THE LUNAR YEAR OF THE COLIGNY CALENDAR AS A PRECEDENT FOR THE INSULAR LUNAR YEAR

Brent Davis

In this essay, the origins of the recently-recovered Insular calendar outlawed at the Synod of Whitby in AD 664 are reviewed, including the calendar's documented origin in early fifth-century Gaul, its basis on a third-century source from Asia Minor, and its survival in a nineteenth-century Irish folk-verse that illustrates the structure of the calendar's lunar year. It is then demonstrated that a precedent for this distinctive lunar year can be found in the late-second-century Gaulish brass artifact called the Coligny Calendar, if the year on the artifact is taken to begin with March. Finally, the etymologies of the Gaulish month-names are revisited in this context.

The insular calendar

In his *Historia Ecclesiastica* (III.25), Bede describes the calendar disputes that preoccupied the Insular church in the mid-seventh century. These disputes culminated in 664 in the Synod of Whitby, which declared invalid the 84-year lunisolar calendar of the Insular church, and compelled Christians there to adopt the ecclesiastical lunisolar calendar of Rome. But none of the primary sources that mention the conflict describe how this older Insular calendar operated (McCarthy 1993, 205), and so its exact structure remained a mystery.

This situation changed in 1985 with the discovery of the Padua *latercus*, a table of Easter dates compiled from the calendar that the Synod of Whitby had rejected (McCarthy and Ó Cróinín 1987-8). As Easter is a lunisolar feast, with a date depending upon both the sun and the moon, such a table of dates enables the reconstruction of the lunisolar calendar that produced them; and so from the Padua *latercus,* the 'lost' lunisolar calendar used by Insular churches before 664 was recovered.

The recovered calendar was presented and analysed by McCarthy (McCarthy 1993). The calendar's solar year, naturally enough, is the Roman calendar – specifically, the Julian calendar in its post-Augustan form. The lunar year, however, displays a distinctive characteristic: each lunar month is one day shorter than the corresponding solar month – for example, lunar May has 30 days, lunar June has 29 days, lunar July has 30 days, and so on (*ibid.,* 212).

Persistence of the Insular calendar in oral tradition

The Padua *latercus* remains the latest known written source from which the Insular calendar can be derived. McCarthy (*ibid*.), however, publicises one later oral source: a booklet on Irish numerals (O'Leary *ca*.1920) whose author quotes a verse that he learned as a child in West Cork in the mid-nineteenth century. The verse contains a formula for converting a Roman calendar date to a lunar calendar date:

Cómhrimh síos ón Márta mbán,	Count from the beginning of March,
Go dtí an mí n-a mbeidh tú ann,	Down to the month in which you are.
Cuir aon fé n-a gceann	Put one less than
Lá an mhí, agus an t-epacht.	The day of the month, and then the epact.
Aon nídh fé bhun nó os cionn trí dheich,	Then anything below or over thirty,
Sin agat aois na rae.	There you have the age of the moon.

It is worthwhile examining this verse in some detail, as its principles will be of use later in the essay. To see how the formula works, let us first reword McCarthy's translation to make the verse a little easier to use:

From the start of March, count in months how far
It is to the month in which you are.
Add the day of the month less one, and then
Add the age of the moon when March began.
If greater than thirty, take thirty away;
The result is the age of the moon today.

'The age of the moon' means 'the day of the lunar month'. If, for example, this year's March 1 fell on the 8th day of a lunar month, then 'the age of the moon when March began' = 8.

We could then also say that this year's March 1 fell on the 8th day of lunar March – 'lunar March' being simply defined as the lunar month in progress on March 1 (McCarthy 1993, 207). In fact, all the lunar months in this calendar are so defined: 'lunar April' is the lunar month in progress on April 1, 'lunar May' is the lunar month in progress on May 1, and so on.

So then, let us suppose that this year's March 1 did indeed fall on the 8th day of lunar March, such that 'the age of the moon when March began' = 8; and then let us suppose that today is (say) July 11. What day of *lunar* July is it today? The verse provides the answer, as shown in Table 1.

TABLE 1: Using the verse to convert July 11 to a lunar date

Verse	*Operation*	*Result*
From the start of March, count in months how far		
it is to the month in which you are.	From March 1 to July 1 there are 4 months:	4
Add the day of the month less one ...	Today is July 11, so add 11 - 1 = 10:	4 + 10 = 14
... and then, add the age of the moon when		
March began.	March 1 was the 8th day of lunar March, so add 8:	14 + 8 = 22
If greater than thirty, take thirty away;	(not applicable)	22 - 0 = 22
The result is the age of the moon today.		22

That is: July 11 falls on the 22nd day of lunar July. We can check the result the modern way:

1. July 11 always falls 132 days after March 1.
2. A lunar month (according to the moon's phase) contains 29.531 days, so 132 days contain 4.4699 lunar months, or 4 lunar months and 13.88 days, or (to the nearest whole day) *4 lunar months and 14 days*.
3. March 1 was day 8 of lunar March, so adding 4 lunar months and 14 days will produce *day 22 of lunar July*.

The verse, then, has correctly converted the Roman calendar date into a lunar one.

Now let us take a simpler case, and suppose that March 1 fell on the 1st day of lunar March, and that today is July 1. We recalculate, as shown in Table 2.

TABLE 2: Using the verse to convert a July 1 to a lunar date

Verse	*Operation*	*Result*
From the start of March, count in months how far		
it is to the month in which you are.	From March 1 to July 1 there are 4 months:	4
Add the day of the month less one ...	Today is July 1, so add 1 - 1 = 0:	4 + 0 = 4
... and then add the age of the moon when March began.	March 1 was the 1st day of lunar March, so add 1:	4 + 1 = 5
If greater than thirty, take thirty away;	(not applicable)	5 – 0 = 5
The result is the age of the moon today.		5

That is: July 1 falls on the 5th day of lunar July; while '5' is one greater than the number of months between March 1 and July 1.
In fact, by substituting any month for July in the preceding table, readers will find that the final result is always one greater than the number of whole Roman months since March 1, as shown in Table 3.

Furthermore: for this simple pattern to exist, these lunar months clearly must each be one day shorter than their solar equivalents – a distinctive characteristic of the 'lost' Insular calendar, as mentioned earlier. In short: this nineteenth-century Irish

TABLE 3: Day of the lunar month at the start of each Roman month, when lunar March begins on March 1

Roman date	*Roman months since March 1*	*Corresponding day of lunar month*
01-Mar	0	1st day of lunar March
01-Apr	1	2nd day of lunar April
01-May	2	3rd day of lunar May
01-Jun	3	4th day of lunar June
01-Jul	4	5th day of lunar July
01-Aug	5	6th day of lunar August
01-Sep	6	7th day of lunar September
01-Oct	7	8th day of lunar October (etc.)

verse appears to preserve a method for coordinating the Roman solar calendar with the Insular lunar calendar outlawed at Whitby in 664, despite there being no known written source later than the tenth-century Padua *latercus*.

There would have been a practical reason for preserving the Insular calendar orally in this way. The decision at Whitby had been deeply unpopular amongst some groups, especially in the far north; so it seems that without the sanction to use the Insular calendar openly, its adherents preserved its basic principles in spoken form instead. 'This formula transmitted orally in the nineteenth century,' notes McCarthy, 'is in accord with computistic technicalities written down a thousand years earlier, eloquent testimony as to the conservative nature of Irish oral tradition' (*ibid.,* 213).

Origins of the Insular calendar

The question remains, however: where did this calendar originate? In a followup study (McCarthy 1994), the origins of the Insular calendar are investigated, and it is demonstrated that Aldhelm of Malmesbury's late-seventh-century attribution of this calendar to Sulpicius Severus of Aquitaine was in fact correct. Sulpicius was a wealthy Gaulish lawyer, historian and chronologer who, converted to Christianity in 395, published his 84-year lunar cycle in or shortly after 403, and died in about 420. His calendar was in use in northern Ireland by 438, brought there most likely by Gaulish Pelagian missionaries who favoured the calendar because of Sulpicius' early support of Pelagianism (*ibid.,* 43).

