the year 1800, the sun's cycle is 17, and (by the II new cycle, Prob. IV.) the dominical letter E, and the golden number 15. Therefore in II new cycle (Prob. IV.) reckon from 17 to all the places of C, and we shall find 2, 13, 19, 24. And since 6 + 19 - 15 = 10. Therefore we shall have the following equations.

28a + 13 = 19e + 10 28a + 13 = 19e + 10 28a + 19 = 19e + 10 28a + 24 = 19e + 10or $\begin{cases} 28a - 8 = 19e. \\ 28a + 3 = 19e. \\ 28a + 9 = 19e. \\ 28a + 14 = 19e. \end{cases}$

By the first equation a = 3, 22, &c; by the second a = 6; by the 3d, a = 18, and by the 4th, a = 9. Taking a = 3, 28a + 2 = 86 years, and therefore 1886 is the first year that this thing will happen, and the only year in the next century; for all the other values of a are too big, as running into the next century after.

And in the fame manner we must proceed, if

any other day be affigned for Eafter.

SCHOLIUM.

If this Prob. was to be refolved by the Julian account, it need not be repeated, because we are stopt by no centuries, as in the Gregorian account. But in the Julian, time runs on in the same way for ever. And therefore after 532 years, which is the period for Easter, or the Dionysian period, all the days and years return again in the same order, in the Julian account.

PROP. XI

To find the day of the month, when the fun enters the 12 Signs.

RULE.

Beginning at March for the Sign Arles. Then The days, for the first four couples, will be, 20, 21, 22, 23.

There's four more months, for them will be feen, 22, 21, 19 and 18.

That is,

In March and April, on the 20th, for wand 84

In May and June, on the 21ft, II.

In July and August, on the 22d, 62, 12

In September and October, on the 23d, in

In November, on the 22d,

In December, on the 21st,

In January, on the 19th, a

In February, on the 18th,

Cor. Hence will be known the place of the fun, on any day; by reckoning a degree for every day from the entrance.

Exam.

What is the fun's place Oft. 10? The fun enters Libra on the 23d of September, and October 10 is 17 days after; therefore the fun's place is 2 17.

PROB. XII

To find the time of sun-rising or setting at any time, for the middle of England.

RULE.

Remember that on March 20, and September 23, the fun rifes and fets at 6. Then ur v. 2, or 3

months distance, reckon 1, 2 or 2 hours sooner or laser; and so in proportion.

Examp.

On May 1, the time of sun-set is required.

On Apr. 20th (being a month from March 20th) the fun rises one hour sooner, that is, at 5; and May 1st, (being \frac{1}{3} of a month after) gives 20 minutes more. So the time of rising, May 1st, is 4h 40m; and setting, 7h 20m.

PROB. XIII.

To find the day of the moon's changing in any month; or her age, on any day thereof.

RULE.

To the Epact add the number of the month beginning at March, and take the fum from 30 (or 60), gives the day of the change: or that fum added to the day of the month, gives her age, rejecting 30 if it exceeds 30.

Note, In January and February the epact of the

preceding year must be used.

This Rule sometimes varies a day, owing partly to the inequality of the months, and partly to the irregular motion of the moon.

Examp.

To find the change in July 1769, and her age the

Epact Month	22		27
Month	5		20
Subt. From	27 30	6ub.	47 30
Change	3d day		17 her age.

The cycle of epacts is so contrived, that at the beginning of it, the moon changes at the beginning of March; and likewise at the end of it, about the 29th or 30th day. Whence in any following year, the epact will shew the number of days the change happens, before the end of March. And since the months are each, about a day longer than the time of one lunation; therefore we must add so many days as there are months past, from March; whence that sum taken from 30 gives the day of the change. And that day subtracted from a given day of the month, gives her age; that is, the given day — 30 + sum = age.

2 RULE.

Look for the month in the new Calendar at the end, and find the golden number for the year in the second column; against it stands the day of the change.

If you use the Calendar in the stile act, the gol-

den number finds the full moon.

Exam.

To find the change of the moon in July 1769.

The golden number for the year is 3, which in July stands against the 3d day of the month, for the change day.

3 RULE.

Look for the golden number in the proper month in the old Calendar, against which is the old change day; then reckon six days further, and you have the day of the change by the new stile.

Escam.

To find the change in July 1769.

The golden number is 3, and stands at the 27th day. Reckoning six further, falls on the 2d of August

Or rather seek 3 in June, which stands at rea7th day; from which reckoning six more, it falls on the 3d of July for the change.

For in the old Calendar, the moon is 4 or 5 days back, and the new stile eleven days forward; therefore the change is, by the new stile (11-5=)

(11,—4 or) 7 days.

PROB. XIV.

To find the time of the Moon's southing.

RULE.

Take 8 tenths of the moon's age in days, gives the hour of her fouthing.

Examp.

On July 10, 1769, the moon is seven days old.

 $\frac{.8}{-.6} = 5^h \ 36^m$, the fourthing.

For the fynodic revolution of the moon being $29\frac{1}{2}$ days, whilst she gains 24 hours of the sun; therefore in one day she will gain $\frac{24}{29\frac{1}{2}}$ = .81 of an hour. And in any number of days, so many times .81; or 8 tenths.

Cor. To find the time of high water at London Bridge, add three hours to the time of her fouthing.

PROB. XV.

To find the Moon's place in the Zodiac, on any day.

Find the sun's place for that day, to which add 4 tenths of the moon's age in days; that is, so many signs; and you have the moon's place.

Example.

To find the moon's place July 20, 1769.

