The calendar pages of medieval service books

Article

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READING MEDIEVAL STUDIES

MONOGRAPH NO.1

THE CALENDAR PAGES OF MEDIEVAL SERVICE BOOKS

by

F. P. PICKERING

THE CALENDAR PAGES OF MEDIEVAL SERVICE BOOKS

AN INTRODUCTORY NOTE

FOR ART HISTORIANS

BY

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UNIVERSITY OF READING

CONTENTS

This Note is intended as an introduction to its declared subject, but I believe that even in the most basic of its opening statements it begins to fill gaps in the accounts of the Christian calendar readily available to students of art history - and historians may find it useful too. At any rate it contains information that I myself lacked in my early days and, despite expectations, never picked up incidentally in over twenty-five years of reading histories of medieval art, monographs and facsimile editions devoted to individual psalters and books of hours, and descriptive catalogues of medieval manuscripts.

As for accounts of the Church calendar in standard reference works - encyclopaedias and ODCC (Oxford Dictionary of the Christian Church), and introductions to the Missal and the Book of Common Prayer - they are, however informative, of little help to the peruser of the calendar pages in medieval service books. One becomes aware, in one's search for information, of a conventional (and no doubt proper) assumption that the organization of the Church's 'perpetual calendar' is still a matter of common knowledge. In informal enquiry I have been able to satisfy myself that this is no longer the case, if ever it was since the introduction of printed annual issues of the Church's calendar, with all the principal feasts, fixed and moveable, duly entered.

This is also a 'prefatory' introduction. It says what I think needs to be said before the professional art historian or some other specialist (liturgist, ecclesiastical historian) takes over to tell his own particular story. The art historian, for instance, will want to point out, in the broad middle column of a medieval calendar page, the feasts of saints of local veneration, and added obits of abbots and patrons. Such items provide clues to the date and provenance of the service book he happens to be discussing. He will then describe the decoration and illumination of the calendar pages in succession, and the illustrations: the treatment of the signs of the zodiac, and, even more certainly, the representations of the 'labours of the month'. About such matters this Note will have little to say. It will deal mainly with 'all those A b c d's and roman numerals'. We should like, I believe, to know a little more than that they are 'dominical letters, golden numbers, kalends, nones, etc.' First of all, why are they there at all? We should surely then want to pursue them further, when we learn that the same symbols are also to be found elsewhere. This Note will accordingly look that little further - to the historian's chronological tables.

1. The Perpetual Calendar

The observation that reference works say next to nothing about the perpetual calendar is likely to have caused some surprise. I mean that (to the extent that I have them to hand) they do not offer an article so headed,

or, under 'calendar', a section on 'the perpetual calendar'. [1]   The NED
(New English Dictionary) possibly offers a clue. It lists Gardener's, Racing,
and Newgate Calendars under 'calendars': they are acknowledged calendars.
For the perpetual calendar one has to look under 'perpetual': that is some-
thing a calendar may be, provided that it is 'one that may be adjusted so as
to supply information for any year or for many years'.   Strictly speaking the
Church's is evidently a, not the perpetual calendar.

Strangely, it must therefore seem, it is in a most unlikely place,
namely, the Oxford Companion to English Literature, that one may come
across an excellent account of the calendar   - under the title 'The
Perpetual Calendar'. It will be found there as Appendix IV. I do not know
how students of English literature have fared with it in years past, but after
reading it twice in succession, annually, for about five years, I began to
understand it well enough to be able to exploit it (gratefully) for parts of this
Note.   It specifies, or at any rate alludes to, most of the 'adjustments'
which have to be made to keep the calendar 'perpetually' useful, but in the
main leaves the reader to infer why it was potentially perpetual in the first
place.   And perhaps one should observe that what it prints out in six (where
required, seven) columns, for fifteen pages under the running heading
'Perpetual Calendar', is more readily acceptable as a continuous chronological
table.   A line of print is devoted to every year from AD 1066 down to the
most recent past (1936). It is likely, I think, to be of greater use to students
of history. Be that as it may, Appendix IV is a splendid, but possibly
neglected, guide to the calendar.

The reason for the more rudimentary approach here (from one step
further back) is that the art historian needs to be led first towards the calendar
as the image he will encounter: the typical calendar page in service books.
This is an image very different from the historian's chronological tables, or
the prayer book's tables for the calculation of Easter until the middle of the
next millennium.   We shall concentrate on the appearance (lay-out) of the
perpetual calender-by-months.   That is what we see in medieval service
books and books of hours - in manuscript rooms, or in facsimile editions, or
in isolated colour plates in more general works.

Let us turn now to the organization of the calendar. What makes
the Church's calendar perpetual is its inclusion of feasts of fixed date

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1.   The latest edition of the Encyclopaedia Britannica has in fact such
         a sub-section (vol.ii 445), but it offers no definition of 'perpetual
         calendar', and the colourful table it presents, which 'provides a
         means of finding the day of the week for any date in a wide range
         of years', is not a calendar in the ordinary sense of the term.   One
         has to go a long way down the list of definitions of 'calendar' to
         find one that would admit such a compilation.

(Christmas, Circumcision, Epiphany, Nativity of the Virgin, of John the
Baptist, etc., and - saving clashes, for which most elaborate provision is
made elsewhere - saints' days); and its exclusion of any feast or period de-
pendent on Easter (which may itself fall on any date between 22 March and
25 April): that is some dozen feasts (and, secondarily, associated 'terms'
and holidays). Many of these feasts bear traditional names incorporating
the name of a day: Shrove Tuesday, Ash Wednesday, Good Friday, etc.
Some of our Tuesdays (etc.) will therefore move with Easter, whilst 'ordinary'
Tuesdays retreat by single steps in relation to the 365-day year. The perpet-
ual calendar can accordingly not employ these day-names at all. It uses the
letters A to G to mark days 1 to 7 of the week - see 'dominical letter' below.

The calendar has clearly in time past called for a good deal of
planning, and the Christian Church, though inheriting in the so-called
'Julian' calendar many Roman solutions, had the additional problem of Easter.
The sum of difficulties in the Christian era includes the incidence of leap
year, the differences of length (number of days) between the calendar months,
and between calendar and lunar months, not to speak of 'ecclesiastical new
moons' and 'real new moons' - a final distinction which can be reserved for
the Appendix, below. We shall consider only those items of information
which appear as regular conventional symbols or entries in the calendar as
displayed. (The calendar year begins at 1 January,[1] the liturgical year
with Advent and the Christmas Cycle.)

We now start to fill in the typical calendar page. At the head
there will be, in Latin or a vernacular, the name of the month and the in-
formation that it has x days, and the moon y days (perhaps also the number of
hours of day and night). There may be a couple of lines given up to a Latin
hexameter on the subject of the month's 'Egyptian days' (dies aegyptiacae:
the (generally two) days which were supposed to be unlucky, see NED),
regularly, for instance, in the St Albans Psalter, where there are also many
purely 'computistical' marginals: it is generally thought enough to be able
to recognize these as such.[2]

Our main concern is, however, the arrangement of daily informa-
tion in the twenty-eight to thirty-one lines which represent the month: the
conventional symbols (figures, letters) and abbreviated words which precede
the names of feasts and saints. Let us, however, first dispose of the treat-
ment in the perpetual calendar of leap years. There will be at most a
marginal reminder of the Church's regulation of the annus bi(s)sextus

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1. For the legal and official mode of reckoning from 25 March (Lady
Day), see Appendix, p.25.
2. Francis Wormald, for instance, says that the computistical items in
the St Albans Psalter are 'of a usual kind'. From the facsimile one
can see that some of them are references to epacts and embolisms.
These terms are treated in the Appendix, pp.15ff.

(or -sextilis) as it was called (i.e., containing an intercalated day bis vi kal. Mar.). Whereas the Roman (Julian) calendar 'doubled' 24 February every fourth year, the Church intercalates a day between 24 and 25 February, transfers the important feast of St Matthias from 24 to 25 February, and leaves the intercalated day without a 'dominical letter'. The reminder was generally not considered necessary.

2. The Dominical Letter

To display the seven-day week the perpetual calendar uses, as we said, the first seven letters of the alphabet in their normal sequence, A to G, from 1 January, ignoring the intercalated day in February, to the end of the year. They are called 'dominical' letters (from dies dominica; in the Book of Common Prayer 'Sunday letters', German 'Sonntagsbuchstaben'), because any one of them can, in its turn, designate Sunday. In the ideal case envisaged by the perpetual calendar, 1 January falls on a Sunday, or rather: Sunday, in its regression, falls on 1 January, taking up the A position. In that same ideal year every Sunday will be an A-day, Monday a B-day, etc., through to G (Saturday). It is not until October that Sunday and the first of the month again coincide. Meantime, because of the varying lengths of months, the first days of February, March (etc.) have fallen in succession on positions D D G B E G C F (check experimentally, or consult the prayer book); and by 31 December we have reached exactly A again. That is: we have given a dominical letter to 52 x 7 + 1 days.

The newcomer to the perpetual calendar will inevitably pause at this point to ask: 'at what dominical letter will the next year begin?' He may reasonably argue that Sunday, 31 December (an A-day), must be followed by Monday, 1 January of the next year, therefore dominical letter B. That is, however, merely to provide Sunday, Monday (etc.) with permanent substitute designations. The alternative can clearly not be to 'go back to A', because we should then have two A positions (31 December, 1 January) in succession. The answer has to be the official one: to let the position of the first Sunday in the oncoming new year determine the dominical letter for 1 January and that year, see below: a fixed convention will make our Monday a G-day, first day of a G year. All Sundays in that year will be F-days. The user of the perpetual calendar, running his finger down the dominical-letter column, notes what clashes (called 'occurrences') there will be between Sundays (F-days) and feasts of fixed date. He turns elsewhere to remind himself of the Church's regulation of occurrences – by reference to the relative 'rank' of Sunday and the individual feasts. Some calendars (for instance that in Queen Mary's Psalter) register the rank of the most important feasts of fixed date.

