

THE CHRONOLOGICAL STRUCTURE
OF THE SIXTH AGE IN THE RAWLINSON FRAGMENT
OF THE 'IRISH WORLD-CHRONICLE'¹

OXFORD, Bodleian Library, MS Rawlinson B 502, ff. 1–12, are a fragment of a bilingual Latin-Irish chronicle of ancient world-history. The whole was printed by Whitley Stokes in 1895 but the level of accuracy of that edition is inadequate for modern needs; fortunately, a facsimile of the whole codex was published in 1909. Stokes associated this text with the so-called 'Annals of Tigernach', a chronicle from (probably) Creation to at least the late twelfth century AD surviving fragmentarily in a fourteenth-century Connacht manuscript, now Oxford, Bodleian Library, MS Rawlinson B 488, ff. 1–26.² However, it has long been clear that neither is a primary text: both are likely to derive from a work, no longer surviving in pristine form, which took its origin at Clonmacnoise (Co. Offaly) in the tenth century. That work has come to be known as the 'Irish World-Chronicle'.³ Rawlinson B 502, ff. 1–12, originating perhaps in the eleventh century, are of particular interest as having been glossed by a known Clonmacnoise scribe who was killed in 1106.⁴ The

¹ Oxford, Bodleian Library, MS Rawlinson B 502, ff. 10r to 12v. Dr Albinia de la Mare has very kindly checked under ultra-violet light the k-numbers on f. 12v. Details are given in tables IX–X.

W. Stokes: 'The Annals of Tigernach, I: the fragment in Rawlinson B. 502', *Revue Celtique* 16 (1895) 374–419: the Sixth Age is on pp. 406–419.

K. Meyer: *Rawlinson B. 502* (Oxford 1909): facsimile edition.

E. MacNeill: 'The authorship and structure of the "Annals of Tigernach"', *Ériu* 7 (1913–14) 30–113.

R. I. Best: 'Palaeographical notes', *Ériu* 7 (1913–14) 114–20, lists the interpolations in hand H.

H. P. A. Oskamp: 'The first twelve folia of Rawlinson B. 502', *Ériu* 23 (1972) 56–72.

T. Mommsen: 'Bedaе Chronica Majora et Minora', in his *Chronica Minora* III (Mon. Germ. Hist., Auct. Antiq. XIII, 1898). The Sixth Age begins at entry 268 of the Major Chronicle, p. 281. (This text has been reprinted by C. W. Jones in *Corpus Christianorum* series Latina, CXXIII B, Turnhout 1977.)

The editions of Jerome used by the above have now been superseded by:

J. K. Fotheringham, *Eusebii Pamphili Chronici Canones . . .* (Oxford 1923), which is splendidly minute on the early manuscript evidence;

R. Helm, *Der Chronik des Hieronymus* (2nd ed. in *Die griechischen christlichen Schriftsteller*, E. Berlin 1956), which is informative on the Latin derivatives (at the foot of each page), and on the sources and Greek tradition (at pp. 279–455); both editions are necessary for comparative work.

² On these two manuscripts, §§ 11849 and 11835 in *Summary catalogue of western manuscripts in the Bodleian Library at Oxford*, see F. J. Byrne, *A thousand years of Irish script* (Oxford 1979) 13 and 24.

³ The name was given by T. F. O'Rahilly, *Early Irish history and mythology* (Dublin 1946) 253–4, 350, 411 (cf. 489–90). For more recent work see J. V. Kelleher, 'The Táin and the annals', *Ériu* 22 (1971) 107–127, and D. N. Dumville, 'Ulster heroes in the early Irish annals', *Éigse* 17 (1977–9) 47–54. [See now also K. Grabowski and D. Dumville, *Chronicles and annals of mediaeval Ireland and Wales: the Clonmacnoise-group texts* (Woodbridge 1984) 156, 177–8.]

⁴ T. Ó Concheanainn, 'The reviser of Leabhar na hUidhre', *Éigse* 15 (1973–4) 277–88.

manuscript, of which the surviving twelve leaves are the remnant, therefore stood in geographical (though not chronological) proximity to the text's origin: it is possible, indeed, that the manuscript was written at Clonmacnoise; but the Chronicle's wide diffusion inhibits certainty, and some conclusions of the present article suggest reasons for grave doubt.

Restoration and interpretation of the text and chronological structure of the Irish World-Chronicle (and, first, of the derivatives through which we must approach it) present numerous difficulties to the modern scholar. What follows here is offered as a contribution to understanding both text and context of the Chronicle, and especially of the treatment of the first century and a half of the Christian era in the Rawlinson B 502 fragment.

1. THE LATIN BACKGROUND

The medieval chronicle-tradition is not Latin in origin, but Greek, and specifically Christian. In Greek, it had notable pagan predecessors, and some Christian pioneers, but the decisive work was the two-volume book of Eusebius, in which the 'Chronicle' proper was the second volume. This was a magisterial collation and comparison of pagan and Scriptural history in a stark outline form: Scriptural history on the left-hand page and pagan history on the right-hand, until they merge under the Persian empire. The outline consists of a structural part, and of the added notes delineating the flesh to be put on these bones, which are at the same time its support and constraint.

The formation of this structure was apparently discussed in Eusebius's first volume, which seems to be poorly represented in its surviving Armenian rendering and late Byzantine fragments. The purpose was to present Scriptural history, not only as a new subject within the established curriculum of world-history, but as the predominantly true subject in that discipline, which the other subjects should no longer contravene: it could not, for example, be believed that Egyptian history extended for many dynasties before any date which could reasonably be inferred from Scripture for the Creation. But reasonable inference, rather than dogma, was nevertheless the essential point: Eusebius was the heir of Greek historical science, and his aim was to open the way of salvation to men's souls, not to tyrannise their minds. This purpose, and his material, together give the space which his structure must enclose: he first of all avoids esoteric and useless controversies by beginning not at the Creation but with Abraham's career (when the ancestry of the Church became distinct from that of purely mundane institutions); and the structure immediately begins as strict in form and generous in scope. While the interpretations of events may be as numerous as the interpreters, they must all in historical science agree when and where the event happened: and the structure is wholly devoted to establishing the framework of when and where.

The form is strict: the dynastic years of reign, for each of the important mundane powers in their period, are unwearyingly tabulated in parallel columns appropriate to each of the two pages: on the left-hand page the years of the patriarchs, the judges, and the kings are flanked by those of Assyria and Media, the dynasties which impinged on Scriptural history; on the right-hand page, Egypt, the early (and pseudo-historical) kings of the Greek city-states, and those of Lydia, Macedon, and Rome. As converts came into the Church from any one of the Empire's provinces which had a history to teach, they would find in this structure that their local knowledge was taken up and subsumed in the new learning of a wider outlook which not only looked beyond their province to the world as a whole but saw the totality of time itself against a background of a larger teaching. Within this, Eusebius's own sufficient scholarship not only commanded a wide knowledge of the sources with exactitude, but encouraged the continuation of professional work by frequent remark of the different reports and inferences on matters of detail.⁵

Eusebius was mainly addressing the educated and Greek-speaking Christians of the eastern provinces; a century later, St Jerome translated the second volume for the less learned of the West, who had only Latin. Anyone in the West interested in, and capable of using, the discussions of the first volume would already know Greek: Jerome's work is one of *vulgarisation*, and intended for occasional reference at least as much as to be a teaching tool in constant use. Carefully set out, with the columns of figures in different-coloured inks, and specially important events or periods similarly emphasised (and with a good deal of extra Roman material), it aims to present a simpler version of Eusebius's results to a less sophisticated readership: it became the model for Western chronicles and itself survives in many copies, while its Greek original does not survive in one.

In these two closely allied works, therefore, we can see how their authors married purpose or aim with formal structure; and we may observe also that, if a work of learning is to survive a period of barbarisation, it must achieve not only exactitude – which is simplicity in the narrower intellectual sense – but also the simplicity of basic concept and presentation which men may struggle up from barbarism to embrace. All these characteristics, and perhaps especially the last, are relevant to the problems of the Irish World-Chronicle.

This work, like the Greek Eusebius, no longer exists: it survives in secondary representatives, abstracts, or fragments. The when and where of its compilation are as unknown as its purpose and aims: it seems once to have possessed, in some degree, exactitude, but whether it ever possessed simplicity is doubtful, for its representatives have not

⁵I have discussed the problems of the Eusebian text and its derivatives elsewhere: M. Miller, *Studies in chronography* I-II (Albany, NY, 1970–71).

on the whole stood up well to the test of their period of barbarism, when they emerge in manuscripts of the eleventh and later centuries.

One area in which exactitude is essential, and simplicity most desirable, is that of dating formulae. In Eusebius's world, many methods of dating were in use, and several calendars which served large regions (as well as many very local ones): it is perhaps an exaggeration to say that there can hardly have been a day in the solar year which was not a New Year's Day for some community in the Roman empire – but it is not a wild exaggeration, and contrasts very sharply with the recognition of a single New Year's Day in the calendars of many communities established in the region taught by medieval Christendom. By the conventional equation of various calendar-years through his columns of figures, Eusebius solved the problem (presented by the variety of calendars) at least sufficiently for his purposes; at places where the equation was particularly difficult or important, he gave formulae whereby any appropriate calculations could be made; and these were translated into Latin by Jerome.