The study then establishes that Sulpicius' distinctive lunar year, with its months a day shorter than their solar equivalents, was itself borrowed from *Liber Anatolii* (*ibid.,* 25-6)*,* a calendrical work written by Anatolius of Laodicea – now Ladikia, Syria – sometime before his death in 283. Anatolius was a highly-educated, well-travelled scholar who had served as head of the Aristotelian school at Alexandria, and his calendrical writings had been praised by Eusebius for their erudition. Sulpicius, in about 402, shortly before his calendar was published, wrote to Paulinus of Nola requesting chronological information; Paulinus forwarded this letter to Rufinus, whose Latin edition of Eusebius would be published in the following year. Rufinus' edition of Eusebius contains a description of Anatolius' work taken directly from *Liber Anatolii,* so it seems most likely that Rufinus was the one who supplied this work to Sulpicius (*ibid.,* 41).

Anatolius was careful to claim authorship of his inventions, but he does not claim authorship of this lunar year, and so it is thought probable that he borrowed it from an earlier, unknown source. McCarthy notes that, as to 'the characteristics of the lunar calendar on which the *latercus* was based and which derive from the lunar table given in *Liber Anatolii,* it has to be said that these resemble no other known lunar cycle' (*ibid.,* 35).

However: a precedent for Anatolius' lunar year can in fact be found in the second-century Gaulish artifact known as the Coligny Calendar, which predates Anatolius by about a century. McCarthy explicitly mentions the Gaulish lunar year as unlike that of Anatolius (*ibid.)*; and so my claim will need to be demonstrated, after a brief introduction to the calendar itself.

The Coligny calendar

The artifact

In 1897, a brass hoard was unearthed in a vineyard near Coligny, France. The hoard consisted of fragments of a 1m x 1.5m brass plate, on which was inscribed a 62-month calendar in the Gaulish language, using Roman letters (Fig.1).

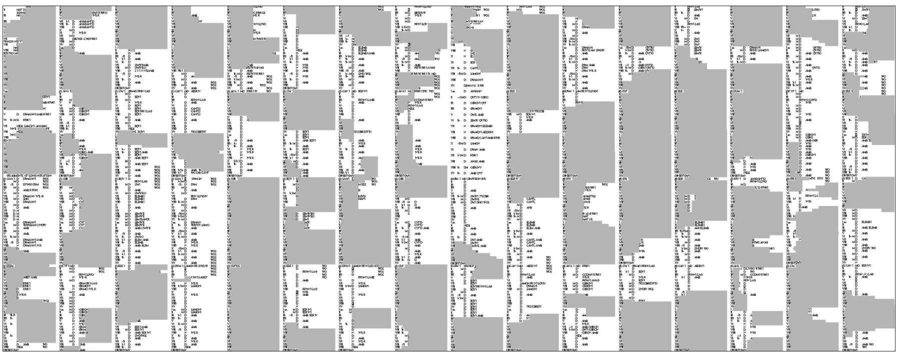

Fig. 1. The condition of the artifact: shaded areas represent lacunae.

The plate had been deliberately broken. About half the fragments were interred at the site, together with a partial brass statue of Mars (Duval and Pinault 1986, 35-7). The paleography indicates that the plate was engraved in the latter half of the second century; and the style of the statue – though earlier, perhaps AD 100 – supports this late date (*ibid.,* 33-5).

Type of calendar

Briefly, calendars are of three types:

1. *Solar calendars*, such as the Julian, mark solar months, or twelfths of a solar year.
2. *Lunar calendars*, such as the Islamic, mark lunar months, as measured by the moon's phase. Twelve lunar months are 11 days shorter than twelve solar months; so a calendar such as the Islamic begins 11 days earlier in each successive solar year, and in about 34 years will drift backward through the entire solar year.
3. *Lunisolar calendars* mark both lunar and solar months, and attempt to ensure that they remain in close alignment (Samuel 1972, 12). This is accomplished by introducing a 13th lunar month – the *intercalary month* – once the drift amounts to a month, thereby restoring the lunar months to their original positions relative to the solar ones. The best lunisolar calendars were able to ensure that the lunar months consistently ended within the same solar months every year (McCarthy 1993, 207).

The presence of two intercalary months on the Coligny plate indicates that the calendar is of the third type, lunisolar, and that its users were concerned with limiting the drift of the lunar months against the solar. The lunar months are explicitly engraved on the plate, while the solar months are implicit; their locations will be demonstrated.

Explicit lunar months

The plate contains 62 lunar months, and is divided into two 31-month halves, each half consisting of an intercalary month followed by 30 ordinary months. The months in each half are arranged into eight columns of four, with each intercalary month occupying twice the vertical space of an ordinary month (Fig. 2).

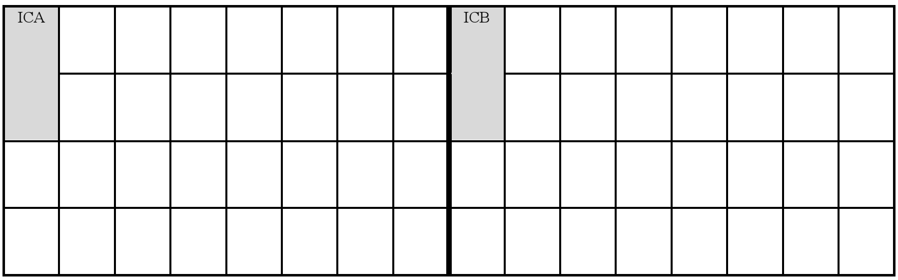

Fig. 2. The plate consists of two halves and 62 lunar months.

The name of the first intercalary month is missing from the plate, and the name of the second is only partially extant. In this essay, they are referred to as ICA and

ICB. Both contain 30 days. The names and lengths of the 12 ordinary lunar months are shown in Table 4.

TABLE 4: Names and lengths of ordinary lunar months

Month	*Length*	*Month*	*Length*	*Month*	*Length*
Samon	30 days	Ogron	30 days	Equos	29 or 30 days
Duman	29 days	Cutios	30 days	Elembiu	29 days
Rivros	30 days	Giamon	29 days	Edrin	30 days
Anagant	29 days	Simivison	30 days	Cantlos	29 days

These months are arranged on the plate in vertical columns from left to right, as shown in Fig. 3.

ICA	Riv	Gia	Edr	Riv	Gia	Edr	Riv	ICB	Equ	Sam	Ogr	Equ	Sam	Ogr	Equ
	Ana	Sim	Can	Ana	Sim	Can	Ana		Ele	Dum	Cut	Ele	Dum	Cut	Ele
Sam	Ogr	Equ	Sam	Ogr	Equ	Sam	Ogr	Gia	Edr	Riv	Gia	Edr	Riv	Gia	Edr
Dum	Cut	Ele	Dum	Cut	Ele	Dum	Cut	Sim	Can	Ana	Sim	Can	Ana	Sim	Can

Fig. 3. Arrangement of months on the plate; the five years are separated by bold borders.

As shown by the bold borders, the plate consists of five years. ICB occurs in the centre of Year III, and ICA occurs before Year I – though ICA is more properly considered the *final* month of the *preceding* year, rather than the first month of Year I (Lainé-Kerjean 1943, 251-2).

Implicit solar months

The calendar's solar months are not explicitly shown on the plate, but their boundaries can be deduced from the notation of the intercalary months. As an illustration, Fig. 4 shows ICB, the second intercalary month.

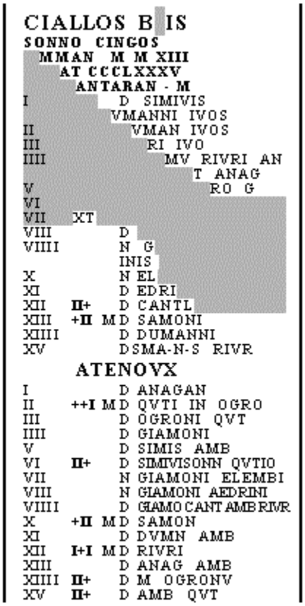

Fig. 4. Intercalary Month B.

Day 13, for example, contains the notation +II MD SAMONI. Meanwhile, the 13th ordinary month in the *preceding* half of the plate is Samon, as shown in Fig. 5.