To continue: the second-left column in the calendar, medieval and (optionally) modern, is taken up by the dominical letters. It reads (vertically):

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... C D E F G A̲ B C̲ D E F G A̲ B C D E F G A̲ B C ...

or   ...   c   d   e   f   g   A   b   c   d (etc.)

with the A's, particularly the first of the year, picked out (decorated initial or capital).   Art histories and facsimile editions generally reproduce the January page as an example, because richly appointed service books offer so much that has better claim to the attention of students of art and the general reader, than the calendar.   Some recent facsimiles offer all twelve calendar pages, though usually in monochrome or with economies of scale.

Before proceeding with the description of the perpetual calendar, we must complete the account, begun above, of the dominical letter applied to the year: that is, in the historian's chronological tables.   Art historians should note that this is the more important use.

3.   The Dominical Letter applied to the Year

Chronological tables assign to each year its dominical letter or letters – leap years get two.   The practice still continues: see (but not yet) a current pocket diary, where the golden number, about which more will be said in a moment, is probably also given.

The year 1066, for instance, in such tables, is listed as an A-year. Not because it was the first 'regnal' year of William the Conqueror (William I), and so marked the beginning of a new era in English history, but because the first Sunday in that year (not a leap year) happened to fall on 1 January.   In consequence, all the Sundays in that year were A-days, as in the perpetual calendar.   (And Easter Day fell on 16 April, as not in the perpetual calendar.)   According to the fixed convention for determining the dominical letter for any year, the next-following year, 1067, was a G-year.   Here is the entry from Appendix IV of the Oxford Companion:

1067   Dominical Letter G   Easter 8 April   Regnal Year 2 Will. I –

(followed by the extreme dates of the regnal year specified:)
14 Oct. 1067 – 13 Oct. 1068. [1]

We are now for a time in step with the reference works on the subject of the calendar, and we may usefully adopt their wordings.   They tell us 'how to find' the dominical letter for any given year.   Little as I like the premise that we will already know on what day (date) in January the first Sunday of the year in question fell (for we can only 'find' that if we know the dominical letter), here are the rules:

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1.   A footnote states that the commencement of the reign is sometimes reckoned from 25 December (the coronation) – which is the date in Cheney, Handbook of Dates (etc.), p.18.

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(a)   If the first Sunday in a given year falls on 1 January, the
      dominical letter of the year is A,
      if ... on 2 January, the letter is B (1 January is a Saturday),
      if ... on 3 January, ... C (1 January is a Friday),
      if ... on 7 January, ... G (1 January is a Monday).

(b)   Since the first day of successive 'common' (ordinary) years
      falls on successive days of the week, the dominical letters
      for the year are in the reverse of the alphabetical order:
      G F E D C B A.

(c)   Leap year is treated as composed of January–February of a
      common year, and March–December of the succeeding com-
      mon year.   Two dominical letters are assigned to it, those
      appropriate to the two years in question.   [In 1980, a leap
      year, the first Sunday fell on 6 January. The dominical
      letters are therefore ... ?   The answer appears in the text
      below.]

In chronological tables the image presented by the dominical letters
is obviously more complicated than the single-file descent of A B C's in the
perpetual calendar.   Single A, for instance, not being applicable to a leap
year, recurs at apparently strange (but explicable) intervals of 11 or 6
(rarely 12 or 7) places, whereas a 'leap-year double' recurs every 28 years. [1]
Thus it is that the following were AG-years: AD 1072, 1100, 1128, and the
following more recent years have the dominical letters FE: 1924, 1952, 1980.
This is what a complete AG-cycle looks like:

AG F E D CB A G F ED C B A GF E D C BA G F E DC B A G
                         FE D C B AG

Instructions for the calculation of Easter specify that before consult-
ing the tables devised for the purpose, one should note (the golden number for
the year and) the dominical letter, the second dominical letter if the year has
two (i.e. is a leap year).

Experience shows that the dominical–letter rule set out under (a)
above, is all too easily wrongly recalled, and bafflement and frustration are
the outcome of early attempts to relate the dominical letter applied to the year
and the dominical letters which appear in the Church's perpetual calendar.
(By 'early attempts' I mean the reader's.)

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1.   In testing the 28-year rule, do not include 1800 and 1900 which
        after the 'Gregorian Reform' were not leap years.

The reader envisaged in this Note is not the historian who wants to know on what date Ash Wednesday fell in AD 1396, but our peruser of the calendar pages in a medieval service book, who by now knows that he is look-ing at a perpetual calendar which shows dominical letter A opposite 1 January, ideally a Sunday. Surely he must ask how that same calendar was used in a G-year, or in a GF leap year. Obviously the first thing to be determined is the dominical letter of Sunday in such a year. With apologies to more nimble minds than mine, I conclude this section with the following tables:

First Sun.	Year Letter	New Year's Day		First Sun.	Year Letter
Jan. 1	A	Sun.	Mon.	Jan. 7	G
2	B	Sat.	Tues.	6	F
3	C	Fri.	Wed.	5	E
4	D	Thurs.	Thurs.	4	D
5	E	Wed.	Fri.	3	C
6	F	Tues.	Sat.	2	B
7	G	Mon.	Sun.	1	A

Year Letter(s)	Dom. Letter of Sunday
G or GF[1]	F[2]
F or FE	D
E or ED	B
D or DC	G
C or CB	E
B or BA	C
A or AG	A

[1] In a G-year and in a GF leap year the first Sunday falls on 7 Jan., see Cheney, Tables 4 and 3.

[2] Alternate letters of the alphabet, reverse order.

As for the relevance of these 'adjustments' which keep the perpetual calendar useful, see p.6 on the regulation of 'occurrences'.

4.   The Golden Number

In approaching the golden number we start again with the problem that reference works ignore the perpetual calendar. The medieval calendar shows in its left-hand column the golden number for the day; reference works offer a 'rule of thumb' for finding the golden number for any year. We take the former first.   Every day in the calendar year has a golden number in roman numerals, or it has a blank space.   The numbers range from 1 to 19 (with recurrent intervals of 8 in forward reckoning to 19).   From the St Albans Psalter and the Très Riches Heures du duc de Berry, to the modern Missal, Book of Common Prayer, or the article 'Easter' in Chamber's Encyclopaedia, the sequence is (apart from the incidence of single blank spaces) constant:

14 3 11 19 8 16 5 13 2 10 18 7 15 4 12 1 9 17 6

How these numbers were first worked out and assigned to days I do not know and do not ask, [1] and such reference works as one is likely to consult (or find) take the shortest possible route to the 'rule of thumb' mentioned above: because that rule leads to the golden number for the year, which, with the dominical letter for the year and an Easter Table, suffices for the calculation of the date of Easter. But, to repeat, the calendar in a medieval service book devotes the first column of each monthly page to the golden numbers for the days in succession, and the numbers appear in their fixed sequence. One must consequently not propose to be uncertain about faded or blurred numbers in that column. On the contrary, one can confidently assert that the ornate calendar pages in the Grandes Heures of the Duc de Berry contain several mistakes, some attributable to carelessness, some (quite literally) to design, see Appendix pp. 31-32.

As for the rule of thumb, it is indeed a simple rule:

(i)   To the AD year (say 1980) add 1: 1981

(ii)   divide 1981 by 19: 104 and 5 remainder

(iii)   104 is the number of 'cycles', 5 is the golden number of AD 1980. [2]

The principle behind this calculation is the so-called 'metonic cycle' (after Meton, Greek astronomer, 432 BC): the new moon falls on 1 January in every nineteenth year. The Christian world uses the metonic cycle (reckoned from BC 1) in the calculation of Easter.

5.   Dates in the Medieval Calendar

We may leave the historians to consult their own handbooks for the accurate dating of documents, and for dealing with the special problems raised in more modern studies by the delay in introducing the Gregorian calendar. [3] They are, however, also interested in psalters and books of

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1.   The question is no doubt answered in O. Neugebauer's special study (title p.32), pp.424ff., but I cannot follow the calculations involved. In the Book of Common Prayer there is a Table 'To find the month and days of the month to which the golden numbers ought to be prefixed', but I cannot understand the English (and the Table is for the Easter period only).

2.   When there is no remainder the golden number is 19 (there is no zero). The approximation involved in dividing by nineteen has to be corrected at very long intervals, see below, p.34.

3.   The Oxford Companion gives the date of Easter 'old style' and 'new style' for every year from 1583 to 1752, the latter year of change-over scoring a resounding 3-letter designation EDA, explained ibid. in Table II (an abbreviated calendar for year 1752), see Cheney, Table 36.

hours, and may welcome this chance to revise the Julian calendar.

Whereas the calendar in modern prayer books naturally uses arabic numerals for the days of each month (1 to 28, 30, 31), in medieval service books it still follows the Roman practice of dividing up the month, with Kalends, Nones and Ides for respectively the first, fifth and thirteenth days; except in March, May, July and October, when Nones fall on the seventh, Ides on the fifteenth day.

The remaining days are numbered with forward reference, as being so many days before Kalends, Nones or Ides: first and last days are both included in counting the interval. [1]

So we come to the column on the calendar page separating dominical letter and the name of a feast. Mistakes and irregularities, particularly in the Grandes Heures of the Duc de Berry, suggest that one may not always take the contents of the column as read. Before examining them for whatever purpose (e.g., a study of decorative line-fillers) it is wise to take one's bearings:

The first line for any month reads 'Kalends' (usually Kal. or KL) – fairly elaborately treated.