This kind of problem is particularly important where an event initiates an era, in either a technical or a non-technical sense. The sense is non-technical when the event is regarded as important but not used as the basis for formal dating, and for Eusebius and Jerome the Nativity was such an event: it was necessary to date it as exactly as possible (but without false precision) because from that moment the history of the world was changed. Jerome's text provides the material for the date in terms of years of Abraham, of the Emperor Augustus, of the Olympiads, and (if required) of the age of Rome and the province of Egypt. At the Baptism there is a more explicit set of conventional equations between these differing years.

These equations came in due course into the hands of Bede, who at first used the Nativity non-technically as the initiation of the Sixth Age of the world, and then decided to use it as initiating a formal era in which years AD were to be counted.⁶ In Western Christendom, these years could only be January years: and consequently certain problems arose which Bede very clearly saw. His predecessors, Jerome and Orosius, dating an event – the Nativity – occurring in December, had naturally provided the Roman years current in that month, Augustus's 42nd regnal year and AUC 752. Bede's problem therefore was whether to take these years as his AD 1 (although they contained 51 weeks before the Nativity), or whether to establish the convention of taking all 52 weeks of Augustus's 43rd and AUC 753 as AD 1. Bede chose the second, with the result that his Nativity date is December of 1 BC, as the less illogical of two illogical choices. We should note too that the same kind of problem had been encountered by Eusebius when treating of Olympic (August)

⁶On Bede's chronological writings see *Beda's Opera de Temporibus* (ed. C. W. Jones, Cambridge, Mass., 1943).

years and the First Olympiad, and he solved it in the same way. His Armenian translator, however, reversed this solution and counted the first Olympic year as that in which the First Olympiad occurred.

2. THE DATE OF THE NATIVITY

The Irish World-Chronicle, as represented by the Rawl. B 502 fragment, inherits the equations of Eusebius and Jerome through Bede's *Chronica Maiora*. The mode of this inheritance is most easily shown by tabulation of the data entered at .IIIdcccclii., *anno Mundi* 3952. See table I.

TABLE I

Rawl. B 502, f. 10ra13-b2

Bede, Chronica Maiora

Incipit sexta mundi aetas ab
Incarnatione Christi usque ad
diem iudicii.

Beda boat breviter sequentia haec:
sexta mundi aetas nulla genera-
tione vel serie temporum certa, sed
ut aetas decrepita ipsa totius sae-
culi morte consumenda.

(A note in Irish, translated by
Stokes:) The first year of the
beginning of the cycle is the year
before the Nativity; it was however
in the second year of the decenno-
val cycle in which He was born.

K. ab initio Mundi Vxc iuxta lxx
interpretes; secundum vero Ebre-
icam veritatem, IIIdcccclii.

entry 7: Sexta, que nunc agitur,
aetas nulla generationum vel tem-
porum sirie certa, set ut aetas
decrepita ipsa totius saeculi morte
consumenda.

[This note was presumably once
marginal to the mention of the 19-
year Easter-cycle, below. There is
confusion of event and era. It is an
arithmetical, though not a histori-
cal, truth that a cycle began with
1 BC (which for Bede is the year *of*,
not before, the event of the Nativ-
ity); and the second year of this
cycle is AD 1 (the first year of the
era, not the year of the event).]

(The last figure is misprinted by
Stokes.) Bede, entry 2, describes
two reckonings of *anni Mundi* in
the same terms, *iuxta Hebraicam
veritatem* (his own 'heretical' reck-
oning), and *iuxta lxx interpretes*,
the Septuagint. The first of
Rawl.'s figures however seems
intended to represent the date of
aM 5199 for the Nativity:⁷ perhaps

⁷Discovered by using Jerome's figures for the Baptism at Tiberius 15th, which he dates as aA 2044 (+ 942 + 2242) = aM 5228. If the Baptism occurred, and the ministry began, in AD 30, the Nativity equated with AD 1 was 29 years earlier, in aM 5199.

Ab urbe vero condita anno dcclii, anno quoque imperii Caesaris Augusti xlii; anno secundo decinovenalis et vii feria;

Iesus Christus Filius Dei sextam mundi aetatem suo adventu consecravit.

Beda ait: anno Caesaris Augusti xlii; a morte vero Cleopatrae et Antonii, quando et Aegyptus in provinciam versa est, anno xxvii; Olympiadis centessimae lxxxiii anno tertio; ab urbe autem condita anno dcclii: .i. eo anno quo, compressis cunctarum per orbem terrae genitum motibus, firmissimam verissimamque pacem (ordinatione Dei) Caesar composuit, I.C. fi. Dei sextam mundi aetatem consecravit adventu⁸ .i.

the final (ix) was lost by a sort of haplography with *iuxta*. The second date is Bede's for the year of the Nativity (entry 268), 1 BC, here used for the first year of the era, AD 1, represented by K.

Both given by Bede, entry 268, from Orosius and Jerome respectively.

Not in Bede. The Irish note above surely began as a comment on this statement.

Bede, entry 268.

(Stokes misprints the number of the Olympiad: in Rawl. Bede is not corrected from Jerome.)

Entry 268: Anno Caesaris Augusti xlii; a morte vero Cleopatrae et Antoni, quando et Aegyptus in provinciam versa est, anno xxvii; Olympiadis centesimae nonagesimae tertiae anno tertio; ab urbe autem condita anno dcclii; id est, eo anno quo, compressis cunctarum per orbem terrae genitum motibus, firmissimam verissimamque pacem (ordinatione Dei) Caesar composuit, I. C. filius Dei sextam mundi aetatem suo consecravit adventu.

It thus appears that the Rawl. B 502 text on the Nativity consists of three elements: the original statement; the Irish note; and the verbatim quotation of Bede. The original statement quotes the Septuagint through Jerome, and the Hebrews through Bede: the difference of 1247 years (from the original figures: the corruption in the text would yield 1238) is never found in the subsequent equations, and so presumably these equations, at least as they stand, are in no case the work of the writer of the original part of the Nativity-notice. The writer of the verbatim quotation from Bede was no doubt also responsible for the Bedan obit-dates of the Roman emperors from Tiberius to Vespasian, discussed

⁸Minor textual details show that the Bedan text used was not that of Mommsen's R and B (Paris BN Lat. 13403, Milan Ambros. D. 30, both of the ninth century, from Saint-Germain and Bobbio respectively), but of the other family first represented by Sankt Gallen 251 (copied by Winitharius in 820).

below. The series of equations of aM and AD years found intermittently through this fragment shows regularly a difference of 1249 years between the two aM reckonings, and of 3951 years between the 'Hebrew' aM and the AD date. The latter shows acceptance of the equation aM 3952 = Nativity = AD 1 given here in the original statement and implied in the Irish note: Bede's own reckonings would have shown a difference of 3952. The former shows a difference of (1249 + 3951 =) 5200 years between the 'Septuagint' aM and the AD dates, which is not that of the original statement. But Jerome in fact is careful to give two possibilities for the date of the Nativity, placing the event at Augustus 42nd, and dating it in years of Abraham at Augustus 43rd: this procedure effectively states that the event occurred in either 2 BC or 1 BC.⁹ Consequently, aM 5199 defined as the Nativity-year could, though arbitrarily, be equated with either 2 BC or 1 BC, and, if the former, then aM 5200 is 1 BC and 5200 is the difference between aM (Septuagint) and AD years. It appears therefore that the writer of the Rawl. B 502 series of regular equations was neither the writer of the original statement on the Nativity (who agreed with Jerome) nor the writer of the verbatim quotation from Bede (who would have followed Bede): the chronological structure seems to be composite.

The separation of the Irish note (from the part of the original statement to which it refers) raises the question of the arrangement of the archetype of our text. As it stands, this eleventh-century copy permits decipherment, but is scarcely accessible to reference or any other general use. Since the text clearly had a considerable history and was in use over a period, we are bound to suppose that it previously had a more transpicious presentation of its content.

Such changes of form in chronicle-material may be undertaken for various reasons and tend to have characteristic effects on the text. These have been studied in some detail in the Eusebian text-tradition, where the generous use of writing material required in the early part by Eusebius's two-page layout was reduced to half in the Greek, Syriac, and Armenian transmission by a rearrangement: Eusebius had placed his columns of figures towards the margins, leaving a *spatium historicum* in the middle of each page for the annotations, while the new arrangement assembled all the columns of years in the centre of a single page and used the two margins for abstracts from the annotations. Such a compact or pocket edition implies that the work was desired for rather general use – that it was, for example, employed in schools as well as in research – and that some of those who wished to use it could not afford the full edition. In the Western transmission, in the ninth or tenth century, the *spatium historicum* was abandoned and the annotations placed among the columns of figures, with sometimes disastrous effects on accuracy.

⁹This careful refusal to go beyond the evidence to a false precision was not appreciated by a student of the ninth-century Trier copy (Berlin Phillipps 1829), who noted *Hic in mero sive computo erratum est.*

Such a disorderly expedient implies that the work was needed for occasional reference only, being superseded as a teaching tool by the Major Chronicles of Western writers, especially that of Bede.

