1

Reckonings of time*

I The Julian calendar: Old Style

Throughout the Middle Ages, and in some countries for much longer, the calendar in use was that known as the Julian, because it was originally introduced by Julius Caesar in 45 BC. This way of reckoning is now known as the Old Style, in contradistinction to the New Style, that is to say reckoning by the Gregorian calendar, introduced by Pope Gregory XIII in 1582.

The Julian calendar set up a common year consisting of 365 days, while every fourth year was to contain an extra day, the sixth calends of March (24 February) being doubled and the year therefore being described as *annus bissextilis*. This latter device was intended to rectify, at regular intervals, the accumulated discrepancy between the calendar year of 365 days and the solar year, calculated by the astronomers at 365¼ days. The mistake was made, however, of counting in the current year when deciding which was 'every fourth year', and in practice the bissextile years occurred in what we should call every third year. Thus an error rapidly accumulated, until the Emperor Augustus got rid of it by ordaining that twelve successive years should consist of 365 days only. The next bissextile or leap year was AD 4, and thereafter, as long as the Old Style lasted, every fourth year, in the modern sense, was a leap year.

II The year

The Christian era

The use for dating purposes of the Christian year (*annus domini, annus ab incarnatione domini, annus gratiæ*) arose somewhat unexpectedly through the compilation of a table for calculating the date of Easter, made by the monk Dionysius Exiguus in AD 525. This was intended to continue to AD 626 the Easter Table then in use, of which the cycle would end in 531. Dionysius, a Scythian by birth, but living in Rome and *moribus omnino*

*Chiefly revised by Dr Richard Sharpe.

romanus, constructed a list of years calculated not from the prevailing era of Diocletian, the pagan emperor, but from the Incarnation of Our Lord. A continuator carried on the table to AD 721. At the synod of Whitby, in AD 664, Wilfred, as part of his advocacy of all things Roman, secured the acceptance in Northumbria of the Dionysian Easter Table. Dionysius himself had had no thought of establishing a new era, but now his device was adopted for chronological purposes by Bede. Starting from English usage in the eighth century, the new era gradually spread to the Continent until in every country of Western Europe except Spain (see below), Christians reckoned from AD 1.

In England this method was used for the dating of official documents long before it was adopted by continental chanceries. The year *ab incarnatione* is found in Anglo-Saxon diplomas very soon after the death of Bede to replace or supplement dating by indiction, and was commonly used for such royal documents as bore dates (even when they also used the regnal year) until late in the twelfth century. Outside the royal chancery the reckoning is to be found in English legal instruments of all sorts in the exceptional cases in which a date of any kind is vouchsafed. Later in the Middle Ages documents of ecclesiastical provenance generally, and private charters occasionally, are dated by the year of grace. The era of the incarnation also regularly provided the chronological framework of English chronicles and annals.

The Spanish era

In Spain, Portugal, and those southeastern parts of Gaul which were for a time under the rule of the Visigoths, an era was used which had been taken over by the latter from the Christians of Roman Spain. According to some authorities, the era originated in an Easter Table of which the first cycle began, not at the year of incarnation, but at 38 BC, and it was reckoned from 1 January 38 BC, though the reasons for this remain unresolved. The era was in use in Catalonia to 1180, in Aragon to 1350, in Valencia to 1358, in Castile to 1382, in Portugal to 1420. The date is always given in the form 'era millesima octava' not 'anno millesimo octavo', and to find the equivalent year of the Christian era one must subtract 38 from the date in the Spanish era.

The indiction

Unlike the Christian and Spanish eras, the indiction was originally a civil reckoning of time. It is a cycle of fifteen years, counted as *indictio prima,*

secunda, and so on, to 15, reverting then to 1. The first cycle was counted from AD 312, but there were three chief methods of reckoning the opening date:

(*a*) The Greek, or Constantinopolitan, Indiction, beginning on 1 September. The popes seem to have used this fairly regularly till 1087, after which the practice of the papal chancery varied till Alexander III (1159–81).
(*b*) The Bedan, or Cæsarean, or Imperial Indiction, or the Indiction of Constantine, beginning on 24 September. This was probably introduced by Bede into England, where it became usual, and was adopted by the papacy under Alexander III.
(*c*) The Roman, or Pontifical, Indiction, beginning on 25 December (or sometimes on 1 January), was in fact only occasionally used in the papal chancery, but is found in other places at various periods.