ICA	Riv **3**	Gia **7**	Edr **11**	Riv	Gia	Edr	Riv	ICB	Equ	Sam	Ogr	Equ	Sam	Ogr	Equ
	Ana **4**	Sim **8**	Can **12**	Ana	Sim	Can	Ana		Ele	Dum	Cut	Ele	Dum	Cut	Ele
Sam **1**	Ogr **5**	Equ **9**	Sam **13**	Ogr	Equ	Sam	Ogr	Gia	Edr	Riv	Gia	Edr	Riv	Gia	Edr
Dum **2**	Cut **6**	Ele **10**	Dum	Cut	Ele	Dum	Cut	Sim	Can	Ana	Sim	Can	Ana	Sim	Can

Fig. 5. The 13th month is Samon of Year II.

...and the 13th day of this 13th month contains the notation: +II MD.

In short, the notation at the 13th day of ICB appears to indicate the 13th day of the 13th month on the plate (= Samon 13 of Year II). In the same way, day 14 of ICB indicates the 14th day of the 14th month (= Duman 14 of Year II); and so on. In all, the 30 days of ICB indicate the following series of 30 days from the left half of the plate (Table 5).

TABLE 5: Days from the left half of the plate that are indicated by ICB

ICB	*Indicates:*	*ICB*	*Indicates:*	*ICB*	*Indicates:*
Day 1	Year I, Samon 1	Day 11	Year I, Edrin 11	Day 21	Year II, Equos 21
Day 2	Year I, Duman 2	Day 12	Year I, Cantlos 12	Day 22	Year II, Elembiu 22
Day 3	Year I, Rivros 3	Day 13	Year II, Samon 13	Day 23	Year II, Edrin 23
Day 4	Year I, Anagant 4	Day 14	Year II, Duman 14	Day 24	Year II, Cantlos 24
Day 5	Year I, Ogron 5	Day 15	Year II, Rivros15	Day 25	Year III, Samon 25
Day 6	Year I, Cutios 6	Day 16	Year II, Anagant 16	Day 26	Year III, Duman 26
Day 7	Year I, Giamon 7	Day 17	Year II, Ogron 17	Day 27	Year III, Rivros 27
Day 8	Year I, Simivi 8	Day 18	Year II, Cutios 18	Day 28	Year III, Anagant 28
Day 9	Year I, Equos 9	Day 19	Year II, Giamon 19	Day 29	Year III, Ogron 29
Day 10	Year I, Elembiu 10	Day 20	Year II, Simivi 20	Day 30	Year III, Cutios 30

The series forms a simple arithmetic progression. The following illustration shows the pattern that this progression creates on the left half of the plate. ICB is shown at far right, and the days it indicates are underlined (Fig. 6).

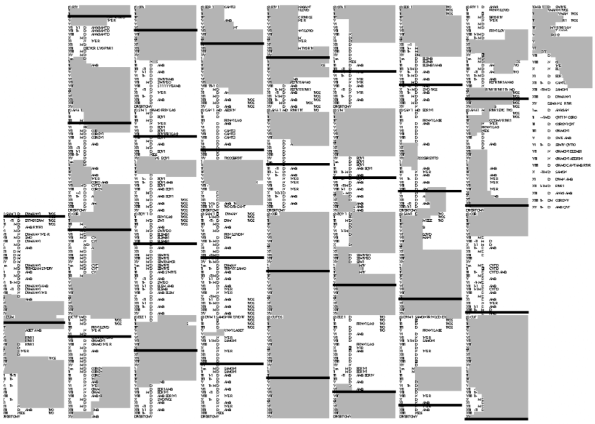

Fig. 6. Days from the left half of the plate that are indicated by ICB.

Meanwhile, ICA, in the upper left corner of the plate, indicates an identical series of days from the right half of the plate (Table 6).

TABLE 6: Days from the right half of the plate that are indicated by ICA

ICA	*Indicates:*	*ICA*	*Indicates:*	*ICA*	*Indicates:*
Day 1	Year III, Giamon 1	Day 11	Year IV, Ogron 11	Day 21	Year V, Rivros 21
Day 2	Year III, Simivi 2	Day 12	Year IV, Cutios 12	Day 22	Year V, Anagant 22
Day 3	Year III, Equos 3	Day 13	Year IV, Giamon 13	Day 23	Year V, Ogron 23
Day 4	Year III, Elembiu 4	Day 14	Year IV, Simivi 14	Day 24	Year V, Cutios 24
Day 5	Year III, Edrin 5	Day 15	Year IV, Equos 15	Day 25	Year V, Giamon 25
Day 6	Year III, Cantlos 6	Day 16	Year IV, Elembiu 16	Day 26	Year V, Simivi 26
Day 7	Year IV, Samon 7	Day 17	Year IV, Edrin 17	Day 27	Year V, Equos 27
Day 8	Year IV, Duman 8	Day 18	Year IV, Cantlos 18	Day 28	Year V, Elembiu 28
Day 9	Year IV, Rivros 9	Day 19	Year V, Samon 19	Day 29	Year V, Edrin 29
Day 10	Year IV, Anagant 10	Day 20	Year V, Duman 20	Day 30	Year V, 'Cantlos 30'

Together, both series form this pattern on the plate (Fig. 7).

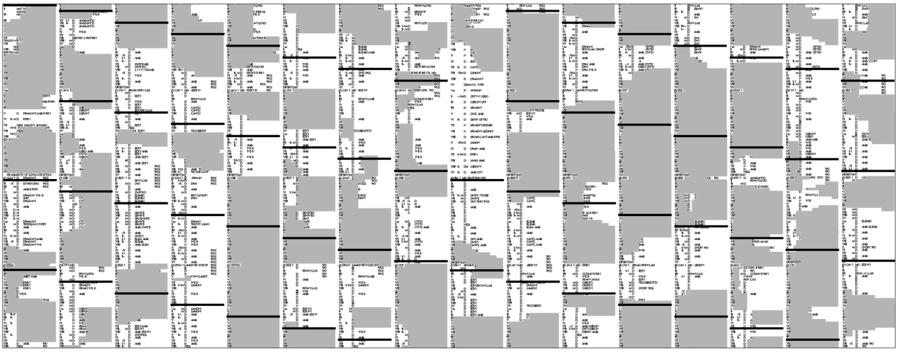

Fig. 7. Days indicated by both intercalary months.

As Duval and Pinault note, 'chaque jour intercalaire, en effet, reçoit la notation du jour correspondant d'un mois ordinaire précédent, dans l'ordre régulier des mois' (1986, 305). Notice that the plate's 62 explicit lunar months are in this way divided into 60 implicit solar months, representing the five solar years encompassed by the plate, as shown in Fig. 8.

We do not know what names the Gauls may have given these solar months; but in other Western lunisolar calendars, they normally bear the names of the lunar months in which they begin (McCarthy 1993, 207), and so this is the practice followed in this essay. Figure 3 showed the names and locations of the lunar months on the plate; and Fig. 9 shows the names and locations of the corresponding solar months.

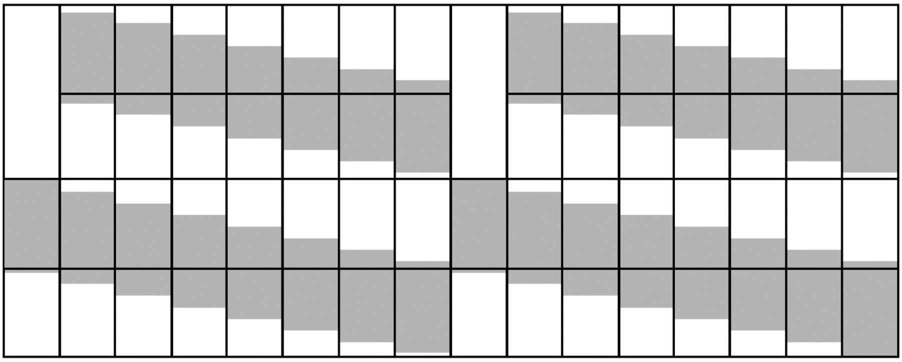

Fig. 8. Boxes indicate the 62 explicit lunar months; shading indicates the 60 implicit solar months.