By contrast, the present arrangement of the text in Rawl. B 502 is accessible neither to reference nor to use as a teaching tool: it is preservative merely. The implication is that, when our copy was made (at latest), the work was prestigious but dead, at least in the context for which it was copied. That the manuscript was, after copying, kept for a long time in a box or standing unused on a shelf¹⁰ perhaps supports this implication, in spite of the work of two glossators (which was, perhaps, done soon after the copy was received). We seem therefore to discern a fragment of an old book, copied at the request of people engaged on some comparison of sources, and copied carefully and with corrections of the copying in the text-hand,¹¹ but not (probably) preserving the arrangement of the archetype.

The material on the Nativity is not, of course, sufficient by itself to indicate the archetypal arrangement, except that the Irish note seems misplaced. The 'footnoted' verbatim quotation from Bede could clearly have been literally a footnote written on the lower margin; and this may have pre-empted the most suitable place for the Irish note, which was thus driven to find some space between the introduction (*incipit . . . consumenda*) and the entry for AD 1: if there was a mark of the place to which it referred, this has been omitted by a copyist.

3. THE ABSOLUTE DATES

The absolute dates which appear in the Rawl. B 502 text are of two kinds: obit-dates for Roman emperors expressed in terms of Bedan *anni Mundi*; and dates expressed in three-number equations.

(a) *Obit-dates for Roman emperors*

In Bede's Major Chronicle, the accession-notice of every Roman emperor has in the margin the year of his death, so that a typical entry such as

IIIccccclxxxix Tiberius . . . regnavit an. xxiii

would be translated into modern notation as

x aM 3989 Tiberius . . . reigned 23 years.

The derivatives in Rawl. B 502 may be compared with Bede's figures, as in table II.

¹⁰Oskamp, *Ériu* 23 (1972) 57.

¹¹*ibid.*, 70.

TABLE II

<i>Bede, Chronica Maiora</i>	<i>Rawl. B 502</i>
IIIccccclxxxix Tiberius an. xxiii	(10va2) IIIccccclxxxix <i>in margine</i> Tiberius an. xxiii
IIIccccxciii Caligula an. iii m. x d. viii	(10vb23) kv Gaius Callicola reg- navit an. iiii non plenis, ut Orosius [<i>gloss, questionably in text-hand,</i> <i>possibly in later hand:</i>] vel iii vel vii annis mensibus x diebus viii ut Beda ait.
IIIvii Claudius an. xiii m. vii d. xxviii	(11ra5) IIIviii menses vii dies <i>in</i> <i>margine</i> kii Claudius regnavit annis xiii [<i>The figure is omitted by Stokes.</i>] [<i>gloss:</i>] vel xxviii vel xiiii ut Oro- sius. [<i>The second figure is mis-</i> <i>printed by Stokes. The hand of this</i> <i>gloss is not given by Oskamp.</i>]
IIIxxi Nero an. xiii m. vii d. xxviii	(11rb4-5) IIIxxii vel xiii an mensib vii d. xxviii vel xiii an. non plenis ut Orosius. kiiii Nero regnavit an. xvi.
IIIxxxi Vespasianus an. viiii mens. xi d. xxii](11va 27) Ixxxi (<i>in margine; cut</i> <i>by trimming</i>). Vespasianus reg- navit an. ix mensibus xi diebus xxii.
IIIxxxiii Titus an. ii mens. ii	(11vb25) IIIxl <i>in margine</i> kvi Titus an. ii mens. ii

Tiberius's obit appears (10vb22) at a year kiiii, carrying the ferial number of AD 38. It is therefore not clear whether aM 3989 in Rawl. B 502 is copied mechanically from Bede, or is the aM equivalent of AD 38 with a difference of 3951. Bede's figure, in a chronicle where aM 3952 = 1 BC, means AD 37 for Tiberius's obit, the historical date.

There is no obit-date for Caligula in Rawl. B 502. The gloss to the reign-length has presumably miscopied a *iiii* as *vii*: if Bede's name is to be pressed, *iiii* comes from the *Chronica Minora*, the exact length from the *Chronica Maiora*, as elsewhere.

The Claudian date is textually confused: the accusative case of *menses* and *dies* is Bedan. The original of the extant text seems to be:

k
IIIvii ii menses vii dies xxviii vel xiiii ut Or.
Claudius regnavit annis xiii.

This may suggest a text in which the k-numbers were columnar in arrangement.

If the aM date was in fact .IIIIvii., the subtraction neither of 3951 nor of 3952 yields a year with the ferial number kiii – at which Claudius’s obit is placed (f. 11rb3–4) and which agrees with the placing of his accession-notice. We must, therefore, if .IIIIvii. is correct, assume that it was copied from Bede, either mechanically or with a corrective intention.

The figures before Nero’s accession seem to imply an original text:

k
 iii Claudius manifestis veneni signis obiit
]IIIIxxii vel xiii an. mensib vii d xxviii
 iiiii Nero regnavit annis xvi vel xiii non plenis
 ut Oros.

We may note that aM 4022 is a year in excess of Bede’s figure, but, if Claudius’s obit-year is reckoned as aM 4007, the count of year-sections up to a corresponding aM 4022 takes us only to the year before Nero’s obit-notice (see below). Whether aM 4022 is scribally correct, or has lost a minim, the figure is not mechanically copied from Bede; and consequently (unless the figure has gained a minim) we should probably take these obit-figures as fully considered and not mechanical.

Vespasian’s obit-date once more agrees with Bede’s figure. But the ascription of aM 4040 to Titus seems to have been made by someone who thought Vespasian’s date was for his accession. This is the only Imperial obit-date to which strong *a priori* objection may be taken.

These obit-dates may be compared with the other material in the Rawl. B 502 text: see table III.

TABLE III

<i>Emperor</i>	<i>Year of accession</i>	<i>Year of obit</i>	<i>Length of reign stated by k-count</i>		<i>Obit-date</i>	<i>Length of reign by obit-date</i>
Tiberius	kiiii = AD 16	kiiii = AD 38	23	23	aM 3989	–
Caligula	kv = AD 39	ki = AD 41	less than 4	3	–	–
Claudius	kii = AD 42	kiii = AD 54	13	13	aM 4{007}	–
Nero	kiii = AD 55	kii = AD 70	16	16	aM 4022	15
Vespasian	kii = AD 70	kv = AD 78	9	9	aM {4}031	9
Titus	kvi = AD 79	ki = AD 80?	2	2	aM 4040	9

The usual form is for an accession to be entered at the year subsequent to the predecessor’s obit. This is contravened in the case of

Nero/Vespasian, but at Nero's obit-notice the kii is duplicated, being written again before the notice of Galba, Otho, Vitellius, and Vespasian, while the aM-dates seem to give a reign of 15 years. If the first kii were secluded, so that Nero's obit fell in ki = AD 69, then the form of obit/accession-notices is not contravened, and the k-count agrees with the aM dates: it would follow that *after* the first kii was inserted (by error, which in working in or from a columnar arrangement of ks would be an easy anticipation) someone added a minim to the reign-length in Nero's accession-notice.

Presumably the person who originally entered these Bedan obit-dates was also responsible for the glosses containing the Bedan reign-lengths for Caligula, Claudius, and Nero. The state of those texts suggests that his work was relatively early in the copying series behind our document, and that he wrote when the arrangement of the work included a column of k-numbers. This textual evidence is perhaps to be weighed together with the palaeographic doubt and silence on the hands of the glosses to the Caligula and Claudius entries.

(b) *The equations*

These are intermittent notes of absolute dates in aM years 'according to the Septuagint', a date in aM (Bedan) years 'according to the Hebrew truth', and a year 'from the Incarnation'. As they survive, they often do not agree either among themselves or with their placing. Consequently in their present state they are not dates, although they are certainly examples of dating formulae: but since the phrase 'dating formulae' is awkward and does not yield an adjective, these formulae will here be called *chronomorphs*, and the sets of equations *chronomorphic triads*. They fall into two groups, of which the instances in the first are as follows.

(f. 10rb29–31) interlined by the scribe of the text in a list of seven blank ks of AD 8–14; indication of the exact year intended is lacking.

ab initio mundi iuxta lxx interpretum Vccx secundum [* *]b veritatem IIIIdcccclxi

ab Incarnatione vero an. x

aM 5210[-1249 =] aM 3961[-3951 =] ab Inc. 10

[Stokes reads smudge in the second date as *Eusebii*: the formula requires *Ebreicam*.]

(f. 10va7–9) entered in two years ki and kii (AD 19–20)

ki ab initio mundi iuxta lxx interpretes Vccxx secundum autem

Ebr.IIIIdcccclxxi

kii ab incarnatione xx

aM 5220 [1249] aM 3971 [3951] ab Inc. 20

This misplacement may imply a columnar arrangement of k-numbers.