The last line reads 'ii kl.', that is '2nd before' (our 'first before') Kalends of the next month. For aesthetic reasons roman numerals may be dispensed with in the most 'expensive' calendars.

In March, May, July and October Kalends is followed by five numerals, vi v iv iii ii, each with heavily abbreviated 'Nones' (N', n'). In the remaining months the numerals are iv iii ii.

The Nones line itself has no numeral and usually stands out by its lettering, or the use of a monogram /‑o‑/.

The approach to Ides is in all months marked by the numerals viii vii ... ii, with abbreviated 'Ides' (id' or id.). The Ides line is generally in some way made prominent.

The remaining 17, 18 or 19 lines record the long approach to Kalends of the following month (which is generally named at the first occurrence of 'kl.').

For a fuller account of the Roman calendar, pre-Julian and Julian, and rules for converting Roman to English-style dates, see the appropriate appendix to a Latin grammar or primer.

1.   For the St Albans Psalter's guide to the calendar, see Appendix, p.21.

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It now remains for the reader to look again, in his own time, at whatever facsimiles of individual service books, or reproductions of calendar pages, he has access to. If he finds calendar entries of a kind which I have not described, or alluded to, he should by now be equipped to pursue them. He may, however, prefer to take one or more of the examples I have selected for a much more detailed examination in the Appendix to this Note - where I also say a good deal more about the calendar itself. A final word of practical guidance for any reader: When comparing the calendars of different service books (and there is no better way of getting answers to one's questions), use the dominical letters as control, both when counting lines and when making cross-references.

APPENDIX

Four Medieval Calendars

Introductory Remarks and Bibliographical Note

The intention in this Appendix is to provide a word of guidance to
the recommended facsimile editions, below, and to describe each of the
medieval Church calendars which they present. At the same time some
amplification of the foregoing Note is necessary. Certain features of the
medieval calendar as such are exemplified only in the St Albans Psalter, e.g.,
'epacts' and 'concurrents'. These will be treated first as part of a continu-
ing characterization of the medieval calendar (Section B). The manner in
which St Albans Psalter handles these terms is more properly dealt with as
part of the description of (a) its calendar (Section C1), and (b) its computisti-
cal tables (Section C2).

Most readers of the foregoing Note and this Appendix will have
access to the following editions, and Cheney's Handbook of Dates:

1. The St Albans Psalter (Albani Psalter). i The Full-page Miniatures
   by Otto Pächt, ii The Initials by C.R. Dodwell, iii Preface and
   Description of the Manuscript by Francis Wormald. (Studies of the
   Warburg Institute, ed. G. Bing, vol.25). London, The Warburg
   Institute, University of London 1960.

2. Les Belles Heures de Jean Duc de Berry (The Cloisters, The
   Metropolitan Museum of Art), by Millard Meiss and Elizabeth H.
   Beatson. First published in Great Britain by Thames and Hudson,
   London 1974.

3. Les Grandes Heures de Jean Duc de Berry (Bibliothèque Nationale,
   Paris). Introduction and Legends by Marcel Thomas. First pub-
   lished in Great Britain by Thames and Hudson, London 1971.

4. Les Très Riches Heures du Duc de Berry (Musée Condé, Chantilly).
   Introduction (etc.) by Jean Lognon, Raymond Cazelles, Millard
   Meiss. Institute for Advanced Study, Princeton. Published in
   Great Britain by Thames and Hudson, London 1969.

The following two works offer complete calendars, but are cited in this
Appendix only in annotation of the analyses of the above items 1 to 4:

5. Der Ingeborgpsalter. By Florence Deuchler, Walter de Gruyter
   & Co., Berlin 1967. 64 plates.

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6. Queen Mary's Psalter, Miniatures and Drawings etc. (British Museum Royal Ms. 2 B. VII). Introduction by Sir George Warner, London 1912.

7. C.R. Cheney, Handbook of Dates for Students of English History, Offices of the Royal Historical Society, London 1945 (reprinted with corrections 1978).

SECTION A

The Four Calendars: Common and Shared Features

Repetition can be avoided if the following points are noted:

Dominical Letters. All four calendars – to the extent that they are reproduced in the editions – show the dominical letter for each day of the month in the second-left column. There appear to be no mistakes or irregularities. It should be superfluous to point out the use of initials, capitals, or of colours. These are all evident in the reproductions or, in the case of monochrome plates, described by the editors. Dominical letters will therefore only be cited as the most convenient reference points.

Golden numbers. The treatment of golden numbers in the first-left column often calls for annotation, sometimes merely confirmatory of the identity of blurred or faded entries, often, however, corrective. I therefore provide as check-list the standard sequence of golden numbers and intervening blank spaces to be found in the modern Missal, Book of Common Prayer and reference works, for the period round about Easter. (Modern works do not give the golden numbers for the days before 22 March and after 25 April.) No 'mistake' is therefore implied by a statement that the St Albans Psalter, for instance, has in its June calendar 'no blank between numbers 8 and 16'. And: for the sake of easier reading and checking I have converted all golden numbers to arabic numerals.