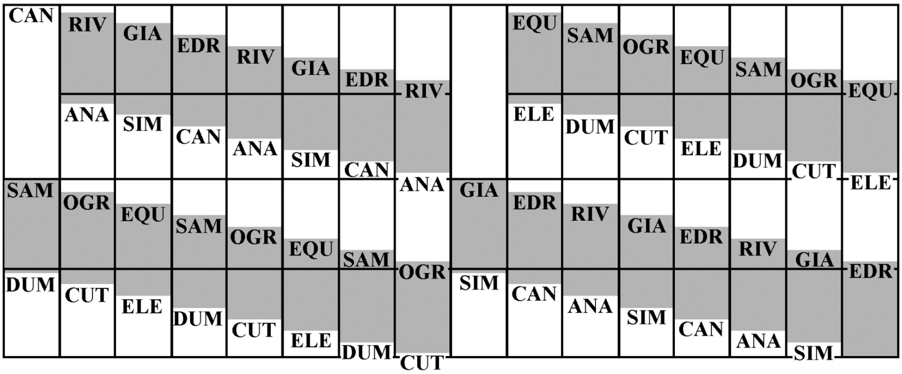

Fig. 9. In this essay, each solar month is called after the lunar month in which it begins.

Following ICA in the upper-left corner, solar Samon (shown by shading) begins on the first day of lunar Samon (shown by a black-bordered rectangle). But the solar months, being longer, gradually begin later and later within their own lunar months, until at bottom centre, solar Cutios begins on the last day of lunar Cutios; and at this point, ICB intervenes to accommodate the remainder of solar Cutios and thereby restore the pattern.

ICA is used in the same way at the end of the right half, such that with a single exception, the two intercalary months successfully ensure that each solar month always begins within its own lunar month. The exception occurs at the end of the plate: solar Edrin begins on the 29th day of lunar Edrin; but solar Cantlos cannot then begin on 'Cantlos 30', as that lunar month contains only 29 days. Instead,

this final solar Cantlos begins on Day 1 of ICA, in the upper-left corner of the plate; and as a result, the final instance of solar Cantlos becomes the only solar month not to begin within its own lunar month.
But this exception is necessary. Because the beginnings of the solar months progress by one day per lunar month, it follows that each solar month is one day longer than its own lunar month, as shown in Fig. 10.

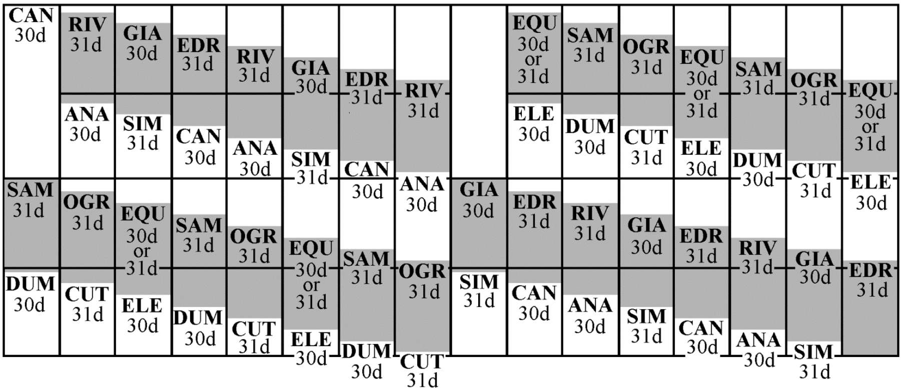

Fig. 10. Each solar month is one day longer than its own lunar month.

The ‘exception’, then, has in fact ensured the complete regularity of this pattern: the final solar Edrin and Cantlos, at lower-right and upper-left of Fig. 10, contain 31 and 30 days respectively, as they do in all other years.

Comparison of Gaulish and Roman solar months

Notice that the lengths of these Gaulish solar months are nearly identical to the lengths of the Roman months, if solar Samon is aligned with March, as shown in Table 7.

No solar month on the plate is 28 or 29 days long, and so the inequality between February and Cantlos is to be expected – although here, this disjunction occurs at the end of the year, where it would cause minimal disturbance. Aside from this, with solar Equos short, only solar Elembiu differs from its Roman counterpart, being one day shorter than December.
But whenever solar Equos is long, its 31st day compensates for this shortness of Elembiu, as shown in Table 8.

Table 7: Comparison of Gaulish and Roman solar months when solar Samon = March (and Equos is short)

Gaulish	*Length*	*Length*	*Roman*
Samon	31	31	March
Duman	30	30	April
Rivros	31	31	May
Anagant	30	30	June
Ogron	31	31	July
Cutios	31	31	August
Giamon	30	30	September
Simivi	31	31	October
Equos	30	30	November
Elembiu	30	31	December
Edrin	31	31	January
Cantlos	30	28 or 29	February

Table 8: Comparison of Gaulish and Roman solar months when Samon = March (and Equos is long)

Gaulish	*Length*	*Length*	*Roman*
Samon	31	31	March
Duman	30	30	April
Rivros	31	31	May
Anagant	30	30	June
Ogron	31	31	July
Cutios	31	31	August
Giamon	30	30	September
Simivi	31	31	October
Equos 1-30	30	30	November
Equos 31	1	1	December 1
Elembiu	30	30	December 2-31
Edrin	31	31	January
Cantlos	30	28 or 29	February

Table 8 shows that when Equos is long, the correspondence between Gaulish and Roman month-lengths is complete but for a single inequality at the end of each calendar's variable month – the Gaulish Equos, and the Roman February.

It has always been thought that 'except for the use of Roman characters and numeration, the Coligny Calendar shows no trace of Roman influence' (MacNeill 1926, 3); but Table 8 seems to indicate otherwise. Rome's irregular series of month-lengths is distinctively Roman, the product of the Julian calendar reform (Samuel 1972, 155); and so such a close correspondence seems unlikely *not* to be the result of Roman influence. Meanwhile, Rome's practice of permitting cities and provinces to retain their native calendars after standardising them to Rome's is well-attested enough in the various surviving *hemerologia* – tables of correspondences between Roman and provincial months, prepared as aids for Roman administrators (*ibid.,* 171-8). The chief manuscripts are medieval, but fragments survive from as early as the fourth century, and they are in remarkable agreement with the later copies (*ibid.,* 173 n.3).

Many of the calendars in these *hemerologia* contain native months whose lengths have been made to parallel the lengths of the corresponding Roman months (*ibid.,* 173). The implication is that the calendar on the Coligny artifact represents just such a compromise – which would only make it easier to understand how this calendar could have been in use at such a late date. Also: with solar Samon (the first month of the Gaulish year) as the counterpart to *mensis Martius,* the presence of the statue of Mars also becomes easier to understand: Mars would then have been the god of the head of the year.

A precedent for Anatolius' lunar year

Earlier, it was shown how the Irish verse delineates the lunar year used in the calendars of the early Insular church, of Sulpicius, and of Anatolius. In the verse, the lunar year is counted from March, and consists of months a day shorter than the corresponding solar months.

Meanwhile, Figure 10 shows that the calendar engraved on the Coligny artifact also consists of lunar months a day shorter than their solar counterparts; and Table 8 shows that the lengths of these solar months parallel the lengths of the Roman months when Samon is taken as March. The implication, then, is that the Coligny calendar contains a *precedent* for Anatolius' distinctive lunar year, and therefore could be the ultimate source from which the lunar calendar of the early Insular Church was derived.

This implication can be tested quite simply by means of an entirely artificial exercise: if the Coligny plate and the calendar of the early Insular Church do in fact contain the same distinctive lunar year, then it ought to be possible to use the Irish verse introduced earlier in this essay to convert Roman dates to *Gaulish* ones, simply by taking 'the age of the moon' to mean 'the day of the Gaulish lunar month'. The word 'month' is already used in the verse to mean 'Roman solar month'; so to keep things clear, let us employ the Gaulish word *mid* 'lunar month' to mean 'Gaulish lunar month':

> From the start of March, count in months how far
> It is to the month in which you are.
> Add the day of the month less one, and then
> Add the day of the *mid* when March began.
> If greater than thirty, take thirty away;
> The result is the day of the *mid* today.

If we repeat the earlier exercise using this version of the verse, we again obtain Table 3, but in this form:

TABLE 9: The day of the *mid* on the first day of each Roman month, if Samon begins on March 1

Roman date	*Roman months since March 1*	*Day of **mid***
01-Mar	0	Samon 1
01-Apr	1	Duman 2
01-May	2	Rivros 3
01-Jun	3	Anagant 4
01-Jul	4	Ogron 5
01-Aug	5	Cutios 6
01-Sep	6	Giamon 7
01-Oct	7	Simivi 8

Of course, we've seen this series of days before; it is the series of solar-month boundaries indicated by the notation in ICB, as shown earlier in Table 5.
In other words: when solar Samon is equated to March, both lunar years – the one on the Gaulish plate, and the one in the Irish verse – contain the same distinctive sequence of lunar months, and therefore create the same simple pattern in operation against the Roman calendar. This demonstrates that the Gaulish artifact, which predates Anatolius by about a century, does contain a precedent for his distinctive lunar year.