- (f. 10va15) a marginal figure, slightly cut by trimming of the page, entered with construe-mark to year *ki*, Tiberius 15th (= AD 30)
- (f. 10va19–20) At the end of the same year-section there are words and figures which appear to continue the marginale:
 I]IIIdccccxxxx (*in margine*)
 . . . ab initio mundi secundum Eb peractis
 [*gloss in text-hand*: III vel IIII ut Eusebius ait.]
 iuxta autem lxx: Vccxxxii
 ab Incarnatione quoque xxx
 aM 5232 [1252] aM 3980 [3950] ab Inc. 30
- (f. 11ra8–10) chromomorphic ‘triad’ with aM-dates only; at the end of a year *kv*, so referring to that or to the immediately following *kvi* (= AD 39 or 40),
 ab initio Mundi iuxta lxxii interpretes Vccxl
 [*the year is misprinted by Stokes*]
 secundum vero Eb IIIIdccccxci
 aM 5240 [1249] aM3991

The texts are mostly regular: presumably in the first the smudge should be read as *Eb* or *autem Eb*, as in this location in the other instances. In the last, the *ab Inc.* date has perhaps been omitted in copying. There are more substantial difficulties in the third instance.

The marginal date here corresponds to aM 3981 for Tiberius 15th in Bede, and to read this in Rawl. B 502 would restore some regularity to the calculations (since aM 3981[–3951 =] AD 30) and agree with Tiberius’s regnal year, placing, and obit-date: but the figure may have been influenced by the word *peractis* in the text and mean, not the current year but, that year last completed. The word *peractis* comes from Bede’s comments on Eusebius at this point, and the next year-section in Rawl. B 502 is devoted to a paraphrase and verbatim quotation of Bede’s discussion. The text of the chromomorphic triad has plainly been subject to additions and tinkering, and a possible picture of the problem faced by the copyist would be as follows.

	K	
IIIIdcccc	i	anno xv Tiberii Cessaris ab Iohanne Babtiza Iesus
lxxx		Christus babtizatus est in Ennon iuxta Salem.
<i>ab initio</i>		Hoc tempore Christus eligit apostulos xii.
<i>mundi</i>		<i>secundum Hebraeos</i>
<i>iuxta autem</i>		peractis annis IIII ut Eusebius ait
<i>lxx: Vccxxx</i>	ii	Eusebius ait quod xvi anno Tiberii principium fuerit
<i>ab Inc. quoque</i>		lxxxi iubelii secundum Hebraeos . . . [Bede, entry 273] ¹²
<i>xxx</i>		quo tempore
		Iohannes Babtiza
		occisus est.

¹²Minor textual details once more are nearest to Sankt Gallen MS 251.

The second group of chromomorphic triads shows no signs of a decadic arrangement and is arithmetically or textually (or both) more confused. The first instance is arithmetically impeccable, but its self-dating and placing present difficulties.

(f. 11val) entered at a kiii-year and referring either to that or the following kv:

ab initio Mundi Vcclxiii iuxta lxx interpretes;
 secundum autem Eb IIIIxiii
 ab Incarnatione lxiii

aM 5262 [*1249*] aM 4014 [*3951*] ab Inc. 63

Neither k-number provides the ferial for AD 63, which has the ferial .vii., not very likely (by the standards of this text, as we shall see) to be corrupted to .iii. or .v.. But the kv-year of our text is seven k-numbers after Claudius's obit, which was apparently dated to aM 4(007), so that the 'Hebrew' date in this chromomorphic triad would agree.

This entry therefore (1) disagrees with the k-numbers; (2) observes the same differences of 1249 and 3951 as the decade-markers of the previous group of chromomorphic triads; (3) appears to have determined its 'Hebrew' date by counting k-numbers from the Bedanist's date for Claudius's obit; and, if so, (4) calculated the 'Septuagint' and Incarnation figures from the 'Hebrew'. These characteristics suggest that the triad is the work of the same person as the first group, and show him once more as subsequent to the Bedanist: he apparently took the Bedanist's aM dates as superior in authority to the k-numbers. The placing is consonant with intrusion into a column of k-numbers. We shall return to the question of placing in relation to absolute date.

(f. 11vb14–16) entered at a year ki which also contains an Irish obit: as this follows the triad, it does not seem likely that in this case the triad was intended to refer to the next year.

ab initio Mundi Vcclxxix iuxta lxx
 secundum vero Eb IIIIxxx
 ab Incarnatione autem lxxvi

aM 5279 [*1249*] aM 4030 [*3954*] ab Inc. 76

The first two figures of this triad add 16 years to the corresponding figures in the previous instance; the last, however, adds only 13 years, but the ferial number for AD 76 is 2, while this triad is entered at a ki which is followed by a kiii. The place of this triad is in fact 16 k-numbers later than the last, if (1) that is read as referring to the kiii year, and (2) the duplicate [[kii]] at Nero's obit is counted. We have seen above that this error probably occurred after the Bedanist's insertion of aM-dates for the Imperial obits. His work was followed by that of the author of the previous chromomorphic triads, who observes the differences of 1249 and 3951 regularly: the author of the present triad does not, and must

therefore be later still. For the first two figures, he apparently added his count of k-numbers; the last involves problems of the k-numbers themselves, to which we shall come.

Of the last three chromorphic triads in this fragment, two can be ascribed to the same late continuator, as the differences show.

(f. 12ra36-b2)	Vccxc 19	[1219]	IIIIxxi 29	[3975]	xcvi 19
(f. 12va17-18)	Vcccix 29	[1209]	IIIIc 19	[3985]	cxv 19
(f. 12vb12-14)	Vcccxxxviii	[1219]	IIIIcix	[3985]	cxxxiii

The first of these was clearly present in the text received by the continuator and was taken as a datum for the two following. In them, the inconsistent numbers are perhaps more likely to be arithmetical than copying errors. The chief problems, however, arise with the first of the three.

(f. 12ra36-b2) placed after a kiiii and before a kv which contains Domitian's obit, and to which the triad could refer. Since the late continuator found this triad in his text, apparently with the figures now surviving, it should be consistent with the work of his predecessors (who wrote the triad placed seven years after Claudius's obit, and the obit-date for Vespasian). On the k-count of the present text this triad is 33 years later than the triad self-dated to AD 63.

ab initio mundi Vccxc secundum lxx interpret.

secundum vero Eb.IIIIIxxi

ab Incarnatione autem xcvi

aM 5290 [1219] aM 4071 [3975] ab Inc. 96

These figures are respectively 27, 57, and 33 years later than the triadic figures of the self-dated AD 63 triad, if (1) that triad is taken as referring to year kv, and (2) the duplicate [[kii]] is not counted. The difference of 33 years (in the *ab Inc.* figures) under these conditions suggests that the triad was indeed originally due to the person who wrote the regular triads, and that the *ab Inc.* figure for this instance is his, uncorrupted. The 'Septuagint' figure would also come into line if we could suppose that a final ⟨vi⟩ was lost by the time of the late continuator. The 'Hebrew' figure should be aM 4047: we should have to suppose that the .xl. was transposed, and that the .vii. first lost a minim and then was miscopied as .xi.. The change in the 'Septuagint' figure could be due to a haplography with *iuxta*, or to a fading of ink; the changes in the 'Hebrew' figure (again by the time of the late continuator) would seem to require probably at least two copying stages.

As far as this incomplete study of the absolute datings takes us, therefore, we can discern four stages of work in this composite text. The first is represented by the original writer on the Nativity, who uses

aM 5199 (derived from Jerome) and in this is followed, as far as can be seen, by none of his successors. The second stage is represented by the Bedanist, who quotes Bede at the Nativity and Baptism and inserts obit-dates for the Emperors. The third is that of the regular chronomorphist of the decade-markers and two later triads using the differences of 1249 and 3951. Up to this point, it is possible that work was done on a single physical copy and at one centre of learning but, between this and the next stage of work on the absolute figures, there seem to have been at least two copying stages. The fourth stage of compilation, marked by the derivative chronomorphs, is ignorant of the rules of the equations: and this discontinuity suggests another centre, with markedly lower standards of learning. Presumably the minor evidences of incompetence (such as the aM-date for Titus) were executed at this other centre. With such a change, it is not necessary to suppose that the 'late continuator' was more than relatively late: he could even have been contemporary with the regular chronomorphist in the more learned centre.

The chief problem of his work is why he placed his chronomorphs where he did, and this raises questions of the k-numbers.

4. THE K-NUMBERS

In the ancestral chronicle-tradition, only Jerome and Prosper regularly give absolute dates for every year: Jerome by years of Abraham, Olympiads, and (for this period) regnal years of Roman emperors, Prosper by *anni Passionis* and consuls. Isidore and Bede give aM-dates for the obits of Emperors, and collect a number of comments or events in his reign, without their own absolute dates. Eoin MacNeill suggested that the rendering of these sources in the Irish World-Chronicle was not originally annalistic, but that the k-numbers were inserted at random to a text already written, and from the Rawl. B 502 text he illustrated this suggestion by the details of the reign of Domitian, as compared with their treatment by Jerome. Unfortunately, he did not see that the long entry at Domitian's first year comes so directly from Bede (entries 301-3) that it can be used for the text-history of the family of Sankt Gallen MS 251 (sharing the form *religatus*, but retaining the *fertur* which that manuscript lacks): it was Bede, not the Irish chronicler, who in this passage collected together and re-wrote various entries from Jerome. After some Irish entries, the Rawl. B 502 text ascribes to Domitian's third and fourth years two further acts of tyranny which Jerome's manuscripts assign variously to his 5th-9th and 14th-16th years: here indeed the years in Rawl. B 502 are probably irrelevant, the reports being written (in empty year-spaces) about the character of Domitian's reign, like Bede's entry (which they supplement). The martyrdoms of Thomas and Bartholomew do not come from Jerome or Bede; and the accessions of bishops of Alexandria, Rome, and Antioch are probably

also independent in origin – we cannot tell how true or false the Irish chronicler is to his sources here. Domitian's obit-notice naturally falls in his last year. For our present fragment, therefore, MacNeill's argument is at best partially applicable in reverse (the columnar k-numbers were there first, leaving empty year-spaces), and the examination of the k-numbers may begin from the beginning.