Check-list:
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14  3  ▬  11  ▬  19  8  ▬  16  5  ▬  13  2  ▬  10  ▬  18  7  ▬
           15  4  ▬  12  1  ▬   9  ▬  17  6  ▬
```

Dates. The treatment of Kalends, Nones, Ides. The date in Roman style appears in the column separating dominical letter and the name of the feast for the day. More elaborate calendars may dispense with roman numerals in the 'approach' to Nones etc. There are sufficient irregularities to warrant a check in all cases – and the possible inference that by the fifteenth century this system of dating was being superseded.

Feasts and Saints' Days. It so happens that none of the calendars to be described indicates the rank of the major festivals of fixed date. Queen Mary's Psalter and Ingeborg Psalter are systematic in indicating a 'Double' (Duplex festus, Dx or D') and the number of lessons (l'c) for each feast.

Egyptian Days (dies aegyptiacae). It is difficult to account for the presence, still more the persistence, of this item in the Christian calendar (liturgical handbooks and ODCC understandably ignore it). The Egyptian Days are, however, the subject of a short but comprehensive study by R. Steele ('Dies Aegyptiacae' in Proceedings of the Royal Society of Medicine 13 (1919) 108–121) to which scholars regularly refer: to quote by page and number the variant of the hexameter (see p. 5) they have themselves encountered. Perhaps more important in the context of this Note is the way in which the hexameter itself refers to the generally two days which are 'bad' for something (usually blood-letting): it is by ordinal number, for instance, in January 'the first' and 'the seventh'. Traditionally, and in the calendars under review, this means 'first' and 'seventh from last' days, and that is where one finds the calendar markers (Dies egypt. or even D'): on line 1, and on line 7 from below.

SECTION B

St Albans Psalter. Special Features

A number of terms are used in the St Albans Psalter which do not occur in the other calendars to be examined here. They call for fuller treatment than would be appropriate in the next section, which is intended to be mainly descriptive.

1. 'Epact' and 'embolism'

Prior acquaintance with either of these terms will, I fear, be of little use in interpreting a number of entries in the St Albans Psalter – and readers may encounter them in other service books.

This is again a case where reference works, however helpful otherwise, do not consider the perpetual calendar and its monthly pages. We must, none the less, know what epacts and embolisms are, and at the same time

take note of some differences of emphasis in present-day interpretations (and use) of these terms. It will be best to start, not with definitions, but with some facts.

Epacts, which are expressed numerically, and golden numbers, have always been used by the Church as a means – together with dominical letters – of determining the date of Easter. Both have to do with lunar cycles of nineteen years, and with the difference in length of lunar and solar years. The numbers they bear (or are) differ: because they are differently arrived at.

The present-day position is that, whereas a Table for the Calcula-tion of Easter (and there are many of them) may, possibly out of calendarial piety, list both epact and golden numbers, the instructions for the use of the Table will require one to note dominical letter and either epact or golden number, not both. A Catholic guide to the liturgy (referred to again, below) may go so far as to suppress all reference to the (vulgar?) golden number, and recommend the epact number, for use with a Table which has been standard since the sixteenth century.

Before considering how the epact is calculated (there is also a 'rule of thumb' for this: see Cheney, p.8), it may be both helpful and reassuring first to see it in its juxtaposition with other calendarial information:

AD Year	Golden Number	Epact	Dominical Letter
1909	10	8	C
1910	11	19	B
1911	12	0	A
1912	13	11	GF
1913	14	22	E
1914	15	3	D

The golden number registers the steady rise in the number of years which have passed since 1 January and the new moon last coincided. The epact registers the number of days to be added year by year to keep lunar and solar years in step.

Though one might, unaided, extract from the epact column (above) the rule 'add 11's, ignoring 30', it will be safer to learn a few more details. I take them from a Catholic liturgical handbook (Kleines liturgisches Hand-buch, by Rupert Berger, Herder-Bücherei 339-41, Freiburg i. Br. 1969, under 'Epakte'):

(a)   The length of the lunar year is $6 \times 29 + 6 \times 30 = 354$ days, that is, 11 days shorter than the solar year (or: the solar year has an 'excess' of 11 days).   Therefore:
In the first year of a 19-year cycle add 11 days,
In the second year add (by accumulation) 22 days,
In the third year subtract a leap-month of 30 days and add 3 days.
At the end of the 19-year cycle add, not 11 but 12 days – an irregularity called a 'saltus lunae'.

(b)   The epact (number) at the same time indicates in days the age of the moon on 1 January.

We are now ready to examine the entries 'epact' – and 'embolism' – in ODCC, the reference work most likely to be consulted for authoritative definitions by any reader still unsure of himself.

'epact (Gk. epaktos, 'brought in'): (a) the excess of days in the solar year over the lunar year of twelve months; (b) the age in days of the moon on 1 January of a given year.'

These definitions agree exactly with the fuller statements just made.   As for the remark (ibid.) that 'the epact is used in the ecclesiastical calculations of the date of Easter', we should probably prefer to substitute for 'is used' – 'may be used'.   Next 'embolism'.

'embolism (Gk. embolismos, 'intercalation'): In the Roman Mass, the name given to the prayer in the Canon which begins 'Libera nos, quaesumus, Domine, ab omnibus malis', inserted between the Lord's Prayer and the Fraction of the Bread.'

Without comparing the fuller statement in the handbook of Berger (above), or the exhaustive treatment of 'embolism' by J.A. Jungmann (Missarum Sollemnia, 2 vols, 5th ed., Vienna 1962), one can immediately say that this important liturgical use of the term has nothing to do with the Church calendar.   But we must also note that these Catholic handbooks (Berger, Jungmann) make no reference at all to a second use of the term, namely as a near relation of 'epact'.   ODCC does recall this use, and on the evidence of the St Albans Psalter it is valid for the Middle Ages.   Indeed it is hard to distinguish between the definitions given in Bishop Isidore of Seville's Etymologies (seventh century), for 'epact' and 'embolism':

'The Greeks say epaktas, the Latins adiectiones annuas lunares [annual lunar additions] which are cycles of eleven until thirty is reached' (Bk VI xvii 29).

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'Embolismus is a Greek word, to be rendered as superaugmentum in Latin, because it supplements the day-number of common years, which are seen to be short by eleven lunar days' (ibid. 22-24).

Isidore records that the Egyptians also added 11 in this way. Another of his remarks should be noted: 'Without epacts you cannot find out quota sit luna in quolibet anno et mense et die' [i.e. one cannot discover 'what moon by number' (age in days of the moon), may have been reached in any year and month and day]. 'Such epacts are always calculated by reference to the stage the moon has reached on xi Kal. April [22 March]' (ibid.).

This may seem to have been an inordinately long annotation of the terms 'epact' and 'embolism', but the St Albans Psalter uses them many times, notes that xi Kal. April is the 'sedes epactarum', and registers the date of the 'saltus lunae according to the Romans'. Much else too ! The compiler may have been something of a calendar 'boffin', but so long as his entries are calendarial we have to face his challenge. In the special notes on St Albans Psalter, below, we shall have to leave some of his 'embolism' entries with an interrogation mark after them.

2. 'Concurrents' and the 'regularis ferialis' etc.

These are again terms occurring only in the St Albans Psalter, but as both are found in Latham's Medieval Latin Word-List, they were evidently more generally used. Their meaning needs to be known and not surmised.

(a) concurrens (noun, usually plural, concurrentes) is 'a concurrent number corresponding to a year-letter', i.e. it is a device for transcribing dominical letters applied to the year, so that they may be used in computistical tables and, if so required, added or subtracted. (It will be better to complete this account in Section C2, where we shall have the actual use of concurrents in the St Albans Psalter before us.) Latham does not record a meaning 'a concurrent letter corresponding to a golden number', but the calendarial tympani of the Très Riches Heures offer evidence of such a device, see below, p.36 (and also 34f.).

(b) The regularis ferialis is a 'fixed number used for calcu-lating the day of the week of any date'. There is also a regularis lunaris, again a number (see my underlining of 'number', above), for calculating the age of the moon, see below, p. 28.

These terms (concurrens, etc.) are likely to appear only in the prefatory matter to a calendar. They are 'computistical', and therefore fall outside

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the scope of an account of the calendar 'for art historians', but one cannot simply ignore the relevant plate (1b) in the facsimile edition of the St Albans Psalter.

SECTION C

Description of Individual Calendars

1. St Albans Psalter. The Calendar proper

The manuscript was written and illustrated at St Albans, England, c.1120-30. It is now at Hildesheim (St Godehard), Germany – where it is known as the 'Albani-Psalter'. The calendar is reproduced in its entirety in the cited edition, plates 1 to 13, and described by Francis Wormald: the illustrations (p.10), the calendar (and Litany), pp.12-45 and 275f. Plates 170b and 171ab show pages from other St Albans calendars, and to these occasional reference will be made, below.

St Albans Psalter is, by comparison with the other service books considered here, something of a 'teaser' in calendar matters. One might say it has 'a bit of everything', except the ranks of feasts and the number of lessons assigned to them. We have already seen that several features of the medieval calendar as such are exemplified only in St Albans. There are some entries which I still do not fully understand, but I offer what guidance I can to them.

About the computistical tables which precede the calendar proper, on folio 2 (edition, plate 1b), a good deal will be said in due course (pp. 25-29). The upper half of the same page is devoted to rules for the correct handling of dates (Kalends, Nones and Ides) in the various months: these are treated and translated below, under 'Dates'. In the remainder of this section I shall seek to combine brevity of exposition and a systematic review of all calendar entries.

Illustrations. The calendar illustrations consist of (a) the labours of the month, painted in medallions at the head of each page, (b) the signs of the zodiac: these are to be found lower right, with identifying 'Aqvarivs', 'Pisces', etc. Each of these representations is very briefly described in the edition, p.10; they 'do not present any particular problems', says Wormald (ibid.). I should have thought it worth mentioning that, though 'very rudimentary', the iconography of Virgo, zodiac sign for August, is either that of the Virgin Mary herself (her Assumptio is duly entered at 15 August), or of an unidentified holy virgin; Virgo is haloed, winged, raises a finger in blessing, and holds a lily.