Moon's age 17

6. 8
or 6° 24'
Sun's place 3 28

Moon's place 10 22
Or Aquarius 22°

For in $29\frac{1}{2}$ days the moon gains 12 figns of the sun; and in one day she leaves the sun $\frac{12}{29\frac{1}{2}}$ or $\frac{4}{10}$ of a sign. And in any number of days, she will be so many times $\frac{4}{10}$ of a sign before him, or mor exactly .407, before him.

Cor. The moon leaves the sun 12 degrees, or rether 12.2 degrees, in a day. And $\frac{2}{5}$ the moon's digrates from the sun, in signs.

PROB. XVI.

find the time of moon rifing or fetting.

RULE.

Find the moon's fouthing, or how many hours the fouths after noon. Take half this number of hours, and reckon fo many months forward from the time given. Find the hour of fun-fet, for the time you reckon to; this will be the moon's femidiurnal arch, or half the time of her shining.

Then add the femidiurnal arch to the fouthing, gives the fetting; or fubtract it, and it gives her

rifing.

Note, between the change and the full, you need only find her fetting, for the rifes in the day-time. And from the full to the change, her rifing; for then fhe fets in the day.

Example.

July 20th, 1760.

Moon's fouthing 13.6 = 13h 36m. 6.8 months.

6 months from July 20, is Jan. 20th. And 6.8 months from July 20th, is Feb. 14. The fun fets on Feb. 14th, at 5h om fubst. . from moon's fouthing, 13 36

moon rise 8h 36m, at night.

For when the moon fouths 12 hours after the fun, she is got fix figns from him, and then is where the fun would be fix months after; and whatever her fouthing be, she is advanced so far, as the fun would be, after half that number of months. And when she is there, her semidiurnal arch is equal to the fun's, or equal to the hours of fun-let.

fun-set. And this is the arch the moon has to describe after her southing.

2 RULE.

Find the moon's place in the zodiack, and the fun's femidiurnal arch when he is there; which will also be the moon's.

Then to 10 the moon's age, add the semidiurnal arch, for the setting; or substract it, for the rising.

Examp.

On July 10th, 1769. The moon's age is 7, and her place 6° 12°, and her semidiurnal arch 5" 40".

$$\frac{8}{10}$$
 her age $5.6 = 5^{\text{h}} 36^{\text{m}}$ add $-$ 5 40

Moon sets at 11h 16m at night.

For \$\frac{8}{10}\$ of her age is the time of her fouthing, and her femidiumal arch is the same as in the first Rule.

Cor. 1. Hence the time of the moon's shining is twice the semidiurnal arch found above.

Cor. 2. From hence it is easy to know how long the moon shines after sun-set, or before sun-rise. Thus,

To the fouthing add the femidiurnal arch, and fubtract the time of fun-fet; for the hours of shining after fun-fet.

arch, and subtract the southing (after 12 is abated), and you have the hours of shining before sun-rise.

For the moon's setting — the sun's setting = hours of shining after sun-set. And sun-rise — moon-rise = hours of shining before sun-rise.

SCHOLIUM.

The ales will fometimes vary an hour or more, occasioned by the moon's latitude, and irmotion. The fix last Problems are properly alto mical; but having so near a relation to Chrodrey, are put here; and serve well enough for computing these things for ordinary use, and are wrought.

PROB. XVII.

To find the Roman indiction.

The Roman indiction, was a term or period of fifteen years, of use among the Romans. For once in fifteen years, they collected a tribute or tax from such countries as they had conquered. But this period is of no manner of use now, but only as it is an ingredient in the Julian period. To find it,

RULE.

Add 3 to the year of Christ, and divide by 15, the remainder is the indiction. If o remains, take 15.

Exam.

For the year 1769 add 3

15)1772(118 15 27 15 120 122 2 the indiction.

D 4

Scно-

SCHOL.

There is an old rule which will give the Golden number, Cycle of the Sun, and Roman Indiction, all at once; 'tis this,

When 1, 9, 3, to the year has added been, Divide by 19, 28, 15.

PROB. XVIII.

To convert one Era or period into another.

RULE.

We must first know what year of any Era or period, answers to the first year of Christ (or any other Era); or what year of Christ answers to the first year of any period or Era. Then I subtracted from that year, gives the reducing number.

Or thus, find how many years one Era begins before the other; and that will be the reducing number; which being added or substracted as the case requires, gives the correspondent year complete in all cases; and likewise the year current in all cases, except when they run contrary ways; and then a unit must be added to one of the numbers to make them correspond.

Ex. 1.

What year of the Julian period answers to 1769 of the Christian Era?

The Julian period begun 4713 years before Christ, therefore to 1769

add 4713

Answer, 6482d year. I. P.

Examp. 2.

Last year of Christ answers to the 4635th year of

che I lian period?

ong bigger, we must substracted from 4635, but and the remainder will be years before Christ.

4635 -4713

- 78 years compleat.

But because the year of Christ is running backward, it will be the 79th year current before Christ.

Ex. 3.

What year of the Era of Nahonassar answers to 1769 of the Christian Era?

The Christian Era began 747 years after that of

Nabonassar.

To 747 add 1769 2516 year

Ex. 4.

.What year of Christ answers to the 20th of Naho-nassar?

20 -747

before Christ 728 years current.

Ex. 5.

What year of the Hegira of the Turks, answers to the 30th year before the Yezdegird of the Persians? The

CHRONOLOGY.

The Hegira begun 10 years before the Yezdegird.

from 30 fub. 10

20 year current or compleat.

S сно L.

In using any period, if the number be more than the period; divide by that period, and the remainder is the number of the year.

PROB. XIX.