The possibility of direct influence

The existence of this precedent indicates only that this calendar *could* have been Anatolius' source – though there does seem to have been ample scope for direct influence. Anatolius was a well-travelled, erudite scholar with a keen interest in chronology; and aside from such Gaulish influence as he may have met with on his travels, his bishopric was situated on the main route connecting Egypt and Judaea to nearby Galatia, an area with Gaulish cultural roots. Importantly, he would have had to hear but a single fact about this Gaulish calendar – that its lunar year had consisted of months a day shorter than the corresponding Roman months – for the simple pattern in Table 3 to have become apparent to him.
Then, if Anatolius had found this pattern attractive, its pagan origins would hardly have deterred him from using it. In the third century, there was as yet no calendar called 'Christian': all calendars were in effect pagan; various of these pagan calendars were in use by Christians; and from the elements of these pagan calendars, Christian chronologers created competing systems for determining the date of Easter. The 112-year Easter cycle of Hippolytus used by Christians in Rome in the early third century was based on the classical Greek *ogdoad* (Neugebauer 1975, 620-1; Samuel 1972, 35-42), whose symmetry Hippolytus found attractive; the 19-year cycle of Meton (Neugebauer 1975, 622-4), preferred by Alexandrian

Christians, had originated in Seleucid Babylon (*ibid.,* 354-7); and Easter cycles everywhere employed the Roman solar calendar, with its origins in the Julian reform (Samuel 1972, 155). If Anatolius had borrowed this Gaulish lunar year for its symmetry against the Roman calendar, and pressed it into service in the creation of his Easter cycle, he would only have been following the common practice of Christian chronologers at that time.

Etymologies of month-names

Having presented this hypothesis that solar Samon could coincide with March, one task remains in this essay: to revisit the etymologies of the month-names in this context.

Ordinarily, it might not seem germaine to deal with etymology in a study such as this; but one cannot escape the fact that these twelve etymologies feature prominently in the literature on this calendar, and that any new theory as to the location of Samon will at once be scrutinised against them. The month-name *Ogron*, for example, is almost exclusively described in the literature as having come from the IE root meaning 'cold'; yet in this study, we have equated it with July. Scholars of the calendar deserve an explanation.

Providing an explanation, however, means facing a difficult problem: Gaulish is still so imperfectly known that only a few month-names have derivations beyond reasonable doubt. The meanings of most month-names remain obscure; and with no meaning to guide the philologist, some month-names could credibly be derived from a dozen different IE roots.

As a result, competing etymologies have emerged in support of various locations for Samon. Past studies of the calendar, for example, have suggested equating Samon (which means 'summer') to June (Rhys 1905, 73; Rhys/Fotheringham 1910, 210), October (Duval/Pinault 1986, 403), and even December (Olmsted 1992, 89-90); yet most studies present credible month-name etymologies to support their theories. All these etymologies, though they support different theories, are the product of considerable experience in Celtic philology, and cannot simply be dismissed.

Faced with numerous possible derivations for some month-names, and competing etymologies for others, it seemed that perhaps a new approach might be in order. To this end, all twelve etymologies were instead produced by means of an *experiment* whose results occupy the remainder of the essay.

An experiment in semantics

This experiment is based upon the strong dualism evident in the calendar, not least of all in the structure of the plate itself. This dualism is also present in those month-names with the best-known etymologies: Samon and Giamon, for example, are derived from the roots for 'summer' and 'winter', and Ogron and Edrin from the roots for 'cold' and 'to burn, to glow'. In both cases, the pairs are six months apart; and so the other eight month-names are also suspected of forming pairs of this sort, month-names whose meanings are in some way complementary. It has been mentioned that some month-names with obscure meanings could credibly be derived from many roots. But if the twelve etymologies are arrived at *in pairs* so as to preserve some notion of complementarity between opposite month-names, then the number of credible derivations ought greatly to be reduced; and the application of this additional constraint might then prove a sieve through which something interesting could fall.

The parameters of the experiment

This experiment was executed in three stages:

1. All month-name etymologies in the literature were reassessed and catalogued.
2. Through a close study of the corpus of known IE roots, as many additional derivations as possible were posited for each month-name. (In this process, IE roots with no attested words in Celtic languages were excluded from consideration.)
3. The resulting long lists of derivations were studied in opposite pairs – Samon with Giamon, Duman with Simivisonn, and so on. Newly-posited derivations in one list with no clear semantic complement in the other were eliminated, and the lists were gradually shortened in this way. (Etymologies already in the literature, however, were retained even if they appeared to fail this test.)

At the end of this process, the lists consisted largely of etymologies already in the literature, as well as a small number of newly-posited derivations not eliminated in Step 3. At this point, each of the six pairs of lists was found to contain a single pair of semantic complements that stood out as particularly apt; and these are the six pairs of derivations presented in the following sections.

Results of the experiment

Because the published etymologies were treated so conservatively, eight of the twelve month-names have retained previously-suggested derivations, despite the novel approach – though the old derivations for Ogron and Edrin emerge with new shades of meaning. Of the remaining four derivations, those of Rivros and Simivisonn appear *in part* in the literature; only those of Cutios and Equos are entirely new.

Each of the sections below is headed by the canonical form of the month name as proposed by Duval (1964-5, 16), followed by a statement of the proposed modern equivalents for both the solar and lunar versions of the month. The equivalents for the solar months were given before, in Table 8; while the locations of the lunar months are arrived at in a straightforward fashion, as can be illustrated by taking the case of Samon.

Table 8 equates solar Samon to March. We have already seen that the Insular calendar contains a lunar year like the one on the plate; and so lunar Samon will largely correspond to the Insular calendar's lunar March – that is, the lunar month in progress on March 1. This means that March 1 could coincide with any of the

30 days of lunar Samon: if it coincides with the last day, then lunar Samon will have largely corresponded to February, while if it coincides with the first day, then lunar Samon will largely coincide with March. The range of locations for lunar Samon is therefore given as 'February/March'– and so for the other lunar months as well: the range of any particular lunar month is always roughly equivalent to its corresponding solar month plus the preceding solar month.

Samon-
Equivalents. Lunar month = February/March; solar month = March.
Derivation. IE **sem-* 'summer'[1] > **semo-* > Old Irish *sam-*, Gaulish month-name *Samon-* 'SUMMER'.
Comments. This month-name indicates the start of the summer half of the calendar year, perhaps as marked by the first signs of spring.

Dumann-
Equivalents. Lunar month = March/April; solar month = April.
Derivation. IE **dheu-* 'to steam, to smoke, to blow about, to give off (vapour or odour)', and the like, as well as 'to be in violent, surging motion, also in emotional and psychological senses'[2] > IE **dheum-* 'cloud, mist, vapour, smoke' > **dheumo-*, **dheumə-*: Latin *fūmāre* 'to give off smoke, vapour or odour' (**dheumə-mi*); Middle Irish *dumacha* 'cloud'; Greek θύμος 'pertaining to soul, spirit, mind, temper, passion' = 'thymian', Greek θῡμός 'soul, life; spirit, passion, etc.' (**dheumo-s*); Gaulish monthname **Dūmannos* (**dheumə-snos*), with a substantivising suffix, so meaning something like 'THYMIAN-NESS', genitive **Dūmanni*, in accordance with the plate's nominative DVMAN-, genitive DVMANNI, variant DVMAN[N]I.
Comments. This month-name could be a reference to the reawakening of nature – that is, to the return of life or 'spirit' to the natural world.