The use of the indiction-year as an element in the dating of documents goes back to imperial Rome, when it was added to statements of the consular and imperial years. It continued to be used by the papacy and the royal chanceries of the West in the early Middle Ages for the more solemn privileges and legal records. It is also found in some private charters. But by the end of the thirteenth century it was generally ignored except in one class of document: the instruments drawn up by public notaries continue to exhibit the indiction together with other dating elements until the sixteenth century.

The dating formula, *indictio prima*, etc., simply shows the place which the year occupies in an unspecified cycle of fifteen years. The rule for calculating it is to subtract 312 from the number of the year of grace and divide by fifteen: the remainder will correspond with the number of the year in indiction and the quotient will be one less than the number of the indiction (but the latter is seldom mentioned in documents). Since the beginning of the year of grace does not, in most systems of reckoning, coincide with the beginning of the indiction, the equation must take account of the day of the year. As an example, take a document dated 1 November 1094: $1094 - 312 = 782$; $782 \div 15 = 52$ with a remainder of 2. Therefore, the number of the indiction *for the greater part of* 1094 is 2. But the date in question (1 November) falls in the lesser part of the year according to the Greek and Bedan indictions: it is therefore *indictio tertia* by these reckonings, *indictio secunda* by the Roman reckoning. This is illustrated in figure 1.

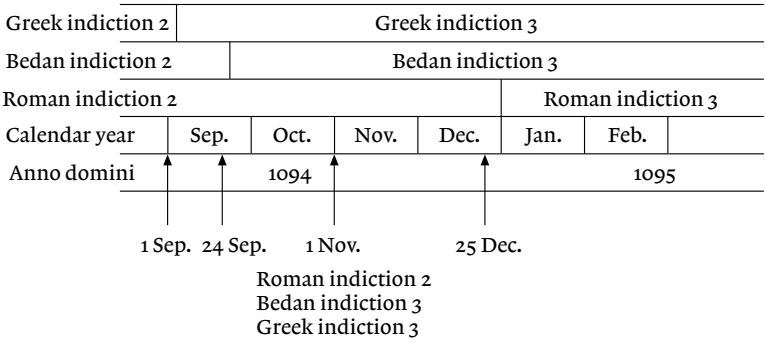

Figure 1 Calendars for 1094–1095

The regnal year

From ancient up to modern times it has been a common practice to date official documents by the year of the rulers or magistrates from whom the documents emanated or within whose jurisdiction they were issued. Roman law demanded that certain classes of documents should bear the names of the consuls for the year; and, in the absence of exact information, dating by reference to past consuls was sometimes preferred (e.g. *post consulatum Flavi Fausti iunioris*). In AD 537 Justinian provided that the years of the emperor's reign should be added and thereafter the *post-consulatum* element, though it lingered on in various forms, ceased to be of practical importance. But the system which had been used by the consuls of the Roman people and the emperors was copied by popes, bishops, kings, dukes, and lesser men. It found its way, moreover, from official documents to literary narratives. Sometimes the regnal year was used to the exclusion of the indiction or year of grace, sometimes it accompanied these elements. For the method of its use in the English chancery and the papal chancery the reader is referred to the notes which precede the lists of kings and popes (pp. 21–2 and 48–50).