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Monthly headings.   The formula used throughout the calendar shows an idiomatic peculiarity.   The compiler insists, for instance, that January has 31 days 'and a 30-day moon' (normally one encounters 'and the moon has 30 days'):   Januarius habet dies •xxx•i• & lunam •xxx•   The accusative lunam is written in full six times, and in March one reads ... et lunā Tricesimam. In the case of February the formula is extended to include leap years: ... in bis(ext)vi dies •xx•ix•

Egyptian Days.   The Latin hexameter appears immediately after the monthly heading, throughout, e.g., in February: Quarta subit mortem / prosternit tercia fortem, and Dies egypt' duly appears against line 4 from above, and line 3 from below, see p.15. (August, September and December lack the marginals.)

Initials.   The large initial group KL, showing variations of size and design, sits firmly on the kalends line.

Golden numbers.   These are very clearly entered in the left-hand column.   There appears to be only one mistake: in January the numbers 16 7 should read 17 6 (xvii vi).   In March the scribe himself corrects 17 to 16.   Confirmation only: the first number in October is 16; in November the number opposite the second dominical letter F is 15.

As for the blank spaces, it will be remembered that these are of varying occurrence (except in January and March where there is complete coincidence) from month to month. St Albans Psalter, Queen Mary's Psalter and the Ingeborg Psalter show full agreement and must be assumed to be correct throughout.   If the reader will refer to the check-list, the following paragraph gives for each month the starting point in the golden-number sequence, and the position of any blank space which is not matched in the Easter-period sequence (see p. 14).

Jan. 3 (etc.). Feb. blank 11 (etc.). March 3 (etc.), April blank 11 (etc.); no blank betw. 8 and 16. May 11 (etc.). June blank 19; no blank betw. 8 and 16. July 19 (etc.). Aug. 8 (etc.); no blank betw. first 8 and 16. Sept. 16 (etc.). Oct. 16 (etc.); no blank betw. 5 and 13. Nov. blank 13 (etc.); ends at 5 (no blank). Dec. 13; no blank betw. 11 and 19, but betw. 19 and 8.

Dominical letters.   Note the only slight difference between E and F.

Dates. In the upper half of the computistical table on fol.2
(ed. plate 1b) the scribe has written a very clear 'ratio calculandi'
which is a possible guide to his own method of checking the date
entries in a calendar. In translation it runs:

> January, August and December have 4 nones, 19 kalends
> after ides, and 31 days.

> March, May, July and October have 6 nones, 17 kalends
> after ides, and 31 days.

> April, June, September and November have 4 nones,
> 18 kalends after ides, and 30 days.

> But February has 4 nones, 16 kalends after ides, and 28
> days, and in a leap year it has 29 days 'and a moon
> of 30' (see p.20).

> All months have an octave of ides.

Saints' days, festivals, obits. These (particularly the obits
added to the completed calendar) are minutely examined by Wormald
in the edition. As was said above, the calendar does not give the
ranks of feasts (but enters the Vigils which precede them). Other
St Albans calendars use as ranks the expressions in albis (cf.
Dominica in albis, 'Low Sunday', see Latham, Word-List) and, for
the highest rank, in cappis ('in copes', ed. pp.24, 34-48, and
plates 170b, 171ab).

All further calendar entries, by categories.

(a) The liturgical year.

Feasts of fixed date are listed immediately after the date of
the day. They are not our concern in this survey. The compiler's
observations concerning moveable feasts are to be found, generally
accurately on line, on the right of the page, but the zodiac images,
and sometimes an accumulation of calendarial matter, may impose
constraints.

One observes a rapidly declining interest in moveable feasts,
even before Easter: the attention paid to Septuagesima, for instance,
is surely excessive. This may reflect uncertainty. If so, that may
explain the assignment of two moveable feasts to specific dates.
But in entering Resurrectio domini against 27 March the compiler
of the Psalter calendar was not alone, see in the edition (p.35)
similar March entries in other St Albans calendars. As for 5 May:
Ascensio domini ad celum, this entry is preceded and followed by
others giving the possible range of Ascension dates. (It would be

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unwise to seek to exploit this 'slip'. The interval 27 March – 5 May for Resurrection and Ascension is correct, and happens to apply in AD 1155 and 1160, see Cheney, Table 6, but the editors of the Psalter have better evidence, particularly in the obits, for dating it.)

Each moveable feast (if noted) calls for a number of calendar entries, the first of which gives the date of the preceding new moon: prima accensio (more frequently incensio) lune, followed by the name of the feast, for example: lxx (Septuagesima), xl (Quadragesima), pascha. Then follow first and last dates of the 'terminus' (period) of the feast, i.e. the earliest and latest possible dates of its occurrence, which are generally correctly given. But, to repeat, the compiler's interest in moveable feasts is not consistent.

Septuagesima: 8 Jan. Prima incensio lune •lxx•
               17 Jan. Hic incipit terminus •lxx•
               5 Feb. ultim' incens' lun' •lxx•
               14 Feb. finit' t'min' •lxx•
               21 Feb. Finis •lxx•

(The date range is correct, if one allows that there was no room on the date-line 18 Jan. for the incipit terminus entry.)

Sexagesima, Quinquagesima: no entries.

Quadragesima: 6 Feb. Prima inc' lun' •xl•
              8 Feb. Initium •xl•

(The end of the terminus [14 Feb.] is not entered. I cannot explain or relate the following to their contexts:)

          10 March vltima inc' lun' •ii• initiū •xl•
          3 Feb. Assumptio lun'

Easter: 8 March prima incensio luñ paschal'
                  22 March primū pascha
                  25 April (St Mark's) Letania maior Vltim'
                                    pascha

(The terminal dates are correct. On the entry 27 March Resurrectio Christi, see above.)

Rogation: .Only the earliest and latest new-moon dates
(6 April and 7 May) are entered. [Rogation falls
between 26 April and 30 May, see Cheney, Tables.]

Ascension: 30 April primus dies ascensionis

                 5 May Ascensio domini ad celum (see
                              above)

                 3 June Vltim' dies ascensionis

Pentecost: similar entries to those cited: 6 and 10 May,
4 and 13 June.

Advent: 27 Nov. Hic incipit p'm' aduent' dñi

                 3 Dec. Vltim' aduent' dñi

Miscellaneous.   16 Dec. O sapientia. The Psalter
shares this entry and a scrap of musical notation with
another St Albans calendar, see ed. pl. 171b.
Cheney lists and annotates this designation of 16
Dec. under "Saints' days and festivals", p. 57.

(b)   Seasons, solstices, etc.

         (unless otherwise stated, these are given 'according
         to the Romans' - secdm Romanos):

              Spring: beg. 9 Feb. (and 22 Feb. acc. to
                   Isidore)

              Summer: beg. 9 May

              Autumn: (incredibly - the month should be
                   September, verso of the folio):
                   7 Aug. Autu'n'

              Winter: beg. 7 Nov. (and 21 Nov., Isidore)

              Solstices: 24 June and 25 Dec. Also (unattrib.)
                   13 Dec.

              Equinoxes: 25 March (21 March, Bede) and
                   24 Sept.

              Dog days (dies caniculares): 14 July to 5 Sept.

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(c) Calandarial matters.

Indictions: 24 Sept. Hic incipiunt indictiones et finiunt'.

On indictions, see Cheney, p.2. (There were various dates from which this 'fiscal period of fifteen years' was reckoned. They are of no liturgical significance.)

Leap year: 24 Feb. Bis sexti loc'.

Years, concurrents, epacts:

1 March Hic mutant' anni et concuȓr; 24 March loc' concurrentiū; 22 March sedes epactarum (cf. p.18, Isidore); 1 Sept. Hic mutant epacte (on varying dates for this 'annual mutation of the epact', Cheney, p.8). 17 April Hic incipit cycl. ·xix·

Embolisms:

Specimen entries:

5 March ·vii· embol in endecad' (see p. 29)
6 March ·iii· embol in ogdoade (ibid.)
3 April hic finit' ·vii· embolism'
4 April hic finit' ·iii· embolism'

Further entries state:

embolism 2   1 Sept. to 2 Oct.
embolism 5   2 Nov. to 1 Dec.
embolism 1   2 Dec. to 31 Dec.

In addition, hic finit' ·vii· embol appears at the foot of the August page, but is for insertion at 2 Aug. (hic ÷ ·vii· embol).

Whether the 'embolism' entries are correct or not (or complete) must be left for someone better acquainted with the subject to determine.

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2. St Albans Psalter. Computistical Tables

(edition, plate 1b)

We have already exploited the upper half of the page in the St Albans Psalter on which the computistical tables appear, see p. 21, but we cannot well ignore the tables themselves.

The first table serves to determine on what day of the week kalends (first day) of any month will fall in a 28-year period. The year is set out with the months in the order March through to January–February of, as we should say, the 'next year' (calendar or 'historical' year). It is to such an arrangement that two entries in the perpetual calendar refer: 1 March – mutantur anni et concurrentes, and immediately before annunciatio dominica (25 March, Lady Day) there is the precise indication – locus concurrentium, see above. The table therefore provides a link between the Church's perpetual calendar and the 'legal and official mode of reckoning' (from Lady Day) 'from the latter part of the twelfth century until the calendar reform of 1752' (Oxford Companion, p. 907, more fully in Cheney, pp. 3–6).

The second table is for the determining of the age of the 'ecclesiastical' moon in any month during a complete epact-cycle of nineteen years. Here the year is set out as beginning in September. In the perpetual calendar the matching entry is: 1 September – hic mutant epacte.

[In the following transcriptions arabic numerals are substituted for roman, for easier reading, and the interrelation of the various columns is made clearer by adjusted spacing. All abbreviations are resolved.]

First table: (caps.) Regvlares feriales & concurrentes

March	5	B 1 2 3 4	Coniunge regulares singlarum
April	1	B 6 7 1 2	mensium & concurrentes cuius-
May	3		
June	6	B 4 5 6 7	que anni, et si [7] fuerint,
July	1	B 2 3 4 5	ipsa est feria super kalendas.
Aug.	4		
Sept.	7	B 7 1 2 3	Si amplius [7], tolle [7],
Oct.	2	B 5 6 7 1	& quot remanent, ipsa est
Nov.	5		
Dec.	7	B 3 4 5 6	feria super K a l e n d a s.
Jan.	3		
Feb.	6		

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Second table: (caps.). Regvlares lvnares & epacte

Month				
Sept. 5	D	Nulle	F	12
Oct. 5	G	11	D	23
Nov. 7	E	22	G	4
Dec. 7	A	3	C	15
Jan. 9	D	14	A	26
Feb. 10	B	25	D	7
March 9	E	6	B	18
April 10	C	17		
May 11	F	28		
June 12	B	9		
July 13	G	20		
Aug. 14	C	1		

Coniunge regulares singlarum
mensium & epactas cuiusque
anni, et si [30] fuerint
numero (a)ut minus, ista est
etas lune super kalendas.
Si amplius fuerint quam [30],
tolle [30], & quot remanserint,
ipsa est etas lune super
K a l e n d a s.

Commentary on Table 1

A newcomer to computistical tables may see a challenge here to work out things for himself, but there are pitfalls, even if the definitions (above) were noted, namely: a regularis ferialis is 'a fixed number for calculating the day of the week of any date', and concurrens (noun) is 'a concurrent number corresponding to a year-letter'. Any attempt to apply these terms directly to the numbers in the Table will result in puzzlement in the one case and error in the other.

The regulares are the numbers 1 to 7 opposite March, April, etc. The 'regularity' of their correspondence with the dominical letter for 'kalends' in the perpetual calendar emerges from the comparison:

(March etc.) D G B E G C F A D F   (Jan., Feb.) A D
              5 1 3 6 1 4 7 2 5 7   3 6

- the regulares are ahead: by one position in the months March to December, and by two positions in January and February. They are a computistical device to keep the two 'years' (March year, January year) in step at the December-January threshold.

As for the seven lines of four numbers (concurrents) each, they clearly represent 28 years in their progression, and each end-number followed on the next line by B and a gap in the series indicates, presumably, a leap year. The concurrents are, however, as their name implies, not the equivalents of the dominical letters applied to years; they merely 'keep in step' with them, and the actual pairings are conveniently presented as follows:

F E D C B A G
1 2 3 4 5 6 7

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'The concurrents are designed to serve the same purpose
as the dominical letters' (Cheney, p.9). But whereas the
dominical letter is determined by the incidence of the first
Sunday of the year (see above, p.8), the concurrents repre-
sent the number of days separating 1 January from the last
Sunday of the previous year. When the previous year ended
on a Sunday the concurrents have the number 7 (Cheney,
loc. cit.).

The reader who wishes to convince himself that all these things
'work' should first of all revise what was said above (pp.6ff.) about the
dominical letter applied to the year. It may be of help to see the con-
currents repeated and transcribed back into dominical letters:

B	1	2	3	4	=	GF	E	D	C
B	6	7	1	2		BA	G	F	E
B	4	5	6	7		DC	B	A	G
B	2	3	4	5·		FE	D	C	B
B	7	1	2	3		AG	F	E	D
B	5	6	7	1		CB	A	G	F
B	3	4	5	6		ED	C	B	A

Such a 28-year cycle corresponds to AD 1112-1139 or 1140-1167, see the
Oxford Companion. Appendix IV pp.910ff.; Cheney Tables 31 33, 17 19. It
remains now only to test the instructions for the use of the Table, which run:

'Combine (in fact 'add') the regularis of each month and the
concurrentes of any year. If 7 is the result, (day) 7 is the
day which falls on kalends. If the number is higher than 7,
subtract 7, and the remainder gives the day which falls on
kalends.'

The most convenient test case is a common year (non-leap year) 6,
which is an A-year. Of an A-year we already know that it begins (in the
present context 'began') on a Sunday and ends on a Sunday, and the next day
is Monday, 1 January of a G-year (a year 7). When all seven years have
worked through, the first day of each of the months as listed (beginning
March) should be: Wednesday, Sat., Mon., Thurs., Sat., Tues., Fri., Sun.,
Wed., Fri., / Mon., Thursday. (Compare finally Cheney, Table 19 for a
common A-year, March to December, and Table 18 for a G-year, January
and February.)

Commentary on Table 2

Table 2 is more troublesome, but more entertaining in that our reference works seem <u>not</u> to provide answers to some of the questions it raises.

Let us first single out the elements which are of certain interpretation, namely the following: To the left of a dividing line in my transcription are the months from September through to August. There is a corresponding entry in the calendar: 1 Sept. <u>hic mutant epacte</u> (see above). This is reconcilable with 22 March - <u>sedes epactarum</u>, if one accepts this as an 'Isidore quotation' (of which there are other examples, see for instance 'Seasons' etc., p.23). To the right of the same line we find indeed the epacts, beginning with zero (<u>Nulle</u>), and showing the standard intervals of 11 for a complete 19-year cycle. Further, by the very name <u>regulares (lunares)</u>, we know that the numbers 5 (etc.) after September are <u>fixed numbers,</u> in this case for the calculation of the age of the moon, and we note from the instructions for their use that, combined with the epacts, they lead to a number less or more than 30 (or to 30 itself).

In other words, Table 2 enables us, for a period of 19 years, to find out the age of the moon <u>in days</u> on the kalends (first day) of any month. In the process we shed (and presumably 'store') each accumulated month of 30 days. Perhaps we should therefore note and carry forward that in 19 years there will have elapsed 19 epacts of 11 days and a <u>saltus lunae</u>: $19 \times 11 + 1 = 210$ days, the equivalent of <u>seven</u> 'stored' months.

We are now in a position to consider the surely unfamiliar sequence of the <u>seven</u> capital letters A to G associated by position with the epacts. They are clearly <u>not</u> dominical letters applied to a succession of 19 years. But if they stand substitute for numbers, are they equivalents (A to G = 1 to 7)? Nothing in heading, or instructions for use of the Table, seems to refer to them, but the following points must be considerations in attempting to account for them. They are seven in number, and are associated with the 19-year epact cycle, and, whatever their identity, they mark <u>intervals</u> of remarkable regularity. The following arrangement of (a) the letters in their given sequence, (b) their numerical equivalents, and (c) their intervals in forward reckoning expressed numerically (1 to 7), may be of help:

(a) D G E A D B E C F B G C F D G C A D B

(b) 4 7 5 1 4 2 5 3 6 2 7 3 6 4 7 3 1 4 2

(c)   3 5 3 3 5 / 3 5 3 3 5 / 3 / 3 5 3 3 5 / 3 5 / 2

Irksome though it may be to discover anything remotely 'numerological' it must be admitted that the sum of intervals in the cluster 3 5 3 3 5 is 19, and that one could also find the 19 made up of 11 and 8. I mention this latter

point because we have hitherto found little to match the March entries in the calendar, ·vii· embol in endacad' and ·iii· embol in ogdoade. (Latham, Medieval Latin Word-List, notes hendecas, 'series of eleven', but no similar derivative under octo-.)

Though I have, experimentally, followed the instructions for the use of the regulares lunares and epacts for the 19-year span, I have not made any discoveries to throw real light on the 'embolism' entries of the St Albans Psalter's calendar.   Any reader who has persevered with me so far should now be able to formulate the questions he will take to an expert on medieval computistical tables.   Alternatively, Cheney lists in his bibliography works where further guidance may be sought, and possibly found.

3.   Les Belles Heures de Jean Duc de Berry

The calendar is described by Robinet d'Estampes, keeper of the Duc's treasures, as 'bien richement escript et historié' (ed. p.12).   The date: 1406-1408.

Each calendar month begins on a recto page and finishes on the verso. The facsimile reproduces all the rectos, that is: the monthly calendars to roughly the end of Ides.

In quatrefoils, above, appear the labours of the month; below, the signs or figures of the zodiac, all fully described in the edition.

The calandarial entries are very nearly the minimum required: decorative line-fillers are preferred to marginals, the exception being the marking of the position of the first Egyptian day (the second, one may safely assume, is on the verso page): the abbreviation D' eg' gives way after the January page to D'.   (No attempt is made to record the Latin hexameter, and the language of the calendar is, apart from the dates, throughout French.)

Golden numbers.   These are beautifully inscribed in the left-hand column.   Comparison with St Albans Psalter and our check-list shows two discrepancies.   In October number 13 should be followed by 2, not 3 – patently a scribal error.   (According to Neugebauer, title p.32, there are others, not in our facsimile pages.)   The allocation of two numbers, however, blue 2 and red 13, to 2 December (13 should be 1 Dec.) must be deliberate. (Neugebauer considers this an end-of-year correction of some kind, his p.426, col.b.)

Dominical letters.   These are elegant, accurate, and very visible.

Dates。 KL combines with dominical letter A in January and October for an equal degree of display; in the remaining months KL itself suffers no reduction。 Roman numerals for the approaches to Nones, Ides, and Kalends are dispensed with (so also in the Grandes Heures), and the Nones and Ides lines are not always made easily distinguishable by lettering, from the 'approach' lines。 There is one resultant counting error in the August calendar where (blue) Nòs should be red '(viii) Id。'

4。 Les Grandes Heures de Jean Duc de Berry

The 'theological' programme of calendar illustration in this 'in every way exceptional' book of hours (1407-1409) is analysed and described in detail by the authors of the facsimile edition: for instance, the systematic association, on each calendar page, of New Testament apostles and Old Testament prophets, and the gradual destruction of the synagogue (see the legends to manuscript folios 1-6, plates 2-13: 'The Calendar in the Grandes Heures')。 The more traditional images – the signs of the zodiac and (in this case) the seasons of the year, rather than the 'labours' – have to share a modest arched space in the upper border。

In the present account we must restrict attention to more formal calendarial features, and prominent among these is the splendidly decorated initial-group KL。 It is denied its rightful first-of-the-month position, and serves rather to advertise the page as calendar, or: it aligns itself over the second column of the calendar (with its long line of 'kl' entries)。

There is no trace of the (tedious?) Latin hexameter on the unlucky Egyptian days, and (except in September and December) not even a marginal D' (as in the Belles Heures) to mark their incidence。

Golden numbers are present throughout, but, particularly in the months January-May, those entered in blue have more than their share of the 'slight discolouration' noted by the editors: some can barely be located, let alone read, without constant comparison with St Albans and Queen Mary psalters and our check-list (the psalters for the spacing, the check-list and the psalters for the number sequences)。 It has, alas, to be noted that there are many mistakes。 (The editors also noted mistakes in the attribution of Biblical texts。) The same is true of the date column。 The tally of correct monthly pages lies between three out of twelve (golden numbers) and four out of twelve (calendar dates)。 [In a special study referred to in greater detail in section 5, O. Neugebauer considers Grandes Heures to be, of the calendars prepared for the Duc de Berry, 'by far the worst in respect of scribal errors', loc. cit。 p.426。]

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<u>January.</u> Golden numbers, dominical letters and dates are correct.
Nones, <u>Ides</u>, <u>Kalends</u> are not numbered. Nones and <u>Ides</u> lines
are not distinguished from the 'approach' lines, either by further
abbreviation or by colour.

<u>February.</u> Golden numbers are correct, but when in blue often well-
nigh invisible. Dates: six instead of four <u>Nones</u> lines, two <u>Ides</u>
lines lost; <u>Kalends</u> entries begin correctly at dom. letter <u>c</u>.

<u>March</u>. At the foot of col.1 golden no. 10 should be opposite dom.
letter <u>c</u>. In col.2 (second dom. letter <u>c</u>) a golden no. in blue
is correctly erased. Dates: <u>Ides</u> should continue to the foot of
the column.

<u>April</u>. In col.1 the golden nos. after (blue) 19 should read 8 16 5 - 13;
below (gold) 2 and (red) 10 should be a line higher, 18 opp. dom.
letter <u>f</u>, and 7 opp. dom. letter <u>g</u>. At the foot of col.2 the faded
numbers read (gold) 17, (blue) 6, - , 14 3. Dates: two <u>Nones</u>
lines too many, <u>Ides</u> correct (if the entry opp. dom. letter <u>f</u> is in
fact <u>Id</u>'). <u>Kalends</u> should start at dom. letter <u>f</u> (col.1).

<u>May</u>. Golden numbers (though often barely legible) appear to be correct.
Dates: <u>Ides</u> should continue to the foot of the col.