The introductory dating formula of each year consists of the letter *K* (or some other abbreviation for the Kalends of January) and a number from 1 to 7, or no number at all. These numbers give the day of the week (*feria*) upon which the first day of January fell; and since there are only seven week-days, and leap-years occur every four years, and January 1st AD 1 fell on a Saturday (the seventh week-day), the ferial numbers for the Sixth Age should run in the cycle 7123 / 5671 / 3456 / 1234 / 6712 / 4567 / 2345 for 28 years.¹³ Since (in Roman figures) *ii* and *v*, *iii* and *vi*, *iiii* and *vii* may often be confused, it is often impossible to be sure exactly what year is intended at any point in the surviving text without consideration of the cycle as a whole. For example, if two consecutive years have the ferial numbers *.ii.* and *.iiii.*, this may mean years 20 and 21 of a cycle, or, if these numbers are graphic errors for *.v.* and *.vii.*, years 28 and 1 of consecutive cycles; or that a year *.iii.* or a year *vi.* has been erroneously omitted. In some places, the sequence of the surviving numbers in the printed text is such that it is not at all easy to tell where a cycle is supposed to begin or end, but for our present fragment we fortunately have the facsimile edition by which many of Stokes's errors and omissions may be corrected. On the last page of the fragment, where even the facsimile edition is not clear because of the rubbing of the vellum, Dr Albinia de la Mare has at my request examined the original, and her readings are incorporated in the tables below.

In the following study, the material is divided into the true ferial cycles of AD 1–28, 29–56, 56–84, and so forth, thus making the identification of omissions, errors, and variants in the manuscript reasonably easy. Figures given in the manuscript are represented in Roman notation as in the original; modern figures – of years AD, of true ferials, etc. – are in Arabic numerals. Leap-years are asterisked.

The period of time concerned contains five ferial cycles from AD 1, and the recurring pattern should be as seen in table IV.

¹³The preceding statements are taken on trust from writers on computistical matters, for example B. MacCarthy. An 'Idiot's guide to computistics' is much needed – how were all those calculations done in Roman figures? did anyone ever *look* at the moon? how were the computations employed historiographically? how far was accuracy dependent on arithmetic or tallying, and how far on the general absence of scientific prose, and can we distinguish the effects of failure in these different areas?

TABLE IV

<i>AD</i>	<i>Ferials of 1 Jan.</i>	<i>Concurrents of 24 March</i>
1, 29, etc.	α 7	α 5
2	1	6
3	2	7
*4	3	2
5	β 5	β 3
6	6	4
7	7	5
*8	1	7
9	γ 3	γ 1
10	4	2
11	5	3
*12	6	5
13	δ 1	δ 6
14	2	7
15	3	1
*16	4	3
17	ϵ 6	ϵ 4
18	7	5
19	1	6
*20	2	1
21	ζ 4	ζ 2
22	5	3
23	6	4
*24	7	6
25	η 2	η 7
26	3	1
27	4	2
*28	5	4

In tables VI–VII, the first left-hand column contains the folio, column, and line numbers of Meyer’s facsimile edition; the second column the relevant parts of the text (only entries concerned with numbers of years are noted); the third a continuous series of AD-dates; the fourth, the quadrennial signs α , β , . . . and the true ferials for the AD years (where these numbers are not those of the Rawl. B 502 text, they are italicised; and where that copy lacks the number, it is placed in angle-brackets); the last column of the table gives references back and forth, and simple graphic notes. The (Irish) kings of Tara and Emain are identified by (T) and (E) respectively after their names: the chronicler usually names Emain, but apparently regards specific mention of Tara as usually superfluous. The bishops of Alexandria are identified by ‘(Alex.)’; the Roman emperors need no distinguishing mark.

The tables VIII–X are a little more complicated, but these additions are explained below.

The tabulation for the first two cycles shows immediately that their chronological structure is quite straightforward (once Stokes's errors and omissions have been rectified) and that the standard of scribal accuracy is reasonably high. The scribal errors are three in fifty-six years: the ferial number is once omitted (AD 2) and twice miswritten (AD 29 and 49). The compiler's placings correspond to the figures stated in the entries throughout the First Cycle, and for the Romans in the Second Cycle, if for Caligula (whose 'not four full years' have become three years) we can allow overspill into the preceding obit-, and succeeding accession-, years. The reckoning for Caligula is carefully supported by synchronisms with Judaeian rulers, Herod Agrippa's seven years being explicitly three Caligulan and four Claudian. It seems likely that this material comes from Jerome, who places the *titulus* (which includes the reign-length) for Herod Agrippa at Caligula 1st, and that for his successor (which also includes the reign-length) at Claudius 4th: but, if so, the *filum* of Judaeian years was missing in the compiler's copy of Jerome (or ignored by him), for this synchronises the first year of Herod Agrippa with Caligula 2nd, and his successor's first year with Claudius 5th. Jerome's editors record no manuscript with omission of this *filum*, but its existence is likely enough.

Since the Bedanist and the regular chronomorphist contributed to a text in being, their work is most usefully seen as a report, and in places a criticism, of the state of the text at that time, and their omissions, if reasonably certainly not due to scribal error, have some importance. For example, the Bedanist apparently gave no obit-date for Caligula, and his obit-dates for Claudius and Nero are two years ahead of the years of the ferial numbers of the obit-notices: we should probably infer that he thought two years to have been missing between the obits of Tiberius in AD 38 and Claudius in AD 56. The chronomorphist has a decade-marker at AD 40 (in Caligula's reign) but not at AD 50 or later, from which we should probably infer that he thought there to have been some irregularity or disturbance in the chronological structure after AD 40. The Bedanist's reason for his belief may have been due to the notice of Peter's arrival in Rome, quoted in the text from Bede's entry 283 and placed at Claudius's second year as previously by Jerome: the 25 years of Peter's bishopric *usque ad ultimum Neronis annum* would thus mean the last twelve Claudian years and the whole of Nero's reign. Jerome himself is inconsistent, placing Peter's death in his 26th Roman year; but the (15 or) 16 years of Nero's reign in Rawl. B 502, added to the twelve Claudian years, would mean that his death was to be placed in Peter's (27th or) 28th Roman year. The Bedanist was apparently not prepared to alter any of the texts before him, but inferred from their relationship that two years were missing before Peter's arrival in Rome. His inference was apparently known to the chronomorphist: their joint testimony therefore is that they thought the chronology to have gone wrong between the decade-marker of AD 40 and Peter's arrival in Rome,

so that no dates thereafter were absolute until other evidence accrued (which was Bede's date for Claudius's obit).

The reign-lengths of Caligula and Nero are in fact unhistorical in opposite directions, presumably as the outcome of a struggle with Jerome's inconsistencies – not directly, but through the translation of his years into Nativity-terms: to a certain extent therefore, the criticism, though just, is misapplied. The difficulty was partly of convention, and only partly of fact: to date in Nativity-terms meant that one of Jerome's alternative dates for that event had to be adopted, and – facts not being available – this is purely a matter of convention. But the convention once adopted must be sustained, and this requires exact knowledge of what the convention means. It is possible that the original compiler, who took aM 5199 as the date of the Nativity, adopted this convention with full knowledge: if so, the knowledge was not shared by his followers, whose criticisms therefore are just in respect of their own fund of information, but may be misapplied to the work of a man who had more.

The chronological structure of the three remaining cycles becomes increasingly complex. The Third begins with seven correct ferial numbers, for AD 57–63: at the last of these is entered the obit of James, martyred after .xxx. years as bishop of Jerusalem. This is consistent with the notice of his appointment in AD 34.

From that point onwards, however, the k-numbers of the Third Cycle disagree with the true ferials every fourth year. This is both much too high a level of error (as compared with the first two cycles) to be ascribed to the copyists and an incidence too regular to be the result of random mistakes. Inspection shows that what we have is a 28-year cycle, not of ferials, but of concurrents for AD 57–84, to which has been prefixed the first quadrennium of a ferial cycle, AD 57–60. The arrangement means that, out of the four k-numbers of the α -quadrennium of the concurrent cycle, three agree with ferial numbers in their own β -quadrennium, and so forth. Thus from AD 61 onwards the year intended by the k-number may be the ferial year, or may instead be the concurrent year four years earlier.

Moreover, there is in this cycle the duplicated [[kii]] for Nero's obit and the following year so that, if the place of any entry was determined by simple k-count (without reference to the significance of the k-numbers), the place would be a year before that indicated by the k-number. We have already seen reason to think that this duplication occurred after the work of the Bedanist, for whom Nero probably reigned 15 years. While therefore the duplicated [[kii]] may be a relatively late error, it may have had effects, such as the 'correction' of Nero's reign-length to .xvi. years, on older parts of the text. Its most likely effect would of course be on the placing of entries by k-counts.