III The date of Easter

As noted above (p. 1), it was the calculation of Easter that led Dionysius to devise the numbering of years that we now use, and, incidentally explains the necessity of this *Handbook*, since it is because of the movable character of Easter that the annual calendar has also to accommodate other movable feasts. Easter was 'movable' in the sense that it was fixed in relation to the moon's phases and the day of the week, and these do not recur at the same

point in successive calendar years. After many disputes, which produced divergences in other parts of Christendom,[1] the Latin Church determined that Easter should be celebrated on the Sunday following the first full moon on or after 21 March.[2] The result, in short, is this: that Easter never falls on the same day of the month in two successive years and it may fall on any of the thirty-five days between 22 March and 25 April (both included.[3] The ecclesiastical calendar for the entire year is controlled by this fact of a movable Easter. To enable students to see clearly the ecclesiastical calendar for any given year from AD 400 to AD 2100, a series of tables is provided later in this volume (**8**/1–35). Confronted, for example, with a document dated on the Tuesday after Trinity, AD 1288, the student first discovers from the chronological table on p. 229 that Easter fell on the 28 March in 1288; then on turning to Table **8**/7, it will be found that the date in question is, in modern terms, 25 May 1288.

The medieval computists, faced with similar problems of calculating the incidence of movable feasts, adopted various devices for relating the days of the week and the lunar month to the calendar. The scaffolding of the tables they compiled provided material for elaborating statements of date which for ordinary purposes were quite long enough already. Thus the Anglo-Saxon solemn diploma might set out not only the indiction

1. Some of these are indicated in table 7; for more detail on Easter in the Celtic British Church, see also D. McCarthy and Dáibhí Ó Cróinín, 'The "lost" Irish 84-year Easter Table rediscovered', *Peritia*, 6–7 (1987–8), 227–42.
2. Because 21 March was taken to be invariably the date of the vernal equinox. In fact it is not; and therefore some accurate astronomical calculations of the paschal moon differ from the approximate historical reckonings. But generally only the latter is in question when Easter is concerned. The Protestant states of Germany observed Easter according to an improved calculation in 1724 and 1744. The divergence of Swedish usage in the eighteenth and nineteenth centuries is more complicated (see Grotefend, *Taschenbuch*, 12th edn (1982), pp. 27–8).
3. It is a relatively simple matter now, with a computer, to use an algorithm to calculate the date of Easter, since the cycles on which the ecclesiastical moon is based can be easily programmed. The following algorithm can be used to compute the date of Easter in the Gregorian calendar. All variables are integers and all remainders from division are dropped. The algorithm takes the year (y) and yields the month (m), and day (d) of Easter. The symbol * means multiply:

$$c = y/100$$
$$n = y - 19*(y/19)$$
$$k = (c-17)/25$$
$$i = c - c/4 - (c-k)/3 + 19*n + 15$$
$$i = i - 30*(i/30)$$
$$i = i - (i/28)*(1 - (i/28)*(29/(i+1))*((21-n)/11))$$
$$j = y + y/4 + i + 2 - c + c/4$$
$$j = j - 7*(j/7)$$
$$l = i - j$$
$$m = 3 + (l+40)/44$$
$$d = l + 28 - 31*(m/4)$$

This algorithm is due to J.-M. Oudin (1940), is reprinted in the *Explanatory Supplement to the Astronomical Almanac*, ed. P. K. Seidelmann (London, 1992), ch. 12, 'Calendars' [by L. E. Doggett], and was kindly brought to the editor's notice by Amanda Hill, Archivist, Rhodes House, Oxford.

year, the regnal year, and the day of the month in Roman form, but also the golden number, the epact, the dominical letter, and the concurrents. These elements also find their way into dating clauses of documents at other times and places during the Middle Ages. Used in this way, as parts of a dating clause, they indicate the position of the year in cycles of years, and thus might fittingly have found a place in the preceding section of this chapter; but their original purpose was purely to establish the place of the Church's festivals in the calendar, and so they may logically be described at this point. We shall make no attempt to do more that state how they are computed. For a more complete discussion the reader is referred to Giry's *Manuel*, on which this brief account is chiefly based.