Having the cycles of the sun and moon; to find the year of the Dionysian period.

RULE.

Multiply the cycle of the sun by 57, and the cycle of the moon by 476; add the products together, which divide by 532, the remainder is the year required.

Examp.

Let the cycle of the fun be 17, and of the moon 11.

$$17 \times 57 = 969$$

 $476 \times 11 = 5236$

532)6205(11 periods.

532 .

885

532

the year 353 of the period.

Investigation. Find two numbers 28x and 19y, that being respectively divided by 28 and 19, will leave no remainder; but divided alternately by 19 and 28 will leave 1; that is, $\frac{28x}{1}$ leaves 1, and

Whence $\frac{28x-1}{19}$ = a whole $\frac{9x-1}{19}$

number, $= x \div \frac{9x - 1}{19}$, therefore $\frac{9x - 1}{19} =$

a findle number = p, and by reduction, $x = \frac{p+1}{p+1} = 2p + \frac{p+1}{p}$; therefore $\frac{p+1}{p+1} = a$

whole number = q; whence p = 9q - 1; the least value of q is 1, therefore p = 8, $x = \left(\frac{19p + 1}{9}\right)$ 17, and 28x = 476 = A.

Again, $\frac{19y-1}{28}$ = a whole number = p, then

 $y = \frac{28p+1}{19} = p + \frac{9p+1}{19}$, and $\frac{9p+1}{19} = a$

whole number = q, and $p = \frac{19q-1}{9} = 2q$

 $+\frac{q-1}{9}$; therefore $\frac{q-1}{9}=a$ whole number = r, and q=gr+1; and the least value of r is o,

then $q = 1, p = \left(\frac{19q - 1}{9} = \right)2, y = \left(\frac{28p + 1}{19} = \right)$

3; and 19y = 57 = B.

Now if A be multiplied by any number n, and dividing by 19, it will leave n remaining, but divided by 28 will leave o.

Also if B be multiplied by any number m, and divided by 28, it will leave m remaining; but di-

wided by 19 it leaves o.

Therefore nA + mB divided by 28, will leave m(17); and divided by 19, will leave n(11); therefore nA + mB is the year of the period. But fince this may exceed 28×19 or 532; therefore divide by 532, and the remainder is the year of the period.

Cor. The year of the Dionysian period being given; the cycles of the sun and moon are found, by dividing respectively by 28 and 19; for the remainder is the number of the cycle.

PROB. XX.

Having the Cycles of the Sun, Moon, and Indiction:

RULE.

Multiply the cycle of the fun by 4845, the cycle of the moon by 4200, the cycle of indiction by 6916, divide the fum of the products by 7980, the remainder is the year of the Julian period.

Examp.

Let the Sun's Cycle be 17, the Moon's 11, the In-

 $4845 \times 17 = 82365$ $4200 \times 11 = 46200$ $6916 \times 6 = 41496$

> 7980)170061(21 periods. 15960.

> > 7980

the year 2481, of I. P.

Investigation. Since $28 \times 19 \times 15 = 7980$, and $28 \times 19 = 532$, $28 \times 15 = 420$, $19 \times 15 = 285$. First find three numbers $532 \times (A)$, 420y (B), 285z (C); that being respectively divided 532, 420, and 285, will leave o remaining. But the first divided by 15 leaves 1, the second by 19 leaves 1, the third by 28 leaves 1.

Pro-

Poceeding as in the last Problem, you will find 3, y = 10, z = 17; and 532x = 6916420y = 4200 = B; and 285z = 4845 = C;

as tray be easily tried by dividing.

Therefore, as in the last, nA + mB + pC divided by 15, 19, and 28 respectively, will leave emainders n, m, and p; and therefore nA + pC is the year of the period, or the remainafter it is divided by 7980. For the quotient shows how many periods are elapsed.

Cor. The year of the Julian period being given, the cycles of the sun, moon, and indiction are found, by dividing by 28, 19 and 15 respectively; the remainder is the number of the cycle.

PROB. XXI.

To explain the Calendar, its nature and construction.

A Calendar is a table containing 12 months, with all the days of these months, set down in order. And the months are also divided into weeks by the 7 first letters of the alphabet. On the top of the following Calendar, you have the name of each month; in the first column are the days of the month, numbered 1, 2, 3, &c. In the second column you have the letters of the week days, and the golden numbers. In the third column are the holidays, and other remarkable fixt days, set against the proper days of the month.

Among the letters, that which stands for Sunday at the beginning of the year, will be the Sunday letter for all the year, and will point out all the Sundays. And the like for the rest of the letters, the same letter always denoting the same day of

the week quite thro' the year.

The golden numbers are so disposed, that the golden number for any year, stands against the day of the moon's changing, in every month. But as these numbers only shew the mean time of the conjunction, they may sometimes vary a day from the heavens; and as these numbers are calculated to the present time; after the beginning of the year 1800, these numbers must be placed (or supposed to be placed) a day later or lower in the Calendar.

If the full moon be required, it is only reckoning fifteen days from the change, and then it will agree with the new Calendar.

The CALLENDAR.