In the Fourth and Fifth Cycles, the combination of concurrent and ferial numbers is carried much further, and in what appears to be a very

remarkable way: the principle is that, when the concurrent and ferial numbers disagree (at the leap-years), both may be inserted, and in compensation an ordinary year of the next quadrennium may be excised. Thus, in the Fourth Cycle, the first two leap-years have concurrent numbers only, but the third, fourth, and fifth are duplicated, and the third years of the fourth, fifth, and sixth quadrennia compensatorily excised; but the sixth leap-year is also duplicated, and there is no compensation. Table V displays all this.

TABLE V

<i>k-numbers</i>	<i>concurrent years</i>	<i>ferial years</i>	<i>by k-count only</i>
v	AD 91	AD 95	AD 95
vi	—	*96	*96
vii	*92	—	97
i	93	97	98
ii	94	98	99
—	—	—	—
iii	—	*100	*100
v	*96	—	101
etc.	etc.	etc.	etc.
vii	—	*108	*108
i	*104	—	109
ii	105	109	110
iii	106	110	111
iiii	107	111	*112

The last leap-year of the Fourth Cycle and the first of the Fifth are not duplicated, but this of course merely means that the established skew relationship of the years is preserved, and the differences not increased. This arrangement of alternate duplication and excision continues through the surviving part of the Fifth Cycle.

TABLE VI
FIRST CYCLE, AD 1-28

<i>Facs. f.</i>			<i>AD</i>	<i>True ferials</i>	
10ra26	kvii	Augustus xlii° The Nativity: aM IIIdeccccli	1	α	7
b3	k		2	(1)	
b9	kii		3	2	
	kiii		*4	3	
	kv		5	β	5
	kvi	Augustus xlvii°: Herod obit	6	6	
b27	kvii	Archelaus ix an. i.e. usque ad finem Augusti	7	7	See AD 15
b29	ki		*8	1	
b30	kiii		9	γ	3
	kiiii	[decade-marker: aM IIIdecccclxi]	10	4	
	kv		11	5	
	kvi		*12	6	
	ki		13	δ	1
	kii	initium indictionis	14	2	om. Stokes
b31	kiii	Augustus obit, an. lvi . . . regnans Archelaus obit	15	3	
10va2	kiiii	[obit-date] Tiberius an. xxiii	*16	4	See AD 38
a3	kvi		17	ε	misprint St.
a7	kvii		18	7	
	ki	[decade-marker: aM IIIdecccclxxi]	19	1	
a9	kii		*20	2	
a11	kiiii		21	ζ	4
	kv		22	5	
	kvi	Tiberius viii° alternative obit for Conchobor (E)	23	6	See AD 34
a12	kvii		*24	7	
	kii		25	η	2
	kiii		26	3	
	kiiii	Tiberius xii°	27	4	Figures between kiiii and anno (St.) not in MS
a14	kv		*28	5	

TABLE VII
SECOND CYCLE, AD 29–56

<i>Facs. f.</i>		<i>AD</i>	<i>True ferials</i>	
10va14	kvi	29	α 7	
	ki [decade-marker: aM IIIccccclxxx]	30	1	Minim duplicated St.
a22	kii Tiberius xvi ^o	31	2	
a29	kiii	*32	3	
a30	kv anno xviii ^o Tiberii	33	β 5	
b4	kvi anno xix (Tiberii) James bishop of Jerusalem Conchobor (E) obit. Causcraid (E) tribus annis	34	6	See AD 63 Note: no accession and obit notices for Causcraid
b22	kvii	35	7	
	ki	*36	1	
	kiii	37	γ 3	
	kiiii Tiberius obit. aM IIIccccclxxxix	38	4	Dated at accession
b23	kv Caligula an. iii non plenis Herod Agrippa . . . an. vii usque ad iiiii ^o Claudii, cui successit Agrippa xxvi an.	39	5	Note: no obit-date See AD 45, 70
11ra8	[decade-marker: aM IIIccccxc]			
a10	kvi	*40	6	
a14	ki Caligula obit	41	δ 1	
a15	kii [obit-date] Claudius an. xiii	42	2	Reign-length <i>om.</i> St.
a17	kiii Petrus . . . xxv an. usque ad ulti- mum Neronis annum Iriel Glunmar (E) an. xl.	43	3	
a23	kiiii obit of Conaire Mór (T)	*44	4	
a24	kvi iiiii ^o an. Claudii	45	ϵ 6	
a32	kvii	46	7	
a35	ki	47	1	
	kii	*48	2	
	kiii Lugaid (T) an. xxvi	49	ζ 4	
b1	kv	50	5	<i>om.</i> St.
b3	kvi	51	6	
	kvii	*52	7	<i>om.</i> St.
	kii	53	η 2	
	kiii Claudius obit: aM IIII(vii)	54	3	Dated at accession
b6	kiiii [obit-date] Nero an. xvi	55	4	See AD 69
b26	kv secundo anno Neronis	*56	5	

TABLE VIII
THIRD CYCLE, AD 57-84

<i>Facs. f.</i>		<i>Concurrents</i>	<i>Ferials</i>	
		<i>yield AD</i>	<i>yield AD</i>	
11va1	kvii		α 57	
	ki		58	
	kii		59	
	kiii		*60	
	Chronomorphic triad: ab Inc. lxiii			
a3	kv	α 57	β 61	
	kvi	58	62	
a4	kvii	James, xxx years bishop, obit	59	63
a7	kii	Annianus (Alex.) an. xxii	*60	— AD 64 by ks
a8	kiii		β 61	γ 65
a9	kiiii		62	66
a15	kv		63	67
	kvi		*64	— AD 68 by ks
	ki		γ 65	δ 69
a16	[[kii]]	Nero obit: aM IIIIxxii		Date at accession:
		Peter and Paul: obit. Linus papa ii an.		see AD 43
a20	kii	Galba vii mens. Otho iii mens. Vitellius viii mens. Vespasian an. ix . . .	66	70 or 71 if [[kii]] counted, and so hence- forward
11vb7	kiii	end of Judaeian kingdom	67	71
b13	kv	Anencletus pope an. xx	*68	— AD 72 by ks
b14	kvi		δ 69	ε 73
	kvii		70	74 misprint St.
	ki	Chronomorphic triad: ab Inc. lxxvi Lugaid (T) obit	71	75
b19	kiii	Crimthann (T) an. xiii	*72	— AD 76 by ks
b20	kiiii		ε 73	ζ 77
b21	kv	Vespasian obit: aM IIIIxxxi	74	78 date at accession
b24	kvi	Titus an. ii . . .	75	79
12ra2	ki	Titus obit: aM IIIIxl	*76	— date at accession
a11	kii	Domitian an. xv. . . Iriel (E) obit	ζ 77	η 81 See AD 43
a22	kiii	Fiacha (E) xx an.	78	82
a23	kiiii		79	83
a25	kvi		*80	— AD 84 by ks
a27	kvii		η 81	α 85
a28	ki		82	86
	kii	corrected placing of Abilius (Alex.) xiii an.	83	87
a29	kiiii		*84	— AD 88 by ks

TABLE IX
FOURTH CYCLE, AD 85-112

<i>Facs. f.</i>		<i>Concurrents</i> <i>yield AD</i>	<i>Ferials</i> <i>yield AD</i>	<i>k-count</i> <i>yields AD</i>
12ra27	kvii	η 81	α 85	85
a28	ki	82	86	86
	kii	83	87 as corrected	87
a29	kiiii	*84	—	88
	kv	α 85	β 89	89
a31	kvi	86	90	90
a32	kvii	87	91	91
a33	kii	*88	— misprint St.	92
a35	kiii	β 89	γ 93	93
a36	kiiii	90	94	94
	Chronomorphic triad: ab Inc. xcvi			
b3	kv	91	95	95
b4	kvi	—	*96	96
b15	kvii	*92	—	97
b18	ki	γ 93	δ 97	98
b19	kii	94	98	99
		(95	99)	
b20	kiiii		*100	100
b21	kv	*96	kv om. St.	101
	death of St John lxxviii aP			
b30	kvi	δ 97	ε 101	102
b31	kvii	98	102	103
		(99	103)	
	kii		*104	104
b32	kiii	*100		105
	kiiii	ε 101	ζ 105	106
	kv	102	106	107
b33		(103	107)	
	kvii		*108	108
12va8 ¹⁵	ki	*104		109
a15	kii	ζ 105	η 109	110
	Feradach (T) obit. Cui successit Fiacha an. xvi Chronomorphic triad ab Inc. cxv			
a18	kiii	106	110 '(I think)'	111
a20	kiiii	107	111	112
	kvi	*108		

¹⁴The placings allow Ignatius only 16 years, but comment on such isolated entries is useless until parallel Irish (and other) texts have been examined.

¹⁵From this point the k-numbers of the text have been checked by Dr de la Mare: I put her comments in quotation-marks.