<u>June</u>. Col.1 (below): the very clear blue 6 should be 7.

<u>July</u>. Col.2 line 9 (opp. <u>b</u>): golden no. 6 missing; below, the
decoration displaces golden nos. 11 (missing opp. <u>g</u>) and 19 (should
be on last line). Dates: <u>Ides</u> should continue to foot of col.

<u>August</u>. Col.1 should start with (blue) 8 before gold 16. Col.2: the
last four lines should have entries - 19 8 -, i.e. 19 is a line too
high, 13 should be 8. Dates: The approach to <u>Ides</u> should begin
a line higher (at <u>A</u>).

<u>September</u>. Col.1, below: golden nos. 14 3 - 11 should read 15 4 - 12
(see correct 14 3 - 11 in col.2). Dates: correct, except for the
omission of 'kl' (gold intended?) at the foot of col.1.

<u>October</u>. The golden nos. in col.1 show considerable confusion. The
first <u>A</u>-d lines should have nos. 16 5 13 2, after which the correct
sequence is - 10 - (18 etc.); (still col.1): opp. <u>e f g A</u> the nos.
should be (not - 15 4 - but) 4 - 12 1. Dates: <u>Ides</u> should continue
to foot of col.

<u>November</u>. See col.1, below (<u>f</u>): at this point the scribe enters 14
instead of 15 (after which the sequence should be 4 - 12 1), with

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the result that 14 3 - 11 - 19 appear twice, and the month lacks
15 4 - 12 1. In col.2 (first dom. letter A) 7 should be 6. Dates:
correct.

December. In col.2, opposite second dom. letter b, golden no. 19 is
a line too low. Dates: correct, but the third Nones shows a
freakish N'.

5. Les Très Riches Heures du Duc de Berry[1]

Art historians speak of the 'extraordinarily innovative landscapes'
of the Très Riches Heures (1413-1416) - by comparison not merely with the
Grandes Heures completed a few years earlier, but also with contemporary
panel painting (ed. p.20). The treatment of the calendar proves, in its own
way, to be equally innovative. At any rate we shall have to consider
separately the more traditional-looking calendar pages (represented in the
edition by the January page only), and the zodiacal and calendarial tympani
(some incomplete) above each of the pictures of the months. First, the
January page of the calendar proper (ed. plate 1). It will be seen at once
that the page shows neither a zodiac sign nor a labour (scene) of the month:
they are assigned to the picture page opposite. It lacks 'Egyptian days':
both the hexameter and the marginals (but according to Neugebauer these
latter are present on March, April and July pages). But it is a very full page,
and more was to come: the gold-letter entries for the feasts Circumcision,
Epiphany, St Vincent and (Conversion of) St Paul: La circoncision, La
typhanie, Saint uincent, Saint Pol (thus the spellings in Grandes Heures;

1.   I had, as I thought, already completed my account of the medieval
calendar and returned to other work, when Professor James Marrow
sent me a copy of an important special study: Astronomical and
Calendrical Data in the Très Riches Heures, by O. Neugebauer.
This is Appendix C in: French Painting in the Time of Jean de
Berry: The Limbourgs and their Contemporaries, by Millard Meiss
(and others), The Pierpont Morgan Library, New York 1974 (text
vol., pp.421-32).
To this contribution, by a scholar fully at home in medieval
astronomy and calendarial science, I am indebted for valuable
guidance on 'new golden numbers', for data culled by him from all
twelve calendar pages of the Très Riches Heures (and all other
books of hours of the Duc de Berry), and above all for answers to
some questions I had not felt able to pursue. Otherwise, with all
deference to his authority, I think that my own revised account,
incorporating his evaluation of the calendarial innovations of Très
Riches Heures, more suited to the immediate needs of students of
art history.

note that both calendars have Sainte Paule, St Paula, on 29 January). The page is dominated by a splendid initial group KL.

Golden numbers, dominical letters, and dates (with roman numerals) in the three left-hand columns, are models of clarity.

That leaves three columns of roman numerals occupying the right-hand third of the page – an unfamiliar sight in itself. Of these the heading of the outer right column is legible with certainty, and we therefore consider it first. It reads Nōbre dor' nouel, that is 'nombre doré nouveau'. What is obviously 'new' about the series is that it runs (roughly in step with, but) four days behind the 'old' series in the left-hand column which has no heading. (The incidence of blank spaces is the only internal difference between the two sets of figures.) We shall see in a moment that the tympani of the monthly pictures use the same 'new' series, transcribed as letters. There is, however, another 'innovation' to be noted before I quote O. Neugebauer's comments on 'new golden numbers' (etc.).

The heading in red and blue lettering above the numerals in the double column reads: La qñtite Des iours ('la quantité des jours' – which indeed refers downwards, not horizontally and left to: Januier a ·xxxi· iour / Et la lune ·xxx·).

Beneath heurz ('hours') are (in blue) fifteen entries viii and sixteen entries ix. According to Neugebauer this entry has by mid-June risen to '16', whereby the question of the red numerals (under a heading which in isolation would be problematic) is also settled. Rising in the January calendar twice towards 60 (see red zero opposite blue 9), they represent minutes, and whether one likes it or not palaeographically, the column is headed Minutez, abbreviated Mi.tez. (Neugebauer also notes that on the March, April and July pages – the only pages to mark the Egyptian days – the column headings are given in Latin, quantitas dierum etc., loc. cit., p.430.)

This 'modern' indication of the daily length of daylight in hours and minutes is, according to Neugebauer, 'astronomically meaningful', particularly by contrast with older calendars which declare the length of day and night for the whole month (with regular increases / decreases of two hours each month). 'It is clear, however, that the table ... was based on only a few accurately computed values' (etc., further details, ibid.). It remains for us now to note Neugebauer's assessment of the innovatory entries, and of the compilers responsible for them.

> The compilers of the Très Riches Heures 'strive for a definite advance beyond the traditional calendars ... The tendency to be "modern" is unmistakable' (p.431). They were, moreover, 'people who could competently handle the contemporary astronomical tables' (p.424).

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But, whereas 'the column for the length of daylight could be handled by any user of the calendar to tell him with reasonable accuracy the time of sunrise or sunset for the day in question', the new golden numbers are 'nothing but a display of empty learning'. The new numbers are 'in better agreement with the actual lunations', but they 'serve no purpose' (that is: astronomy makes no use of them anyway, and the liturgical calendar even today uses the old and traditional series for the calculation of Easter).

As for our own observation that the new golden numbers run 'four days behind' the old, Neugebauer confirms that such was the degree of error and necessary correction which had arisen through rigid application of the metonic-cycle principle. In the course of some forbidding computations (pp.427-8) Neugebauer shows that in AD 1387 golden number (new) 1 is applicable in astronomical tables to 20 January. He would invoke a computational error of only a few hours to explain why Très Riches Heures (copying from a source) enters new golden number 1 against 19 January (see facsimile). (For further comments.of Neugebauer, see next section.)

6. Les Très Riches Heures du Duc de Berry. The Zodiacal Tympani [1]

It may seem barbaric to direct the art historian's attention from the famous pictures of the labours (and social occasions in their settings) of the twelve months, to the calendarial tympani above them, but these deserve more than wordless admiration.

The foliation of the manuscript should be borne in mind when considering the statement that 'each representation of a month is accompanied by the corresponding calendar'. The calendar for January, discussed above, is on folio 1 verso, the January picture is on the opposite, right-hand page. Thereafter the picture is on the left, the calendar on the right, but in any case the two are always visible together, the more conventional calendar page, and the boldly innovative landscape or seasonal picture with an astronomical display in the tympanum above it.

The range of astronomical and calendarial information so elegantly presented in the tympani is remarkable. It is, one should note from the outset, a purely secular display, and the golden numbers (transcribed as letters,

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1.   This account is more plainly descriptive of the tympani than that of Neugebauer who (in the work named p. 32) gives them the astronomer's full treatment. I have limited the revision of my own text to some slight re-wordings, and to duly indicated insertions referring to Neugebauer's findings.

see below) are the 'new' numbers: there is no allusion to the liturgical year.

For the months January, April, May and August, only the geometrical framework for the calendarial data was completed - in gold line. This had already involved the designer(s) in some careful counting and measuring, for the correct setting of the 'dial' for each month and the division of the sky (light blue / dark blue). The artist's work (the miniatures of the sun chariot, and the signs of the zodiac, two for each month) was also complete.

As for the fully completed tympani, we must surely ascertain what calendarial data are entered in the four inner bands (1 to 4, counted from within) and the two outer bands. Greater interest attaches to the former: bands 2, 3, 4 are to be read together, and in their relationship to band 1.

Inner band 1: the days of the month, 1 to 28, 30, 31 - in alternating gold and red arabic numerals.

Inner bands 2 and 3: letters in blue, and stylized new-moon symbols in gold, respectively. With two exceptions (11 Oct. and 1 Nov.) letters and symbols, and blank spaces between them, are paired.

Slight variations in the inclination of the moon crescent are without evident significance. It will be shown below that the blue letters represent the golden numbers.

Inner band 4: In alternating red and blue, the words of a monthly variable inscription, as follows:

primationes lune mensis februarij [martii etc.] dies (+ number of days in roman numerals).

[primatio (primacio) is the 'first appearance of the new moon', Latham, Medieval Latin Word-List.]

Inner and outer bands are separated by the broad zodiac zone. The June page shows correctly the images of gemini and cancer, but in the first outer band the scribe has wrongly entered the legend applicable to the signs of July (where the legend is repeated).

Outer bands. The legend of the first outer band, with words alternately in red and in blue, reads:

Finis graduum aquarij [piscum etc.] Initium piscum [arietis etc.] gradus + roman numeral.

The latter 'gradus' is a reading taken on the numerical scale of the rim-band.