	JANUARY.					FEBRUARY.				
mon.			Holy days and other days.	mon. days						
1	Ā	9	New year's day.	1	D		Bridget.			
2	B			2	E	17	Candlemas day.			
. 3	C	17		3	FG	.0				
4	D	6		4	Carried Street					
5	E	E A	C 10.1 1	5	A		Agatha V. & M			
6	F	14	Twelfth day.		B	3	Dorothea.			
7	G		Julian.	7 8	CD	10				
8	A B	3	Lucian M.		E	11	· 五十二十二			
9	0	11		9		19	三克斯巴克 地名			
10	D			10	F	8				
II	E	19		11	A	16				
12	F	0	Hillary.	12	B	10				
13	G	16	Fœlix.	13	C		ValentineB&M			
14	A	10	I will.	14	D	5	v alchunebælvi.			
15	B	5		15	E	13				
17	C		Anthony.	17	F	2				
18	D		Prisca, V. & M.	18	G					
19	E	2		19	A	10				
20	F	10	Fabian, B. & M.	20	B	18				
3,1	G		Agnes, V. & M.		C					
22	A	18	Vincent M.	22	D	7				
23	B	7		23	E	15				
1/24	C		Timothy.	24	F	2	St. Matthias.			
1325	D	15	Conv. St. Paul.	25	G	4				
26	E	4	20	26	A					
27	F	F.		27	В	12				
	G	12	1 -1 -7	28	C	1				
29	A	2004		105-7	D	- 54				
30	B	1								
31	IC.	9				- 1	TO SUPPLIES OF SUPPLIES			

The CALENDAR.

	N	1 A	RCH.	1	I	1 P	RIL.
mon. days.		5011/MF90301.0	Remarkable days.	mon. days.	100 000 000		Remarkable days.
1	D	9	St. David.	1	G		
2	E		Chad B.	2	A	17	
3 4 56	EFGAB	17		3	BC	6	Richard.
4	G			3 4 5 6		0.00	St. Ambrose.
5	A	6		5	D	14	ALCOHOL:
A DIMEN SECURE	B	14		6	E	3	
7 8	CD			7 8	EFG		
MANAGER SHOWERS	D1 E2 7400	WALLEY TO STATE OF	Philemon.	8	362.61	11	The state of the s
9	E	11		9	A	19	Ban Mannier
10	F	19		10	B		La Contraction of the Contractio
11	G	0	Creace	11	C	8	The state of the s
12	A	0	Gregory.	12	D	.,	CX TO THE
13	B	16		13°	E	16	A Darwar Land
14	D	100		14	F	5	Downston
15	E	5		15	G		Perpetua.
1000 (011 agr)	F	10	St. Patrick.	16	A B	13	
17	G		Edward.	17	C	1 2	The same of
19	A				D	70	
20	B	10	St. Cuthbert.	19	E	18	Printed and the second and the secon
21	C		Benedict.	21	F		
22	D			22	G	7	The state of the state of
		7		23	A.	15	St. George M.
24	E			24	B		arta toru
25	G	15	Lady day.	25	C	4	St. Mark.
26	A	4		26	D	1.00	1
27	BC			27	E	12	
28	C	12		28	F	1	
29	D	1		29	G		
30	E	24		1 30	A	9	Jacob.
31	F	9		11 -			The Local Dec

CHRONOLOGY. The CALENDAR.

		N	A Y.		JUNE.					
mo.	lett.		Remarkable days.	mo da.	1	. 1963				
ua,	g. n		The second secon	5/5	-	n.	days.			
. 1		7	St. Ph. & Ja. May		E	.6				
2	C	,	[day.	2	F					
3	D E F 1	6	. G. Maria	3	G		200			
5	E		1. 1.	4	A	3				
-	0		Cileranus	5	B		Boniface, M.			
6	. '	3	Silvanus.		C	11				
7	A			7 8	n	19				
8	Ві	- 1		8	E					
9	CI	9		9	F	8	4.5			
10	D	0		10		,				
11		8		11	A	16	St. Barnabas.			
12	FI			12	B	5				
13	6	5	~	13	C		1.0			
14	A		A STATE OF THE STATE OF	14	D	13	no Transition			
15	BI		The second second	15	E	2				
16	C :	2	The Co. 17	16	F					
17	D			17	G	10	St. Alban, M.			
18	E 10	- 1		18	1	18				
19	F C	0	Prudent. V.	19	R					
20	GI	~ 3		20		7				
21	A	7		21	Takenoon .	15				
23	B		- T 34E	22			12.7			
23	CI		AL WATER	23	F	4				
24	D .	4				12	St. John Bapt.			
1.5	E			25	A					
26	FI	- 1	The state of the s	26	R	1	7 10 7 7			
27		1	Bede, V.	27	C	9				
28	A		day the dist	28	D		O. T.			
29	B !	9		29	E		St. Peter.			
30	0			- 30	F	6	Lucina.			
31	DI	71	TO ME AND TO STATE OF	1						

E

The CALENDAR.

	JI	JLY.	AUGUST.			
100	lett. g. n.	Remarkable days.	mo. da.	lei g.	t.	Remarkable days.
1	G		1	C		Lammas day.
2	A 14		2	D	3	
3	B 3	Cornelius.	3	E	11	
3 4 5 6	C		4	F		-6
5	DI		5	G	19	
	E		6	A		
7 8	F 19	Tho. a Becket.	7 8	В	8	
8	G 8				16	
9	A			D		
10	The second second		10	E	5	St. Laurence M.
II			11	F	13	
	D			G		Clara V.
13	E 13		13	A	2	
14	F 2		14	В	10	
15	G	Swithin B.	15	C		
16	A 10		16	D	18	
17	B		17	E		
18	C 18		18	F	7	Helena.
19	D 7				15	200
20	E	MargaretV&M.	20			Bernard.
21	F 15		21			
100 000 000		St. M. Magdalen			12	4
23	A		23	D		1 1 1 1 1
		Christiana.	24	E	1	St.Bartholomew
	C 1	St. James.	25	F	9	
	D	St. Ann.	26	G		
27	E 9		27	A	17	THE PERSON
28	F 17	in a	28	B	6	Augustine.
29	G	Martha.	29	C		
30	A 6		30	D	14	والمرازعاء ليكنا
31	B 14	Mary Mary Comment	31	E	3	The same of the