Golden number (*numerus aureus, cyclus decemnovennalis*). For calculating the date of the paschal moon, which in turn governed the date of Easter, computists have made use of the close approximation of the lunar and solar cycles after a lapse of nineteen solar years. The slight inexactitude of their calculation has had no effect on the fixing of dates: the cycle of nineteen years has been generally accepted. The years of the cycle are numbered from I to XIX in direct series and the number for each year is known as the Golden Number. The cycle is computed from the year 1 BC and is usually held to begin 1 January in that year. To find the golden number of a year of grace, add 1 to a year of grace and divide by 19. The remainder is the golden number, unless the remainder is 0, when the golden number is XIX.

Epact (*Epact lunaris*). The position of the year in the nineteen-year cycle is also represented in another way for the purpose of calculating the date of Easter. For this purpose it is necessary to establish the relationship between the solar year and the phase of the moon at 22 March, the earliest date for Easter. Since the solar year was estimated to have eleven days in excess of twelve complete lunar cycles, this relationship changed by eleven days annually; the moon begins each year eleven days older than it was a year ago. When a new moon falls on 22 March the golden number is I (e.g., AD 1482: 1483 divided by 19 leaves a remainder of 1), and the epact, which represents the age of the moon, is nil (*epacta nulla*). In the next year the epact is eleven, and the next year twenty-two. The progression through the nineteen-year is straightforward, except that thirty is deducted from numbers in excess of thirty.[4]

4. The cycle thus becomes 0, 11, 22, 3, 14, 25, 6, 17, 28, 9, 20, 1, 12, 23, 4, 15, 26, 7, 18. This cycle, and the above description, only hold good for the Old Style calendar. It seems unnecessary to enter into the complexities of the New Style reckoning of epacts, since the epact only appears as an element in the dating of documents during the Middle Ages.

To find the epact of any year of grace, divide the year of grace by 19, multiply the remainder by 11, and divide by 30: the remainder is the number of the epact.

While the annual mutation of the epact occurred, according to some medieval computists, on 1 January, it seems that other reckonings were also employed. When the calendar year began on 25 March or 1 September, the epact probably changed at that point.

Dominical letter (*littera dominicalis*). To determine the date of Easter one must know the sequence of the days of the week following the paschal full moon, and for this purpose special tables were devised in early Christian times. There are seven possible relationships of the days of the week to the calendar of the year, and the letters A to G were used to indicate the cycle of seven days beginning at 1 January. The dominical letter for the year is the letter allocated, according to this system, to the first Sunday in the year. Thus, Sunday fell on 4 January 1545 and the dominical letter for the year is the fourth letter, D; in 1549 it fell on 6 January and the dominical letter is F, and so on. In the sequence of years the dominical letters run in retrograde series, for the year beginning on Monday (dominical letter G) is commonly succeeded by a year beginning on Tuesday (dominical letter F). A complication is introduced in the leap year. The extra day, or *dies bissextus*, has the same letter assigned to it as the day which it doubles. This produces a change in the cycle during February, so that the dominical letter for the period after *bis vi kal. Mar.* (24 February) – or after 29 February, if the modern system of dating is employed – differs from that for the preceding period. Thus the dominical letter for 1 January–29 February 1944 (a leap year) is B (1 January was Saturday), while for the remainder of the year it is A. The dominical letter for the next year 1945 (a common year) is G (1 January was Monday). It follows from the existence of leap years that the dominical letters move in cycles of twenty-eight, not seven, years.

Concurrents (*concurrentes septimanæ*). To each year was allotted by the computists a number (1 to 7) which represents the concurrents, or number of days between the last Sunday in the preceding year and 1 January. Since the concurrents are designed to serve the same purpose as the dominical letters, there is a regular correspondence between the two reckonings. This can be simply expressed as follows:

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

It will be noticed that the concurrents are counted as 7 when the preceding year ends on a Sunday. It should also be observed that in leap years the

concurrents correspond to the dominical letter for the *latter* part of the year.