Rivros
Equivalents. Lunar month = April/May; solar month = May.
Derivation. IE **per-* 'over, before, first'[3] > dative of direction **prei-*, **pri-*: **prei-* > Old Latin *prī* 'prae- = fore-'; **pri* > CC (Common Celtic) **[p]ri-* > Gaulish *re-* 'fore-', as in *re-bellias* 'fore-beautiful', not superlative but intensive, in the sense of '(a) most beautiful ...' (Lambert 2002, 159).
Then, IE **per-* 'to sell'[4] > reduplicated form **pepor-* 'bestow, grant' > CC **[p]e[p]or-* 'consecrate, dedicate' > early Gaulish **eior-* 'dicāre = consecrate, dedicate' (> Gallo-Greek ειωϱ-ου > Gallo-Roman IEVR-V /ieur-u/, Old Irish *(ro)-ír*

[1] Pokorny 1959, 905; Thurneysen 1899, 532; Loth 1904, 130; Rhys 1905, 73; MacNeill 1926, 41; Lainè-Kerjean 1943, 258; Duval 1964-5, 9; Duval/Pinault 1986, 426.
[2] Pokorny 1959, 261-7; Duval/Pinault 1986, 423.
[3] Pokorny 1959, 810-816; Thurneysen 1899, 533; MacNeill 1926, 41.
[4] Pokorny 1959, 817.

‘dicavit = he consecrated, he dedicated’ (Lejeune 1968-9, 36-7; Lambert 1979, 208-9).
Finally, in combination: early Gaulish *re-* ‘fore-’ + **eior-* ‘dicāre = consecrate, dedicate’ = **re-eior-* > **rēior-* literally ‘fore-consecrate, fore-dedicate’ (*cf*. Latin *prae-dicāre* ‘praise’) > Gallo-Greek *ρειωρ > Gallo-Roman **rēor-* > **rēur-* through assimilation to the inventory of licensed diphthongs in Gaulish > late Gallo-Roman **rīur-*,[5] hence month-name *Rīuros* ‘FORE-DEDICATION’, perhaps ‘PRAISE’, genitive *Rīuri*, in accordance with the plate’s nominative RIVROS, genitive RIVRI.
Comments. May 1 will almost always fall within lunar Rivros. This month-name could be a reference to the celebrations of the return of greenery that were held not just in Celtic countries but throughout the Continent at this time of year (Hutton 1991, 272).

Anagantio(?-)
Equivalents. Lunar month = May/June; solar month = June.
Derivation. IE negative particle **nĕ*[6] > privative prefix **n̥* > Gaulish, Old Irish, Welsh, Cornish, Breton *an-* ‘no-, not-’ , as in Gaulish *an-mat* ‘not-good’.
Then, IE **aĝ-* ‘to drive, to go with swinging arms’[7] > **ag-ōn* ‘a driving, a going with arms swinging’ (> Greek ἀγών ‘effort, exertion, struggle’, CC **ag-ān*), genitive **ag-nes* ‘of driving, of going with arms swinging’ (> Gallo-Roman **agnis* ‘a stride’, Old Irish *áin* ‘a bustle, a game, a match’); CC **ag-ān-* > present participle **agān-tios* > Gaulish **agāntios* ‘driving, striding, exerting, struggling (person)’, plural **agāntiōs*, genitive plural **agāntiōm*.
Finally, in combination: Gaulish *an-* ‘not’ + **agāntiōs* (plural) ‘driving, striding, exerting, struggling (people)’, genitive plural **agāntiōm* > month-name **Anagāntiōs* (plural) ‘no-driving, no-striding, no-exerting, NO-STRUGGLING (people)’, genitive (plural) **Anagāntiōm*, in accordance with the plate’s nominative ANAGANTIO-, genitive ANAGANTIO-, with the variant ANAG[AN]TIOS as an abbreviated nominative, as Duval suggested it might be (Duval 1964-5, 10).
Comments. Hesiod’s *Works and Days*, though it is a Greek document, contains a statement that illustrates the gloss: ‘But when the artichoke is in flower [in June]... one might have the shadow under the rock, and the wine of Biblis, a curd cake, and all the milk that the goats can give you, the meat of a heifer... and of baby kids also. Then, too, one can sit in the shadow and drink the bright-shining wine, his heart satiated with eating...’ (Lattimore 1959, 87-9).

Ogron-
Equivalents. Lunar month = June/July; solar month = July.

---

[5] Lejeune 1968-9, 36-8; Lambert 1979, 209.
[6] Pokorny 1959, 756-8; Duval 1964-5, 10; Duval/Pinault 1986, 422.
[7] Pokorny 1959, 4-6, 756-8; Rhys 1910, 220 & n.1; MacNeill 1926, 34; Duval 1964-5, 10; Duval/Pinault 1986, 422.

Derivation. IE **oug-* 'cold'[8] > **ougro-* 'cold' > Old Irish *úar*, Irish, Gaelic *fuar*, Welsh *oer,* Cornish *oir* 'cold, chilly'; past participle **ougrənós*, **ougrónos* 'chilled (thing)' > Old Irish *úarán* 'well, cold-spring' (**ougrənós*), Gaulish month-name **Ōgrónos* (**ougrónos*) 'WELL, COLD-SPRING', genitive **Ōgróni*, dative **Ōgrónu*, in accordance with the plate's nominative OGRON-, genitive OGRONI, with the variant OGRONV as a possible dative.
Comments. Perhaps this was a month associated with wells and springs. Extensive deposits of artifacts have been found at such sites throughout Celtic Europe, indicating that they were ritually visited; and such visits must necessarily have involved travel, often to higher altitudes, where springs tend to originate. July seems a practical time of year to do this, while the weather is warm, and the crops are still ripening.

Cutios
Equivalents. Lunar month = July/August; solar month = August.
Derivation. IE **keu-* 'to hear, observe, notice, pay attention'[9] > Greek κοέω 'to hear, to mark, to note'; **kowo-s* 'audient, observant' > **kowo-kantos* 'fully audient, quite observant' > Old Breton (*int*) *cou-cant*, Middle Welsh (*yn*) *geu-gant* 'very experienced' (*ibid.,* 526-7), Cornish *cow-gans* 'certain'; **keu-tā* '(something having the quality of) audience, observance', hence perhaps '(an) audience, (a) hearing', like **teu-tā* '(something having the quality of) swollenness, strength', hence '(a) folk, (a) land' (*ibid.,* 1080-5); Gallo-Greek *κοουτιος > Gallo-Roman **coutios*, later **cūtios*, Gaulish personal-name *Cūtius* 'audient, observant (person)' like Gallo-Greek τοουτιος > Gallo-Roman *toutios* > later **tūtios*, Gaulish personal-name *Tūtius* 'folk (person)', hence 'tribesman, (fellow-)citizen' (*ibid*.; Lejeune 45-6); late Gaulish **cūtios* 'audient, observant (person)', plural **cūtiōs*, genitive plural **cūtiōm* > month-name **Cūtiōs* (plural) 'audient, observant (people)', hence '(an) AUDIENCE, (a group of) hearers', genitive (plural) **Cūtiōm*, in accordance with the plate's nominative CVTIOS, genitive CVTIO-; the variant QVTIO- then represents an attempt to Latinise the syllable *ku-*.
Comments. August 1, associated with the god Lugh, will nearly always fall within lunar Cutios. The month-name could be a reference to a mass-gathering that took place at this time of year.

Giamoni-
Equivalents. Lunar month = August/September; solar month = September.
Derivation. IE **ĝhei-* 'winter'[10] > **ghi-iōm-*, **ĝhi-i$_e$mo-* > Middle Irish *gem-*, Old Welsh *gaem*, Gaulish month-name *Giamoni-* 'WINTER'.

---

[8] Pokorny 1959, 783; Thurneysen 1899, 534; Loth 1904, 130; Rhys 1905, 73; MacNeill 1926, 41; Lainè-Kerjean 1943, 259; Duval 1964-5, 11; Duval/Pinault 1986, 425.
[9] Pokorny 1959, 587-8.
[10] Pokorny 1959, 425-6; Thurneysen 1899, 534; Loth 1904, 130; Rhys 1905, 73; Rhys 1910, 218 n.1; MacNeill 1926, 38; Duval 1964-5, 12; Duval/Pinault 1986, 424.

Comments. This month-name indicates the start of the winter half of the calendar year, perhaps as marked by the first signs of autumn.