CHRONOLOGY. The CALENDAR.

mo. lett. Remarkable	mo.			
da. g. n. days.	da.	g.	n.	days.
of F Giles.	I	A		Kemigius, B.
2 G 11	2	В	11	700
3 A	3	C	19	100
41 B 19	4	D		Francis.
6 C 8	5	E	8	
100		F		Faith V. & M.
5 D 7 E 16 8 F 5 Nat. V. Mary.	7 8		16	Julia.
8 F 5 Nat. V. Mary.	1	A	5	
9 G	9	B		S. Dennis.
10 A 13	10		13	
11 B 2	11		2	
1 2 C	12			
13 D 10	13	r	10	4
14E h. Rood d. h. cr.			18	
15 F 18	15	P	7	
16 G 7 Lambert B& M.	10	C		Etheldred V.
olp	18	D	15	St. Luke.
	19		4	or. Dance.
19 C 4 20 D	20		7	
21 E. 12 St. Matthew.	21	G	12	Urfula.
22 F-	22		1	
	23			
23 G I 24 A 9	24	C	9	1 1
25B 17	25	D	17	Crifpin.
26C S. Cyprian.	26			The same
27 D 6	27	F	6	
28 E	28	G	14	St. Simon & Jude
29 F 14 St. Michael.	29	A		
30 G 3 St. Jerome.	30	B	3	
	1 31	C	11	

The CALENDAR.

N	C	V	EMBER.	DECEMBER.			
mo. da.			Remarkable days.	mo. da.	1	tt.	Remarkable days.
I	D	_	All Saints.	1	F	19	
2	E		All Souls.	2	G	19	
	F	19	All Souls.		A	8	
3	G			3 4	B		Barbara.
4		16		4	C	16	
5	B		Leonard.	5	D	10	Nicholas, B.
	C	5	Leonard.	11		5	IVICIIOIAS, D.
7	D	* 0		7 8	EF	* 0	
0	E	13		11	G	13	
9		2		9		2	1
10			St. Martin B&C.	11	1	10	
			St. Martin boc.		10	18	
12			Brice.		C		
13	D	10	Brice.	13	D	_	Lucy, V. & M
14	D	7	Manhan	14	E		
15	annes.		Machute.	15		15	
16		15	II. I D	16			
17	F	4	Hugh, B.	17	A	4	
	G		Elimbert	18		12	
-	Annual Control		Elizabeth.	19	C		
20			Edmund.	20		1	0. 77
21		'	C	21			St. Thomas.
22		9	Cecilia.	22	9	9	1
23			St. Clem. B & M.	23		17	
24		17		24			01 .0
25	-	6	Catharine.	25			Christmas day
26	(E-07-1-7) Tal			26		-	St. Stephen.
27		14	Steel Bright	27			St. John Evan.
28		3		28		3	Innocents.
29	D			29		11	
30	E	11	St. Andrew.	30			S. Roger.
		-		31	A	19	Silvester, B.

or. Hence it will be no hard matter to compose an nack, from what has been laid down before.

For in the first place you must have a Calendar, which is the basis of all the work; in this, the fixt days are already placed. Then the chronological notes for the year; then all the moveable days are next to be inserted, and likewise the law days; all the sundays, and holidays, whether fixt or moveable, are put in red letters for distinction. The law terms are these,

Easter term begins 17 days after Easter, and

ends the Monday following Ascension day.

Trinity term begins 12 days after Whitsuntide,

and continues 19 days.

Michaelmas term begins the 9th or 10th of October, and ends the 25th or 29th of November.

Hillary term begins Jan. 23 or 24, and ends

Feb. 12 or 13.

Likewise the University terms may be put in if

any one pleases.

The next thing to be done, is to put into separate columns the rising and setting of the sun, the rising, southing, and setting of the moon, and likewise the change and full, and quarters of the moon; and such other astronomical matters as may

be thought useful.

But to have an Almanack compleat, all the Celeftici Phenomena ought to be put in, such as the San and Moon's places and declinations; the heliocentric and geocentric places of all the planets, with their latitudes; the moon's place and latitude; the rising, southing and setting of the planets; the eclipses of the luminaries; the aspects of all the planets; the places and eclipses of Jupiter's satellites; the southing of the stars, the beginning and end of twilight; the equation of time, the sun's right ascension, and other such like things. Most

of these things vary every year, and therefore an Almanack lasts but for one year.

There are four things, which ought always to be kept in memory: the year, the month, the day of

the month, and day of the week.

I shall now insert a Chronological Table, shewing the times when the most noted events happened, which are mentioned in History; such as the changes of Kingdoms, the rise and fall of Monarchies, the lives of famous men, and such like things. And tho' the Chronology of antient times is very uncertain, yet it may not be amiss to know within a little, when such or such a transaction happened; altho' by reason of the great distance of time, it cannot be known so accurately as we could wish.

A CHRONOLOGICAL TABLE.

The Time is shewn in Years before and since CHRIST.