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Remembering that we still have to deal with Inner band 2 (golden numbers, 'astronomically' corrected, but without relevance for the astronomer) let us now try to come to terms with what we have before us. Neugebauer writes about the zodiacal tympani under the heading 'Solar Motion' (pp. 422-24), and comes to the conclusion that they were, like the calendar, the work of people who could handle the contemporary astronomical tables (see p. 33). He draws up a Table (p. 423) himself to accommodate all their data except the golden numbers, and works hard on these as an astronomer, no doubt in part to test his view that the astronomical tables used by the compilers were corrected for the latitude of Paris rather than Bourges! (For all that he has to note inaccuracies, or 'little blank spaces' where he would prefer to see a decimal.) I think that, with that encouragement, the art historian may now like to examine the 'readings' in the tympani himself. They are in fact declared in the legends of the completed 'dials'. In other cases one can count the rim markings from the Initium-line, already present as part of the design. The evidence is not always clear at the two 'horizons', but here are the readings as I first noted them:

Jan. 20, Feb. 19, March 20 (read 19?), April 18, May 17, June 16, July 16, Aug. 15, Sept. 15, Oct. 16, Nov. 17, Dec. 18.

Neugebauer is able to edit (very nearly) these same readings in the light of what they 'should be'. As for their identity, they are 'the number of degrees travelled by the sun in the number of days contained in each month'. The radial Initium-line marks the sun's 'transgression' from one zodiac sign to the next and (more or less accurately) the date of that event (Neugebauer, pp. 422f.).

Finally we come to the blue letters of Inner band 2. With only one irregularity (f for p in the September calendar) the sequence in all the completed tympani (starting with February) is:

h q e n b k s g p d m a i r f o c l t

which, with numbers 1 to 19 substituted for a to t (omitting j), gives:

8 16 5 13 2 10 18 7 15 4 12 1 9 17 6 14 3 11 19

- the golden numbers.

In this 'Historical Remarks' (p. 429) Neugebauer states that Robert Grosseteste, Bishop of Lincoln (d. 1253), in his calendar reform (the 'best known of ... attempts to restore to the 19-year cycle agreement with the actual course of the moon'), introduced letters in this way to distinguish the 'new' series, but Très Riches Heures 'do not follow accurately the Lincolnian scheme ... based on 4 x 19 = 76 years'.

Readers of this Introductory Note who wish to consolidate their
grasp of golden numbers, traditional and new, may turn again to our facsimile
editions:

Golden Numbers for February (28 days)

(a)   - 11 19 8 - 16 5 - 13 2 - 10 - 18 7 - 15 4 - 12 1 - 9 -
              17 6 - 14
(b)   8 - 16 5 13 - 2 - 10 18 - 7 - 15 4 - 11 1 9 - 17 - 6 14 -
              3 - 11

Golden Numbers for March (31 days)

(a)   3 - 11 - 19 8 - 16 5 - 13 2 - 10 - 18 7 - 15 4 - 12 1 -
              9 - 17 6 - 14 3
(b)   19 8 - 16 5 - 13 2 10 - 18 - 7 15 4 - 12 1 - 9 17 - 6 -
              14 - 3 11 - 19

The (a) line gives in each case the <u>old</u> series as it appears
in St Albans, Ingeborg, and Queen Mary Psalters. Grandes
Heures are correct for February but show errors in March, see
pp.31f; Belles Heures may be compared for the relevant half-month.

The (b) lines are taken from the tympani of Très Riches
Heures, and show the new series.

Concluding Remarks

It may be wise to recall that the approach to the medieval calendar in this Note was to a considerable degree determined by the interests of art historians (which I share). The first aim was therefore adequate description and interpretation of the calendar in its most widely used form – the Church's 'perpetual' calendar, which medieval scribes and artists treat. In the Appendix attention was then centered on a bare half-dozen examples, chosen (a) because they are to be found in important illustrated manuscripts, and – more arbitrarily – (b) because these latter happen to be available in recent facsimile reproduction. Further, in writing in the first instance for art historians, who are well aware of the distinction, I made no issue of the fact that books of hours are not <u>service</u> books but well-ordered collections of prayers and offices for private use. We can make use of the distinction now.

First, in correcting a possible misconception to which detailed discussion of <u>one</u> calendar from a monastic psalter, and <u>three</u> calendars from 'ducal' books of hours, may have given rise. It would be rash to see immediately, in the 'plainness' of the one and the splendours of the three, contrasting images or expressions of twelfth-century monasticism, and of fifteenth-century court life and ideals. If for no other reason, then because the <u>St Albans Psalter</u> is itself a copiously illustrated volume. Art historians know scores of later service books, particularly psalters, where the illustrations may be elegant to the point even of decadence; but they have all 'plain' calendars. Books of hours, on the other hand, are a <u>late</u> medieval phenomenon; in the normal case they are richly, even lavishly decorated throughout, not least in their calendars. Before seeking an explanation of <u>any</u> of these contrasts, it is advisable to consider what scope for treatment the perpetual calendar offers at all.

If by 'scope' we think first simply of space, what space was still available within the more or less standard framework of a <u>completed</u> calendar? That is to say, when the apparatus (golden numbers etc.) had been duly arranged in the columns to the left of the page, and all the official and sanctioned saints' days and feasts of fixed date had been entered on their proper lines? There was a varying amount of space to the right, and there were many empty lines, but these are so distributed as rather to inhibit than to encourage any further planned use. If there is a normal solution, it is for service books (even the few that, like the <u>Queen Mary's Psalter</u>, allot two pages to each month, and have wide margins) to leave unfilled spaces blank, and for books of hours to regard them as available for complementary decoration (line-fillers): frames and margins are (or are to be) decorated. The compilers of service-book calendars did not, however, object to <u>appropriate</u> embellishment of the calendar page: the labours of the month and the zodiac signs were accepted calendarial matter.

It so happens, however, that our choice of calendars confronts us with some highly individual or even exceptional cases, where one may recognize resolute (or more or less resolute) exploitations of an opportunity. The extreme case is the Très Riches Heures, where the calendar is deliberately opened up by interleaving, see below.

Returning for a moment to the St Albans Psalter: my further observations on its calendar must include questions.   Was it intended to be above all correct, and for more general liturgical use than as a Psalter calendar?   Why then the exclusion of the ranks of feast days and the number of lessons?   It is, I believe, equally unusual to attempt to 'calendarize' moveable feasts: the compiler began too systematically (a more official list was presumably easily accessible). We should probably class his 'Septuagesima' and similar entries with other 'important' but questionably useful calendarial information and data: the references to the Roman calendar, to Isidore's and Bede's alternative dates; to epacts, embolisms, indictions (etc.). Were the computistical tables for practical use, or were they merely thought to be the proper adjunct to a perpetual calendar?   I suspect that the compiler received a list of special wishes when he was appointed to his task.   The late entries (obits) are proof of continued use of the calendar.

At the court of the Duc de Berry the calendar was clearly a very different proposition.   It was a 'set piece' to be approached afresh on each occasion when a book of hours was commissioned (five times in the space of thirty years). It had to be executed on a scale and at a level of sophistication to match the 'hours' it was to precede and (notionally) serve.   But more is involved, when one compares Belles Heures, Grandes Heures, and Très Riches Heures, than developments in taste and style.   In the case of Grandes Heures we noted an imposed 'theological' programme of illustration, relegation (for the time being) of zodiac signs and labours of the month to a modest framework setting, and scores of calendarial inadequacies - accepted in the interest of consistent leafwork decoration.   By contrast Très Riches Heures segregates liturgical matter on one calendar page, officiously modernizes even there, and then positively celebrates secular life and the passing year on a new facing page, where modern astronomy has its moment of triumph in spectacular display.   What changes may there have been in the Duc's entourage, to produce such a 'swing' to modernism?

It is indeed strange that all these calendars, diverse as they are, continue to note what days are bad for blood-letting (the Egyptian days).

Critical restraint is called for when we ask how each of the calendars we have examined may in fact have been used.   What do we mean by 'used'?   In the traditional series of elucidatory questions, 'when?' is of particular importance.

Of the scores of real-life situations which one might consider, I will suggest only one to focus our attention for a moment. On a day in March 1409 (an F-year) - simpler than 1408 (an AG leap year) - the Duc de Berry invites a guest to inspect his Grandes Heures. (The pictorial programme is not immediately distracting and absorbing: one sees the calendar.) The visitor has the inestimable advantage over us of having 'lived with' the implications of 'F-year' for over two months: he does not have to work out, but already knows, that the dominical letter of Sunday 'this year' is D. I suggest that he has no difficulties in making such 'use' of the calendar as may be socially acceptable. He would in any case not cast more than a glance at the unnumbered Ides and Kalends (we saw that they are often faulty); it would not occur to him to examine the golden numbers. He will soon turn to examine the unfamiliar illustration of the calendar page. (My imaginary 'visitor' was, I should have said, a layman.)

More serious (and not to be treated anecdotally) is the question of 'answerable' use of the perpetual calendar. By whom (what officials, ecclesiastical, monastic and lay) were the implications, particularly the 'occurrences' (clashes in dates), of our 'F-year' resolved and notified? Whatever steps were taken officially to ensure that everyone had some means of access to the equivalent of 'this year's diary', there were, I persist in imagining, in medieval as in modern times, always pundits about, ready to confirm what was official, a majority of people needing to be regularly reminded, and calendars both lacking essential information and encumbered with irrelevant data.

Acknowledgments

First I wish to thank many Reading friends and colleagues who in the Spring of 1980 – in the Graduate Centre for Medieval Studies and in Common Room – so frankly admitted their uncertainties about the calendar, and Professor James Marrow who suggested that I should direct my evident interest toward a basic introduction for students and teachers of art history. Soon my greater need was to extricate myself, for I am neither historian nor astronomer. Here I must gratefully acknowledge the use I was able to make in the final stages of C.R. Cheney's Handbook of Dates, and the special study of the Très Riches Heures by O. Neugebauer.

At my request, Miss P.A. McNulty, the present Director of the Graduate Centre for Medieval Studies at the University of Reading, examined my typescript, and the facsimile editions I had used. I thank her personally for her useful suggestions (all of which I have followed), and through her the Graduate Centre for accepting my short study as the opening number in the Monograph Series of Reading Medieval Studies. Responsibility for all errors, whether of fact or of judgment, must of course rest with me as author.

Finally, readers will share my appreciation of the typing skills of Mrs. Marjorie Edwards.

August 1980   F.P. Pickering

Arborfield Cross, Berks.

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