TABLE X
FIFTH CYCLE, AD 113–40

<i>Facs. f.</i>		<i>Concurrents</i> <i>yield AD</i>	<i>Ferials</i> <i>yield AD</i>	<i>k-count</i> <i>yields AD</i>
12va20	kvi 'perhaps (not clear)'	*108		113
a21	kiiii 'I think' [if so, read vii:]	η 109	α 113	114
	ki Trajan obit	110	114	115
a23	kii Adrianus an. xxi	111	115	116
a37	kiii Elimm (E) an. x		*116	117
12vb1	kv	α 113	β 117	118
	kvi	114	118	119
	kvii	115	119	120
b2	ki		*120	121
	kii Eumenes (Alex.) anno uno	*116		122
	...	β <117	γ 121)	
b3	kiiii Marcus (Alex.) an. xiii	118	122 misprint St.	123
b4	kv Fiacha (T) obit	119	123	124
b8	kvi		*124	125
	kvii	*120		126
	ki Tuathal (T) xxx an. Mal (E) xxxiii an.	γ 121	125	127
		<122	126)	
b11	kiii	123	127	128
b12	kiiii		*128	129
	kv	*124	misprint St.	130
	kvi	δ 125	ϵ 129	131
	kvii	126	130	132
		<127	131)	
	kii Chronomorphic triad ab Inc. cxxxiiii		*132	133
b14	kiii	*128		134
	kiiii Celadion (Alex.) an. xiiii	ϵ 129	ζ 133	135
b15	kv Hadrian obit	130	134	136
		<131	135)	
b21	kvii Antoninus Pius an. xxii		*136 misprint St.	137
b22	ki	*132		138
b27	kii	ζ 133	η 137	139
b31	kiii	134	138	140
		<135	139)	
b34	kv 'probably – not certain (could be kii)' [deficiunt reliqua]		*140	141

5. THE CONTINUING SUCCESSIONS

In the face of this curious combination, the most rewarding enquiry is to take the several Continuing Successions – of Roman emperors, bishops of Alexandria, etc. – and see how far there is consistency throughout each succession in the use of one kind of year.

The Roman emperors: accession and obit dates

Cycles

Quadrennia

k-numbers

I α vii – δ iii	ferial years	AD 1–15	Augustus 42nd to 56th years
I δ iii – II γ iiii	ferial years	AD 16–38	Tiberius 23 years
II γ v – δ i	ferial years	AD 39–41	Caligula not 4 full years
II δ ii – η iii	ferial years	AD 42–54	Claudius 13 years
II η iiii – III δ ii	ferial years	AD 55–70	Nero 16 years
III δ ii – ζ v	ferial years	AD 70–78	Vespasian 9 years
III ζ vi – η i	k-count	AD 79–80	Titus 2 years
III η ii – IV γ v	k-count	AD 81–95	Domitian 15 years
IV γ vi	k-count	AD 96	Nerva 1 year
IV γ vii – V α i	k-count	AD 97–115	Trajan 19 years
V α ii – ζ v	k-count	AD 116–36	Hadrian 21 years

The dates are consistent with the reign-lengths throughout: the change from ferial years to the k-count is due to the fact that Titus's second year and obit-notice falls on an unduplicated leap-year with a concurrent number only. The one problem arises from the duplicated ks at Nero's obit: this has no cumulative effect on the list; it is probably a late error, giving rise to the false correction of Nero's .xvi. years. Questions of source-material are of course premature until other fragments have been examined.

The bishops of Alexandria: accession but no obit dates

III β ii	k-count AD 64: Annianus 22 years
IV α ii corr. from vii	k-count AD 87: Abilius 13 years. Since this makes Abilius accede 23 years after his predecessor and 12 years before his successor, it appears that the date of the entry is over-corrected.
IV δ ii	k-count AD 99: Cerdon primus 12 years. This bishop conflates Cerdon and his successor, <i>nomine Primus</i> (as Jerome and Prosper carefully state).
IV η iii	k-count AD 111: Justus 11 years
V β ii	k-count AD 122: Eumenes 1 year
V γ iiii	k-count AD 123: Marcus 13 years
V ζ iiii	k-count AD 135: Celadion 14 years. This allows Marcus only 12 years, but it cannot be checked because the fragment ends.

These entries seem to be late, since they use only the k-counts, and they do not derive, at least directly, from either of the two known Latin chronicle-sources, Jerome and Prosper. The immediate source appears to have been a list, reading ‘Cerdon (xi an.) Primus xii an. quartus ab apostulo’ [Mark]: the warning has not saved the list, but is mechanically reproduced. Annianus’s entry seems to ignore the duplicated [[kii]].

The kings of Tara: accession and obit dates

IIδiii	ferial year AD 44: obit of Conaire Mór
IIζiii(i) – IIIεi	ferial years AD 49–75: Lugaid 26 years
IIIεiii – IVαiii	k-count AD 76–88: Crimthann 13 years
IVβv – ηii	k-count AD 89–110: Feradach 22 years
IVηii – Vγv	k-count AD 110–25: Fiacha 16 years
Vδi	k-count AD 127: Tuathal 30 years

Lugaid’s entries give him a reign one year longer than the stated reign-length. Feradach’s obit and Fiacha’s accession-notice are placed in the same year. There is a gap of five years between Conaire and Lugaid, and of two years between Fiacha and Tuathal: interregna are to be expected in this list but make exact checking of the entries impossible.

The kings of Emain: accession and sometimes obit dates

Iζvi	ferial year AD 23 (Tiberius 8th): alternative obit of Conchobor.
IIβvi	ferial year AD 34: obit of Conchobor and notice of Causraid .iii. years.
IIδiii	ferial year AD 43: accession of Iriel, 40 years.
IIηii	k-count with duplicate [[kii]]: AD 82: obit of Iriel.
IIIηiii	k-count with duplicate [[kii]]: AD 83: Fiacha 20 years: no obit; then two years unaccounted for, and the mode of counting seems to change.
IVεii	k-count AD 104: Fiatach 13 years: no obit.
Vαiii	k-count AD 117: Elimm 10 years: obit recorded in battle-story told at obit of Fiacha of Tara, but not clearly dated.
Vδi	k-count AD 127: Mal 33 years: same year as Tuathal of Tara.

There seem to be two groups of entries here, one for the last three kings which depends on a synchronism with Tara, and the entries on Iriel and Fiacha after the duplication of [[kii]] in the Third Cycle. The earliest entries show that alternative pseudo-histories were known, and ‘interpolator H’ has further added Glasni to our manuscript. The inference appears to be, for the tradition represented here, that the pseudo-history of Tara was stabilised earlier than the pseudo-history of Emain. There seems to be no (direct, at least) connection with the Bedanist’s criticism of the chronological structure at AD 41–2.

The Popes

IIδiii	ferial year AD 43: Peter in Rome, 25 years to the last year of Nero: this is a quotation from Bede, dated in agreement with Jerome to the second year of Claudius.
IIIδ[[ii]]	ferial year AD [[70]]: Peter obit. Linus papa ii an.
IIIδv	concurrent year AD 68: Anencletus papa xx an.
IVβii	concurrent year AD 88: Clemens discipulus Petri episcopus Romae ordinatur ix annis.
IVδv	concurrent year AD 96: Clemens papa Petri discipulus: martyrdom.

The last three entries are at years for which the only k-numbers provided are those of concurrents of leap-years: the question is whether these are original or accidental. If Linus was entered before the duplication of kii, then his original placing was at ki, concurrent for AD 65 (and ferial for AD 69). This could readily be taken as the year of Peter's obit (when the only entry on that event was to be found at the end of the first notice for Nero's reign, f. 11rb25), so that Linus's two years would be AD 66-7. The dubiety would then be due to the introduction of the Bedan account of Peter at Claudius 2nd, while the other entries would come from a document dated by concurrents. Since no more popes are entered, the problem cannot be settled definitively from the text.

This examination of the Continuing Successions seems to show that the Roman emperors were part of the chronological structure from an early stage, while the bishops of Alexandria, the kings of Tara, and the later kings of Emain were all added after it was established, and in disregard of the ferial or concurrent significance of the k-numbers, and using the k-counts only: the earlier kings of Emain seem to have been added later still. The combination of the ferial and concurrent documents shows that in principle both were important to the compiler: the particular form taken by the combination is most peculiar, especially when it would have been very simple for the combiner to leave each fourth *k* without a number – he would then still have identified years four years apart, but the elaborate patterns of duplication and compensatory omissions would have been unnecessary. It seems therefore that we must infer that the concurrent numbers were unknown and that they were taken as an archaic (or otherwise special) kind of ferials, and that some of their leap-years dated events of great importance. If therefore we examine the entries for the years originally with concurrent k-numbers only, we obtain the following.

IIIαii	AD 60	Annianus of Alexandria. But this is almost certainly an ascription by k-count, meaning AD 64.
IIIβvii	AD 64	no entry
IIIγv	AD 68	Anencletus pope
IIIδiii	AD 72	Crimthann of Tara. But this is almost certainly an ascription by k-count, meaning AD 76.