CHRIST.	ye. bef. Chrift.
HE Creation of the World according	CHARGE SEE SHOW, I
to Moses; Adam made. By some Ac-	AND THE RESERVE AND THE RESERV
counts 4000, by others 5508, by others	The second secon
3956 years, — —	3950
Seth, the fon of Adam, born -	3820
Enos, the fon of Seth, born -	3715
Cainan, the fon of Enos, born -	3625
Mahaleel, the son of Cainan, born	3555
Jared born, the fon of Mahaleel,	3490
Enoch born, the fon of Jared, -	3328
Mathusalem born, the son of Enoch,	3263
Lamech born, the fon of Mathusalem,	3076
Adam dies, aged 930 years, -	3020
Noab born, the fon of Lamech,	2894
Noah begins to build the ark,	2414
Mathusalem dies, aged 969 years, the oldest	1201
The ark finished. Noab's flood, or the uni-	2294
verfal deluge, that drowned the world,	2294
The tower of Babel building, and the con	2294
fusion of languages, — —	2131
The Chaldeans now began to observe the	
stars.	Total S
Noah dies, 950 years old, -	1944
The vocation of Abraham, -	1927
A famine causes Abraham to go into Egypt,	1926
Sodom and Gomorrab burnt, -	1903
Isaac born, the son of Abraham,	1902
Jacob born, the fon of Isaac (afterwards	3.413.2
called Ifrael) -	1842
Joseph born, the son of Jacob, E 4 Jol	1751

	ye. bef. Christ.
Job living, the fon of Iffachar.	-
A great famine causes Jacob and his family	4
	1712
Facob dies in Egypt, 147 years old,	1695
Joseph also dies in Egypt, aged 110 years,	164
Moses born, -	1577
The king of Egypt orders all the male chil-	4
dren of the Hebrews to be killed,	157
The children of Ifrael go out of Egypt, and	
Pharoah and his army drowned in pur-	
ing them, —	1496
Joshua defeats the Gibeonites; and the fun	
ftands ftill, — —	1458
Moses dies, 120 years old, -	1457
Joshua dies, 110 years old,	1433
Gideon, judge of Ifrael, defeats the Midi-	
anites,	1271
Ruth.	
Abimelech kills his 70 brethren, and governs	
the Jews, — — —	1239
Mephres, king of upper Egypt,	1125
Misphragmutholis reigned over all Egypt, and drove out the shepherds,	1120
Ogyges, his flood. Eli governs Ifrael.	1120
Sampson kills himself, with 3000 Philistines,	1116
The Philistines conquer Ifrael, and take	
the ark,	1100
Samuel judges Ifrael,	1094
Athens governed by Archons, -	1080
Ducalion king of Theffaly	We -
Amosis or Tethmosis the 2d king of all Egypt,	1070
Saul king of Ifrael,	1070
Saul defeated by the Philitines, kills him-	The second second second
felf, — . — —	1060
Sparta built	100000
Samuel dies, -	1060
David	4.75

	ye. bef. Chrift,
David made king, -	1059
David conquers the Edomites, who fly into	1048
Hieram king of Tyre furnishes David with	1048
Tore, Aradus built.	1040
Codmus and Europa. Fine marries Eyridice, —	1047
The Phœnicians that fled from David, car- ry their arts and sciences into Greece, &c.	
and begin to fail on the Mediterranean, Ducalion's flood drowned Thessaly.	1045
Ammon reigns in Egypt, has fleets of ships in the Red Sea and Mediterranean,	1034
The Egyptians begun to observe the stars. The lunisolar year altered, and made to con-	
Ceres teaches the Greeks to fow corn,	1030
Perseus.	0.1107
Solomon reigns, and marries the daughter of Ammon, king of Egypt,	1019
Selomon's temple founded, Minos reigns in Crete. His father Afterius	1015
(Saturn) flies into Italy.	West Control
Sefac, the fon of Ammon, invades Arabia Felix, and fets up pillars by the Red Sea,	and the second s
folomon's temple finished, -	1009
Sefac reigns in Egypt, Dædalus invents the faw, wimble, &c. and	1002
gives a beginning to these arts in Eu-	989
Sysiphus reigns in Corinth, -	983
Reboboam reigns in Ifrael. Ifrael divided, and ten tribes revolt.	979
Sefac,	

	ye. bef. Chrift.
Sefac rifles the temple at Jerusalem, and the	7
king's palace. Invades Syria and Persia,	
Jeroboam subject to him, -	974
Bacchus and Ariadne.	. 213
Sesac invades India, sets up pillars on the	1
Ganges, —	971 10
Theseus reigns at Athens, overcomes the	"
Minotaur, —	968
Licurgus.	0
Sefac conquers Thrace, kills king Licurgus,	
he had Ethiopians in his army command	
ed by Pan; and Lybian women com-	
manded by Minerva, —	957
Sefac baffled by the Greeks and Scithians,	967
Minos flain by the king of Sicily,	964
Hercules born.	
Helle drowned in the Hellespont,	962
Abijam reigns in Judea.	-
Sefac slain by his brother Japetus or Nep-	
tune,	956
Asa king of Judah reigns.	
Orus reigns in Egypt and routs the Lybians.	
The Ethiopians invade Egypt, and drown	
Orus in the Nile,	947
Menes, or Amenophis, reigns in Ethiopia,	946
The ship Argo built by the Greeks,	939
Chiron makes the conftellations.	6
Theseus, king of Athens, stole Helena,	938
Hippocrates.	Section 1
The Argonautic expedition to Colchis,	937
Abab, king of Ifrael, reigns,	925
Paris, king Priam's fon of Troy, stole He-	
Jeboshaphat king of Judah reigns.	918
Obadiah, Elias.	CN 132
Troy besieged by the Grecians, -	
E41046-10101A-101	914
Troy	