Simiuisonna-
Equivalents. Lunar month = September/October; solar month = October.
Derivation. IE **sem-* 'one; together as one; with, together'[11] + IE **ei-* 'to go'[12] > IE **sem-ei-* 'go together', 3rd-sing. **sem-ei-ti* 'it goes together' > pre-Latin **sem-eitus* '(a) going-together' > Latin adv. *simītu* 'together; simultaneously'; while the same **sem-ei-ti* 'it goes together' > CC **sem-i-ti-* > Old Irish adv. *em-i-th* '*tanquam, quasi-* = like, just like, just as if, as it were, a sort of, almost as much as, nearly', Welsh adv. *hef-y-d* 'also, as well'; **sem-ei-* 'go together' > CC **sem-i-* 'just like, as it were, etc.' > Gaulish **sem-i-*, with a later variant **sim-i-* simply as a result of Latin influence (*cf*. Latin *sim-ilis*, *sim-ītu*, *sim-ul*, etc.).
Then, IE **weis-* 'to flow (out or away)'[13], attested in Brythonic nouns and river-names: for example, CC **weis-aro-* > Welsh *gwy-ar* 'blood', literally 'flowing-out (stuff)', Gaulish river-name *Vis-era* > French *Vesère*, literally 'flowing-away (thing)'; CC river-name **Weis-ā* > Welsh *Gwy* 'Wye'; Old British river-name **Wis-uriā* > English *Wear*; Gaulish river-name *Vis-uvia* > French *la Vezouse*; and so on (*ibid*.).
Then, IE **pen-* 'water'[14] > Middle Irish *en* 'water', *on-chū* 'otter' (literally 'water-hound'), river-name *On*, Gaulish river-name **Ona*, as well as the suffix *-onnā* in Gaulish river-names, such as *Bebr-onnā* 'beaver-stream', literally 'beaver-water' (ibid., 136-7).
Finally, in combination: Gaulish **sem-i-*, later **sim-i-* 'just like, as it were, etc.' + *vis-* 'flowing(-away)' + *-onnā* 'water' = **semivisonnā*, later **simivisonnā* 'LIKE FLOWING(-AWAY) WATER', 'flowing(-away) water, as it were'.
Comments. The gloss suggests a taboo-formation of a type common in IE languages: a metaphor for something whose own name is being avoided. The month is October; perhaps the underlying notion is one of 'dying' or 'dying away', as in the departure of life from nature, or the flowing of 'spirit' out of the world; and in that sense, it stands in contrast to THYMIAN-NESS, the gloss for the opposite month.

Equos
Equivalents. Lunar month = October/November; solar month = November.
Most past scholars have chosen 'horse' as the gloss for this month-name; but many have done so rather reluctantly. Some (e.g. Duval/Pinault 1986, 424) note that a derivation from IE **[p]eku-* 'cattle' is also possible, though it would pose

---

[11] Pokorny 1959, 902-5; Rhys 1910, 257 n.1.
[12] Pokorny 1959, 293-7.
[13] *ibid*., 1134.
[14] *ibid*., 807-8.

some phonetic difficulties; while others (e.g. Duval 1964-5, 14) state simply that the gloss *might* be 'horse', but that Equos might also be derived from IE **[p]eku-* 'cattle', or even be a cognate of Latin *aequus* 'equal'.
The reason for this reluctance is that Gaulish is a member of the branch of Celtic languages in which IE k^W was inherited as *p*. As a result, the Gaulish word for 'horse' is *epos*, not *ek^{W}os* (Pokorny 1959, 301-2). Tellingly, the Gaulish horse-goddess was *Epona*, a well-attested name that appears nowhere as **Equona*; while the month-name *Equos* appears nowhere on the calendar as **Epos*. In fact, no form of *equos* is attested in any other Gaulish inscription.
As a result, I share this reluctance to gloss *Equos* as 'horse', particularly in light of the ubiquity of the form *Epona*. A more straightforward explanation, it seems to me, is that the *qu* of *Equos*, like the *qu* of *Qutios* (a variant spelling of *Cutios*), represents an attempt to Latinise the spelling of the syllable *cu*, and that *Equos* is essentially a three-syllable word: *E-cu-os*.
Derivation. IE **epi* 'at, by'[15] > CC **e[p]i-* = **ei-* > Gaulish **ē-*[16], Old Irish *éi-*, *é-*, as in Old Irish *éi-thech*, *é-thech* 'perjury, forswearing', literally 'around-swearing' (*cf*. Greek ἐπι-ορκέω 'I perjure'); or as in **epi-bhelo-* 'over-burning (thing), on-burning (thing)' > Irish *éi-bheall* 'ember'; or as in **epi-weriō* 'protected-round (place)', hence 'bounded land, hill, island' > Old Irish *É-riu* 'Ireland', Old Welsh *Ī-werδon* 'Ireland' (Pokorny 1959, 1160-2).
Then, IE **keu-* 'to hear, observe, notice, pay attention'[17] > early Gaulish **cou-* > late Gaulish *cū-*, as described in the section on Cutios.
Finally, in combination: IE **epi-keu-* > CC **e[p]i-kou-* (*cf*. Greek ἐπ-ἀκούω 'heed, obey') > early Gaulish **ē-cou-* > late Gaulish **ē-cū-*, hence month-name **Ēcūos*, written *Ēqūos*, perhaps 'OBEDIENCE', genitive **Ēcūi*, written *Ēqūi*, in accordance with the plate's nominative EQVOS, genitive EQVI; the QV- then represents an attempt to Latinise *ku-*, as was the case with QVTIO- for CVTIO-.
Comments. FORE-DEDICATION, the gloss for the opposite month, is an active notion, in that praise or offerings are bestowed; whereas OBEDIENCE is a passive notion, in that judgments or laws are received. It is worth noting that November 1 will nearly always fall within lunar Equos; and at least in Ireland, November was the month in which tribal assemblies were held, and laws were made (Hutton 1991, 177).

Elembiu-
Equivalents. Lunar month = November/December; solar month = December.
Derivation. IE **el-* 'red, brown'[18] > **el-en-* 'deer' > Welsh *elain* 'hind' (**elənī*), perhaps Middle Irish *ell* 'herd' (**elnā*).

[15] *ibid*., 323-5.
[16] Lejeune 1968-9, 36 n.30.
[17] *ibid*., 587-8.
[18] Pokorny 1959, 302-4; Thurneysen 1899, 535; Rhys 1905, 101; Lainè-Kerjean 1943, 260; Duval/Pinault 1986, 424.

Then, IE **bhei(ə)-* ‘to hit, strike’[19] > **bio-* ‘(a) strike, striker’, as in **vailu-bios* ‘wolf-striker’ > Middle Irish personal-name *Faíl-be* ‘Wolf-slayer’; or as in **vidu-bion* ‘wood-strike’ > Gallo-Roman *vidubium* ‘wood-axe’, Old Welsh *uiidimm*, Welsh *gwyddyf* ‘pruning-knife’, Middle Irish *fidba* ‘bill-hook’.
Finally, in combination: IE **elen-bion* > Gallo-Roman **elembium*, perhaps ‘DEER-STRIKE’ or ‘HERD-STRIKE’, hence month-name **Elembium*, genitive **Elembī*, in accordance with the plate’s nominative ELEMBIV-, genitive ELEMBI.
Comments. The struggle and the hunt for food implicit in DEER-STRIKE stand in contrast to the ease and plenty implied by NO-STRUGGLING, the gloss for the opposite month. At its earliest, lunar *Elembiu-* coincides with November, which in Welsh is *Tachwedd* ‘Slaughter’, as this is the month in which herd-animals unfit for the coming winter were slaughtered for meat. Also, this is an excellent time of year for hunting elk and deer, after the autumn rutting-season is complete, but before deep winter, while the animals are still fat from summer feeding. A light snow-cover is actually a benefit, as it assists in tracking; while the lower temperatures lengthen the time during which the meat can be butchered and preserved safely.