IIIεi	AD 76	Titus obit. Ascription by k-count. This (or by k-count the previous) leap-year of AD 76 is the self-date of the chromomorphic triad by the late continuator.
IIIζvi	AD 80	contains a statement about Domitian, and therefore certainly a ferial-year or k-count ascription since Domitian's accession is dated to the ferial year AD 81.
IIIηiiii	AD 84	obit of Crimthann of Tara: almost certainly a k-count ascription, meaning AD 88.
IVαii	AD 88	Clemens pope
IVβvii	AD 92	Trajan. Ascription by k-count.
IVγv	AD 96	Clemens's martyrdom. Self-date of originally regular chromomorphic triad.
IVδiii	AD 100	no entry
IVεi	AD 104	three Roman notes, probably to be ascribed to k-count year AD 109.
IVζvi	AD 108	obit of Timothy
[IVηiiii	AD 112]	the leap-year is not in this case duplicated.
Vαii	AD 116	Eumenes of Alexandria: a k-count ascription.
Vβvii	AD 120	no entry
Vγv	AD 124	no entry
Vδiii	AD 128	no entry
Vεi	AD 132	Justinus presents his book of Christian doctrine to the Emperor Antoninus: since the latter's accession is dated to AD 136, this is a k-count ascription.

Thus the concurrent-numbered years seem to offer, as possible original entries of the concurrents' source, the popes, the death of Timothy, and possibly some connection with some of the chromomorphic triads.

On the popes, it could be argued that the concurrents of 24 March refer to a specifically old-Roman Easter-term, so that a connection between dates so based and a list of popes is very reasonable.

On the death of Timothy, it may be observed that there are quite a few apocryphal entries in these annals: until the question of sources or congeners has been investigated, nothing useful can be said.

The question of the chromomorphic triads is especially important, because they replace the previous decade-markers when the combination of the ferial and concurrent years begins. If we examine their self-dates and placings from this point of view, we obtain the following results.

(1) The regular chromomorphic triad self-dated to AD 63: it derives that date from the Bedanist's obit for Claudius, which is two years in advance of the ferial year of his obit. In agreement with this, the chromomorphic triad is placed immediately before the ferial year AD 61. But this shares its k-number with AD 57 by concurrent reckoning, a year in which a true ferial cycle, and a concurrent cycle, and a 19-year Easter-cycle, all began. If therefore the AD 57 of the concurrents' source was marked to have some special importance, this mark could have been transferred to the ferial year AD 61 when the sources were combined, and dated to AD 63 by the Bedanist and chromomorphist.

(2) The late continuator's chromomorphic triad self-dated to AD 76, the first year of the next 19-year cycle. This is placed at the ferial year AD 75, which the late continuator may have thought (because of the duplicate [[kii]]) to be AD 76. In this case it seems necessary to suppose that the actual date *ab Inc. .lxxvi.* was found by him in his text, with some mark designating importance.

(3) The (originally) regular chromomorphic triad self-dated to AD 96 and placed between the ferial years AD 94 and 95: the latter would be, with the duplicate [[kii]], AD 96. The exact placing would then be due to the late continuator, although the triad apparently existed before he used it.

(4) The late continuator's chromomorphic triad self-dated to AD 115, but placed between the ferial years AD 109 and 110. The only explanation of this placing seems to be the choice of the wrong kii, which is the k-number both for the ferial year AD 109 and for AD 115.

(5) The late continuator's chromomorphic triad self-dated to AD 134, and placed at the ferial year AD 132 which would be AD 134 by k-count plus the duplicate [[kii]].

As far as can be seen, therefore, the first two of these chromomorphic triads were intended to mark the first years of 19-year cycles, and the last three the second years of such cycles. This seems to mean that we have the remains of a document which was concerned with concurrents of 24 March, the 19-year cycles, and papal dates.

6. EXTERNAL EVIDENCE

There is, however, some other evidence: it is found in ninth-century manuscripts of Jerome, and later copies of Prosper.

The early manuscripts of Jerome's Chronicle are found in six families.

(1) contains a single manuscript, written in 787 probably at Lucca: in it the second pope's name is *Cletus*.

(2) contains four manuscripts of the fifth to ninth centuries, from Fleury, Valenciennes, Orléans, and Tours: the name is *Cletus*.

(3) contains two manuscripts: one is fifth-century Italian, and has the second pope's name as *Clemens*, corrected to *Cletus*. The other (Berlin Phillipps 1829), written at Trier in the early ninth century, has *Cletus qui et Anencletus*.

(4) contains two manuscripts, one of the seventh century in a Gallic hand, which offers *Cletus*. The other (Paris, Bibliothèque Nationale, Lat. 4858) of the mid-ninth century, from a Gallic centre with Insular connections, has *Anencletus*.

(5) contains three manuscripts: one of unknown origin, of the ninth century, and a second, Gallic, of the tenth or eleventh century; both read *Cletus*; the third (London, British Library, Additional 16974), from Maastricht in the ninth or tenth century, has *Anencletus*.

(6) contains two manuscripts. Of these, Paris, BN, Lat. 4860 from Mainz, written 939 × 954, is a copy of a lost Reichenau manuscript written before 842, and reads *Cletus*. The other from Périgord, of the early ninth century, writes *Anicletus*; this is held to be a copy of St Boniface's Jerome (written therefore before 754).

That is to say, the purely Italian or Gallic traditions name the second pope *Cletus*; at Maastricht and Trier, in Boniface's Jerome (perhaps by interpolation), and in a Gallic centre with Insular connections, the name is *Anicletus* or *Anencletus*. The initiation of this change may be seen at Trier in the early ninth century, in the formula *Cletus qui et Anencletus*; and the appearance of the name *Anencletus* in manuscripts of four different families, but with interconnected geography which attaches them to the Insular missions, shows by that attachment that the phenomenon is of the eighth or early ninth century.

The evidence from Prosper's manuscripts is less impressive in amount, but confirmatory to some degree: *Cletus* is given his Irish figure of .xx. years in Firenze, Medici Laur., plut. 65 n 35 in a collation in the text-hand, which is Gallic or German of 965 × 972; and by the eleventh century *Cletus* has become *Annaclytus* for the Prosper in Paris, BN, Lat. 4871.

What we have therefore is a very clear influence on the text of Jerome visible in the Rhineland about 800, and the Rawl. B 502 text of the Irish World-Chronicle is in some way connected with that influence. The spelling *Anencletus* is an accurate transliteration of the Greek form of the name; and Jerome's editors naturally assume *Graeca contamination*¹⁶ (and with reason), for the Mainz, Périgord, Trier, and Gallic-Insular manuscripts also show knowledge of entries otherwise limited to the Greek tradition of Eusebius. Some Greek sources¹⁷ show the concurrents of 24 March, and the apparent fact that the Irish compiler does not recognise them is important, for apart from this ignorance he seems to be a fuller representative of a Greek source. If then the contact between the Rawl. B 502 text of the Irish World-Chronicle and this ninth-century detail of learning is a fact, it can hardly be dissociated from the connections between the Bedanist's text of Bede and that manuscript of the *Chronica* which is Sankt Gallen 251, written in 820.

We have therefore to consider the levels of learning internal to our text, especially the failure by the compiler to recognise concurrents, the lack of simplicity in the resulting combination, the Bedanist's use of Bede, the work of the regular chronomorphist especially in connection

¹⁶The strength of this reference seems to be increased by the fact that the Mainz manuscript (which reads *Cletus*) has the copy of Jerome with the strongest probability of representing the Insular tradition, for its Reichenau exemplar contained such Insular matter as Morinus (without Cummian's postscript), tide-tables, and pseudo-Bede's *De Ratione Computi*: Jones, *Beda's Opera de Temporibus*, 67₂, 97₂, 126₃, 151. If such a copy of Jerome could still have *Cletus* in 842, it is the less likely that *Anencletus* reached the Rhineland from an Insular source.

¹⁷B. MacCarthy, *Annala Uladh : Annals of Ulster* IV (Dublin 1901) xxix.

with triads in other chronicle-fragments not discussed here, and the hapless efforts of the late continuator, who can both get his sums wrong and put the results at the wrong place. Side by side with this, there are the connections with manuscripts of Jerome and Bede dated to the early ninth century (but there is ample material for much more work on this subject), and the consideration that Bede – and so presumably the Irish authors of the computistical texts which he inherited – would have recognised the concurrents, especially since this document also, apparently, contained notices of the 19-year cycles. It is possible therefore that the Irish World-Chronicle, as represented in the Rawl. B 502 fragment, is almost from its beginning a work of the period of the decline of learning – of centres marked both by an ignorance not possible in Bede's time and by a failure to value or seek simplicity.¹⁸

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¹⁸The appearance of *Beda boat breviter* in the oldest part of the Nativity-entry apparently dates even the beginnings of the compilation to after 725. For the percolation of Greek chronicle-material into the Latin tradition in the subsequent period, we should perhaps compare the tract in an eighth-century manuscript (the text written *ne nos fallant multiloquio Scottorum scolaces*), which Mommsen printed (*Chron. Min.* III 426 ff.) under the title of *Laterculus Malalianus*. It may be noted that the pseudo-pedigree list of Roman emperors in the tenth-century Welsh Harleian Genealogies, entry 16 (P. C. Bartrum, *Early Welsh genealogical tracts* (Cardiff 1966) 11), seems to carry half (one column?) of the list in this Latinised Malalas.

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