	ye. bef. Christ.
Troy taken,	904
Tyre,	883
Aneas alive. Hefiod, Homer, —	870
Meris reigns in Egypt, —	860
The Heraclides return into Peloponnesus, Cephren reigns in Egypt, and built another	825
great pyramid,	824
Pul founds the Assyrian empire, Asychis reigns in Egypt; which breaks into	790
feveral kingdoms, — — — — — Ipitus restores the Olympiads. And from	788
this æra, the Olympiads are reckoned, Semiramis flourishes,	776 760
Sanchoniathon, Micah? Pul, king of Assyria, dies, — — Tiglapilesar succeeds Pul, and reigns at	747
Nineve. Nabonassar reigns at Babylon, — The Egyptians carry their Astronomy to Babylon, and found the æra of Nabonassar.	747
Abaz reigns in Judea. Damascus taken by Tiglapilesar, king of	
Affyria, — — — — — — — — — — — — — — — — — — —	740
Salmanassar succeeds Tiglapilesar, — Habakkuk.	729
Salmanassar takes Samaria, and carries the ten tribes captive to Nineve,	721
Sennacherib reigns over Affyria, - Syracuje built by Archiast Nahum, Tobiah, or Tobit.	719
Sennacherib	

	ye. bef. Chrift.
Sennacherib flain. The Medes revolt from	
the Affyrians, —	711
Confucius the Chinese philosopher.	/
Afferbaddon reigns in Affyria, he built Tar-	,
fus and Ancliale in one day,	711
Lycurgus,	710
The Corinthians begin to build ships with	
three orders of oars, — —	697
Tirbakab reigns in Egypt, -	687
Afferhaddon invades Babylon, — —	681
The Jews conquered by Asserhaddon, their	
king Manasseh carried prisoner to Babylon,	673
Asserbaddon invades Egypt, and subdues it,	671
Asserbaddon dies, — —	668
Amasis defeats Apres, and reigns in Egypt.	
Saosduchinus king of Assyria reigns, -	668
Nebuchadnezzar defeats Arphaxad, the	
Mede, —	661
Manasseh returns from captivity.	
Judith cut off the head of Holofernes,	
Nebuchadnezzar's general, — —	660
The oldest sea fight between the Corinthians	100
and Corcyreans; in which the Corcyreans	JAN.
are worfted,	657
Pfammiticus, by conquering the other eleven	1
kings, becomes king of all Egypt,	655
The first Messenian war, — —	652
Charops the first decennial archon at Athens,	647
Saofduchinus dies.	
Chyniladon reigns in Affyria,	643
Josiah reigns in Judea,	640
Phraortes, king of the Medes, killed in the	
Affyrian wars,	636
Astyages king of the Medes,	636
Jeremiah, Zephaniah.	
Cyrene built by Battus, -	633
Rome	

	ye. bef. Chrift,
Rome built by Romulus, (by the common	
Nabepolassar revolts from the king of	627
Affyria, and reigns over Babylon, -	625
Pfammiticus conquered by Cambifes king of Persia, —	621
Tarentum built by Phalantus,	620
Psammiticus dies, — — —	617
Nechaok, or Pharaoh Necco, reigns in Egypt,	617
Cyaxeres reigns over the Medes,	611
Josiah, king of Israel, slain by Nechaoh,	609
Nebuchadnezzar reigns at Babylon, Nebuchadnezzar defeats Neco.	606
Nineve destroyed, and the Assyrian empire,	609
Daniel. The fecond Messenian war, Nebuchadnezzar invades Syria and Judea,	607
under Nebopolassar his father, — —	606
Nebuchadnezzar king of Babylon, -	604
The kingdom of Macedon founded by Carannas and Perdiccas, — —	596
Zedekiah reigns in Judea. Thales Milesius.	
Cyaxeres makes war against the Lydians, Judith.	590
Arphaxad reigns over the Medes, — Nebuchadnezzar burnt the temple of So-	589
lomon, and carried the Jews captive to Babylon, — — — —	588
Messana built,	588
The Affyrians beaten by the Medes, under	500
Aftyages, — — —	586
A total eclipse of the sun, predicted by Thales put an end to the war between the	
	1

	ye. bef. Chrift.	
the Medes and Libians, May 28th, Baruch.	585	
Nebuchadnezzar invades Egypt, and con-	-66	
Darius the Mede reigns.	566	P
Hagai, Zechariah. Solon, archon of the Athenians, makes laws		-
for them, — — —	562	
Cyrus first king of Persia, -	560	
Nabonadius king of Babylon,	555	
Negropolassar defeated by Cyrus, -	551	
Crasus king of Lydia conquered by Cyrus		
king of Persia. So ended the kingdom	-	
of the Lydians, —	550	
Cyrus takes Sardes, -	544	
Cyrus takes Babylon,	538	
Belshazzar, the last king of the Babylonians.		
Cyrus overcomes Darius the Mede, and tran-	506	
The Jews return from captivity.	536	
Cyrus dies, — —	529	
Cambises, king of Persia, took Memphis,	524	
Subdued the Ethiopians, —	523	
Darius, the son of Hystaspes, reigns in	3-3	
Perfia, — —	521	
The Magi are flain.	1	
Zoroaster, Esther, Pindar, Anacreon.		,
The second temple built at ferusalem at the		
command of Darius,	520	
Tarquin the last king of the Romans ex-		
pelled, and confuls elected, -	508	
Anaxagoras.	100	
The Athenians beat the Persians at Mara-	.0-	
Xerxes reigns (called also Abasuerus)	485	
Xernes defeated by the Greeks, -	485	
Xerxes		
2107 763		