(A)edrini-s(?-)
Equivalents. Lunar month = December/January; solar month = January.
Derivation. IE **aidh-* ‘to burn, to glow’[20] > *u*-stem **aidhu-* > Gaulish tribe-name *Ædui*, Old Irish *áed* (< **aidhus*) ‘fire’; *r*-stem **aidh-(e)r* ‘glowing thing’ = ‘(clear daytime) sky, upper sky, upper air’ > Greek αι’θῆρ ‘clear sky, upper air’ = ‘ether’; genitive **aidhr-es* ‘of the ether’, oblique stem **aidhr-* ‘ethereal’ > *n*-class noun **aidhr-ōn* ‘ethereal (thing)’ = ‘brightness of the sky; etherealness; upper sky; uppermost heaven’, genitive **aidhr-enes* > Gaulish month-name *Ædrinis* ‘(month of) brightness of the sky; etherealness; upper SKY; uppermost heaven’, genitive *Ædrinis*; later spelling *Ēdrinis*, genitive *Ēdrinis*, in accordance with the plate’s nominative EDRINI-, genitive EDRINI-; the variant ÆDRINI- then displays the earlier spelling.
Comments. The warmth, glow and height of the upper SKY stand in contrast to the coolness, darkness and depth of the WELL, the proposed gloss for the opposite month.
Interestingly, the Greek adjective αἰθρη-γενής ‘ether-born; clearing up, chilling’ indicates an association between ‘ethereal skies’, clearness, and coldness that will be familiar to anyone who has experienced a cold winter. When temperatures are very low, the coldest days are the clearest ones, when there is no cloud-cover to hold in the sun’s warmth. With moisture frozen from the atmosphere, such a sky is very clear and blue, unlike the softer blue of a clear sky in warm weather, when atmospheric humidity helps diffuse the sunlight; and skywatchers know that cold,

[19] Pokorny 1959, 117-8; Thurneysen 1899, 535.
[20] Pokorny 1959, 11-12; Rhys 1905, 101; Lainè-Kerjean 1943, 259; Duval 1964-5, 14; Duval/Pinault 1986, 424.

clear winter nights provide the best skies for viewing. In temperate climates, then, 'ethereal skies' are a feature of cold months rather than warm ones; and solar *Ædrinis* is here equated to January.

Cantlos

Equivalents. Lunar month = January/February; solar month = February.

Derivation. IE **kan-* 'to sing, to sound'[21] > **kan-tlo-* > Middle Irish *cētal*, Welsh *cathl* 'song', Breton *kentel* '(chanted or sung) lesson', Gaulish **cantlos* 'SONG' or perhaps 'CHANT' or 'CANTICLE', hence month-name **Cantlos*, genitive **Cantli*, in accordance with the plate's nominative CANTLOS, genitive CANTLI.

Comments. The sound and activity of SONG stand in contrast to the silence and passivity of AUDIENCE, the gloss for the opposite month. It is worth noting that February 1, associated with the goddess Brigid, will almost always fall within lunar Cantlos.

Proposed glosses of month-names

At the end of this experiment in semantics, we are left with the following array of glosses shown in Table 10.

These results depend heavily on the existing literature; yet all six pairs now form semantic complements like Samon and Giamon, with glosses appropriate to a year beginning in March.

CONCLUSIONS

If solar Samon is taken as March, then the Coligny calendar contains a distinctive lunar year attested elsewhere only in the Insular calendar devised by Sulpicius of Gaul in about 403, and in a mid-third-century work by Anatolius of Laodicea. The Coligny artifact predates Anatolius by a century or less, such that the calendar engraved upon it constitutes a precedent for the lunar year he describes in his work. A set of etymologies can be derived in which opposite month-names have complementary meanings, after the model of Samon/Giamon 'summer/winter'; and the resulting glosses also seem apt for a solar year beginning in March. At the same time, most of the month-names remain derived from roots that have already been suggested in the literature.

Finally, the close correspondence shown in Tables 7 and 8 implies something that Fotheringham suspected nearly a century ago: that 'the Coligny calendar is, like our Easter calendar, a calendar accommodated to the Julian calendar' (Rhys/Fotheringham 1910, 285), and that the plate expresses a standardised relationship between the two. However, based upon the fact that Samon means 'sum-

[21] Pokorny 1959, 525-6; Thurneysen 1899, 536; Rhys 1905, 101; Rhys 1910, 259; MacNeill 1926, 35; Lainè-Kerjean 1943, 259; Duval/Pinault 1986, 423.

TABLE 10: Proposed glosses of month-names

Proposed form	*Solar month*	*Lunar month*	*Proposed glosses (and related senses)*	*Proposed glosses (and related senses)*	*Lunar month*	*Solar month*	*Proposed form*
Samon-	Mar	Feb/Mar	SUMMER (beginning of summer half of year)	WINTER (beginning of winter half of year)	Aug/Sep	Sep	Giamoni-
Dūmannos	Apr	Mar/Apr	THYMIAN-NESS (infilling, regeneration, being born)	LIKE-FLOWING(-AWAY)-WATER (outflowing, degeneration, dying away)	Sep/Oct	Oct	Simivisonnā
Rīuros	May	Apr/May	FORE-DEDICATION, PRAISE (active, giving, gifts, gods)	OBEDIENCE, HEED (passive, receiving, obligations, leaders)	Oct/Nov	Nov	Ēcūos
Anagāntiōs	Jun	May/Jun	NO-STRUGGLING (ease, having, thriving)	DEER-STRIKE, HERD-STRIKE (struggle, hunting, slaughter)	Nov/Dec	Dec	Elembium
Ōgronos	Jul	Jun/Jul	WELL, COLD-SPRING (cold, dark, deep)	SKY, ETHER (fiery, glowing, high)	Dec/Jan	Jan	Ædrinis
Cūtiōs	Aug	Jul/Aug	AUDIENCE, HEARING (listening, silence, ?reverence)	SONG, CHANT, CANTICLE (singing, sound, ?jubilation)	Jan/Feb	Feb	Cantlos

mer', Rhys placed Samon in June, near the summer solstice (*ibid*., 210; Rhys 1905, 73); and so it would be worthwhile to reassess Fotheringham's idea with Samon as March. Such a reassessment is the subject of the second in this pair of essays.

Bibliography

Duval, P.M. 1964-5: Observations sur le calendrier de Coligny IV, *Études Celtiques* 11, 7-45.

Duval, P.M./G. Pinault, 1986: *Recueil des inscriptions Gauloises, Volume III: Les calendriers,* Paris.

Hutton, R. 1991: *The Pagan Religions of the Ancient British Isles: Their Nature and Legacy,* Oxford.

Lainè-Kerjean, C. 1943: Le calendrier celtique. *Zeitschrift für keltische Philologie* 23, 249-284.

Lambert, P.Y. 1979: Gaulois IEVRV: irlandais (*ro*)-*ír* 'dicauit', *Zeitschrift für keltische Philologie* 37, 207-213.

Lambert, P.Y. 2002: *Recueil des inscriptions Gauloises, Volume II.2: Textes Gallo-Latins sur Instrumentum*, Paris.

Lattimore, R. 1959: *Hesiod: the Works and Days; Theogony; the Shield of Herakles,* Ann Arbor.

Lejeune, M. 1968-9: Note sur les emplois de EI, H, Ω dans les textes lapidaires gallo-grecs, *Études Celtiques* 12, 36-48.

Loth, J. 1904: L'annèe celtique d'après les textes irlandais, gallois, bretons et le calendrier de Coligny. *Revue Celtique* 25, 113-162.

MacNeill, E. 1926: On the Notation and Chronography of the Calendar of Coligny. *Eriu* 10, 1-67.

McCarthy, D./Ó Cróinín, D. 1987-8: The 'Lost' Irish 84-Year Easter Table Rediscovered, *Peritia* 6-7, 227-742.

McCarthy, D. 1993: Easter Principles and a Fifth-Century Lunar Cycle used in the British Isles, *Journal of the History of Astronomy* 24, 204-224.

McCarthy, D. 1994: The Origin of the Latercus Paschal Cycle of the Insular Celtic Churches, *Cambrian Medieval Celtic Studies* 28, 25-49.

Neugebauer, O. 1975: *A History of Ancient Mathematical Astronomy,* Berlin.

O'Leary, P. C. 1920: *Irish Numerals and How to Use Them,* Dublin.

Olmsted, G. 1992: *The Gaulish calendar,* Bonn.

Pokorny, J. 1959: *Indogermanisches Etymologisches Wörterbuch,* Bern.

Rhys, J. 1905-6: Celtae and Galli, *Proceedings of the British Academy* 2, 71-107.

Rhys, J./J.K. Fotheringham, 1909-10: The Coligny Calendar, *Proceedings of the British Academy* 4, 207-89.

Samuel, A.E. 1972: *Greek and Roman Chronology: Calendars and Years in Classical Antiquity,* Munich.

Thurneysen, R. 1899: Der Kalendar von Coligny, *Zeitschrift für keltische Philologie* 2, 523-544.

Brent Davis
Centre for Classics and Archaeology
School of Historical Studies
University of Melbourne, Australia
b.davis2@pgrad.unimelb.edu.au