	ye. bef. Christ.
Xerxes passes over the Hellespont, fought Leonidas king of Sparta, who beat him, Arbens burnt by Mardonius, Xerxes's ge-	480
neral, — — — — — — — — — — — — — — — — — — —	478 464
werxes kills his brother, —	463
Nebemiah. — — —	457
Herodotus, Meton.	
The Peloponnesian war begins, Hippocrates, Democritus.	431
Darius Nothus reigns, -	424
Thucidides. The Jewish history ends, —	412
Ninias, the Athenian admiral, frightened	
by feeing an eclipfe of the moon,	412
Artaxerxes Mnemon reigns, — Ezra, Socrates, Plato, Zenophon, Pappus.	405
The end of the Peloponnesian war, -	404
Philip, king of Macedon, reigns, Malachi, Nehemiah, Eudoxus, Aristotle.	362
Artaxerxes Orchus reigns, -	359
Arogus reigns, -	338
Darius Codomannus reigns in Persia,	336
Alexandria in Egypt built, Alexander the Great conquers the Persians,	335
and translates the empire to the Greeks, Darius Codomannus, the last king of Persia,	332
flain, —	331
Alexander the Great died at Babylon,	324
Ptolomy Soter,	320
Eratostenes, Epicurus.	100.6
Antigonus routed by the Syrians, -	316
Agathocles king of Sicily, -	316
An	2.3

	ye. bef. Chrift.
An eclipse of the sun happened Aug. 15,	7
when Agathocles was croffing the fea against	300
	0.6
the Carthaginians, — —	316
Euclid, Manetho, Berosus.	1
Ptolomeus Philodelphus reigns in Egypt, Aratus.	277
The Arundelian marbles composed, -	264
First Punic or Carthaginian war, -	264
Quintus Fabius Pictor, the oldest Latin hif-	
torian, — —	224
The Chinese wall built,	222
The fecond Punic war, —	217
Hannibal, the Carthaginian, defeats the Ro-	22/
mans at Pavia, — —	216
Hannibal defeats the Romans at Canno,	215
Archimedes.	2.3
Syracuse taken by Marcellus, -	213
Antiochus Epiphanes began to reign in Syria,	175
Antiochus plunders the temple at Jerusalem,	
and murders the Maccabees, —	1 1
Macedon becomes a Roman province. A	173
lunar eclipse, — — — —	168
Judas Maccabeus routs Antiochus, —	166
Terence, Hipparchus, Hippocrates.	100
The third Punic war, — —	140
Carthage and Corinth burnt by the Romans,	149
The history of the Maccabees ends, -	1
Lucilius, Galen, Polibius.	135
Civil wars at Rome between Pompey and	
Cæfar, — — —	82
Jerusalem taken by Pompey, -	62
Cataline's conspiracy, Cicero, Varro,	61
The Triumvirate of Paman Pama en Caved	
The Triumvirate of Pompay. Rome enflaved,	
Casar conquers the Gauls, — —	53
invades Britain, — —	52
Julius Casar defeats Pompey, -	49
Pompey	

	ye. bef. Christ.
Pompey sain by Cæsar, in Pharsalia, Salust.	46
Alteration of the year by Julius Cæsar, where he corrects the calendar, — Cæsar burns the famous library at	46
Alexandria, containing 700,000 volumes, killed in the Senate house by Brutus	44
and Cassius, -	43
Hand made king of Judea,	40
Brutus and Cassius being defeated kill them- felves.	
Diodorus Siculus.	
The triumvirate of Mark Anthony, Lepidus and Augustus, —	40
Jerusalem taken by Herod, — —	40
Anthony loses the battle of Actium, -	37
Cleopatra dies, and Egyyt becomes a Ro-	31
man province, — — —	20
Virgil, Horace, Ovid, Lucretius, Livy, Dio- nysius, Cornelios Nepos.	
Augustus Emperor, and sole master of the	
world, — — —	28
Jesus Christ born, — — — — — — — — — — — — — — — — — — —	2
The vulgar æra of Christ begins.	ye. aft. Christ.
Trogus Pompeius.	
Augustus dies; Tiberius succeeds, -	14
Jesus Christ crucified, — —	34
Caius Caligula Emperor, — — —	. 37
Philo, Seneca.	
Claudius Emperor, — — —	41
Nero Emperor, — — —	54
Sets Rome on fire for sport, —	64
Galba Emperor,	69
F Vitel	

	ye. aft. Chrift.
Vitellius Emperor, — —	70
Flavus Vespasian Emperor, -	71
He fent his fon Titus into Judea, who	1
destroyed Jerusalem. Since that, the	
Jews are disperied all over the world.	50 15
Josephus, Pliny, Quintus Curtius.	
Titus Vespasian Emperor,	70
Domitian Emperor, -	87
Cornelius Tacitus.	-
Cocceius Nerva Emperor, -	96
Suetonius Tranquillus, Ptolomy.	30
The temple of Pantheon in Rome beaten	
down with thunder, -	TIO
Adrian Emperor, -	117
Plutarch.	No.
Arrian.	A marine
The Pitts wall built, -	123
Appian, Dion Cassius.	1
Antoninus Pius Emperor, -	128
Diogenes Laertius, Justin.	-20
M. A. Antoninus Emperor, -	161
Commodus Emperor,	180
Sep. Severus Emperor, -	193
Philostratus.	.93
A. Bastianus Caracalla Emperor,	211
Op. Macrinus Emperor,	217
Lucius Florus.	
Herodian, -	250
Dioclesian Emperor, -	284
Constantine the Great Emperor, -	306
Eusebius.	300
The council of Nice held,	325
Constantinople rebuilt,	330
- Julian Emperor, -	337
St. Ferome, Rufinus.	33/
Valentinian and Valens Emperors, -	364
Epi-	137