Christian festivals in a leap year

An anomaly arising from the Church's adoption of the Roman calendar requires brief consideration. Using the Roman calendar, The Intercalary Day (*bis VI Kal. Mart.*) preceded the common *VI Kal. Mart.* When the simple numbering of days was adopted, the intercalary day *appeared* to be 29 February, but canonically it was 24 February, the exact equivalent of *bis VI Kal. Mart.* In leap years therefore St Mathias was commemorated on 25 February rather than 24 February, which was counted as *Vigilia S. Matthei apostoli*. This came to be regarded as a popish custom in England, and in the 1680s St Mathias came to be kept on 24 February, and the saints of the remaining days of February were not postponed; 29 February became *de facto* the intercalary day.

IV The beginning of the year of grace

Historians' errors in translating dates are most often due to carelessness about the various starting-points of the year of grace. Half a dozen different reckonings have been used at one time or another, and it is not uncommon to find two reckonings simultaneously used in adjacent countries or even in one country in different types of record. This has long been a matter for remark among historians. Gervase, the twelfth-century monk of Canterbury, bewailed the confusion arising from various computations: he himself had wavered between the systems of Christmas and the Annunciation before finally adopting the former for his chronicle and even then he made a concession to the more popular system for one famous event, the death of Thomas Becket on 29 December 1170. R. L. Poole furnishes an excellent illustration of the varieties in use in the Middle Ages: 'If we suppose [he says] a traveller to set out from Venice on 1 March 1245, the first day of the Venetian year, he would find himself in 1244 when he reached Florence: and if after a short stay he went on to Pisa, the year 1246 would already have begun there. Continuing his journey westward, he would find himself again in 1245 when he entered Provence, and on arriving in France before Easter (16 April) he would be once more in 1244.' To take a case from the simpler conditions of the eighteenth century, a traveller who left England in January 1720 would arrive in France to discover that the French had begun the year 1721.

Students must therefore do their best to discover what reckonings their authorities employ before they accept their chronology as it stands. Two graphics for the years 1099–1101 and 1153–5 can be used to illustrate the range of possibilities for the start of various different 'years' simultaneously in use in the central Middle Ages; their significance is explained in more detail below.

The reckoning of years still used, that of Dionysius, counts the number of years since the Incarnation, and Dionysius estimated when Jesus Christ was born. Other ideas of the Christian era existed. It became a Christian convention to view the past in three eras: the first, Nature, began with Adam; the second, Law, began with the delivery of the Law to Moses; the third era, the divine dispensation which through Christ superseded the Law, was named Grace.[5] When did Grace come into the world? Different answers were the birth of Christ, the beginning of his mother's pregnancy, and the redemption achieved by his death and resurrection. Hence different views existed as to when the year of grace began.

Christmas Day

Bede, following Dionysius, took for granted that the year of Grace must begin with the Nativity, Christmas Day, though in his *Ecclesiastical History*, since he was dealing with documents dated by the earlier reckoning from the Indiction of September, he started his own year in September also.[6] The reckoning from Christmas was soon in general vogue. It was used in the Empire until the second quarter of the thirteenth century, by the popes from 962 to 1098 (and even later in letters, as distinct from *privilegia*), in France and most of western Europe, except Spain, till the twelfth century. The Anglo-Saxon and Norman kings of England used it and Benedictine writers, with characteristic conservatism, still employed it after it had been abandoned in most quarters of Plantagenet England; as late even as the fourteenth century, the *Chronicon de Lanercost* still used the Nativity style. This fact has too often been overlooked by later historians. Thus, for example, Edmund of Cornwall, cousin of Edward I, is very commonly said – on the authority of Matthew Paris – to have been born on 26 December 1250. But Matthew Paris used the Christmas reckoning, and the historical date is therefore 26 December 1249. The whole octave of the

5. See *Dictionary of Medieval Latin from British sources*, s. v. gratia 5; the term derives from Romans 6:14–15.
6. In his technical treatises on chronology, of course, he used the solar year of twelve months from 1 January as the basis of all dates.

Cambridge University Press
052177845X - A Handbook of Dates: For Students of British History
Edited by C. R. Cheney
Excerpt
More information

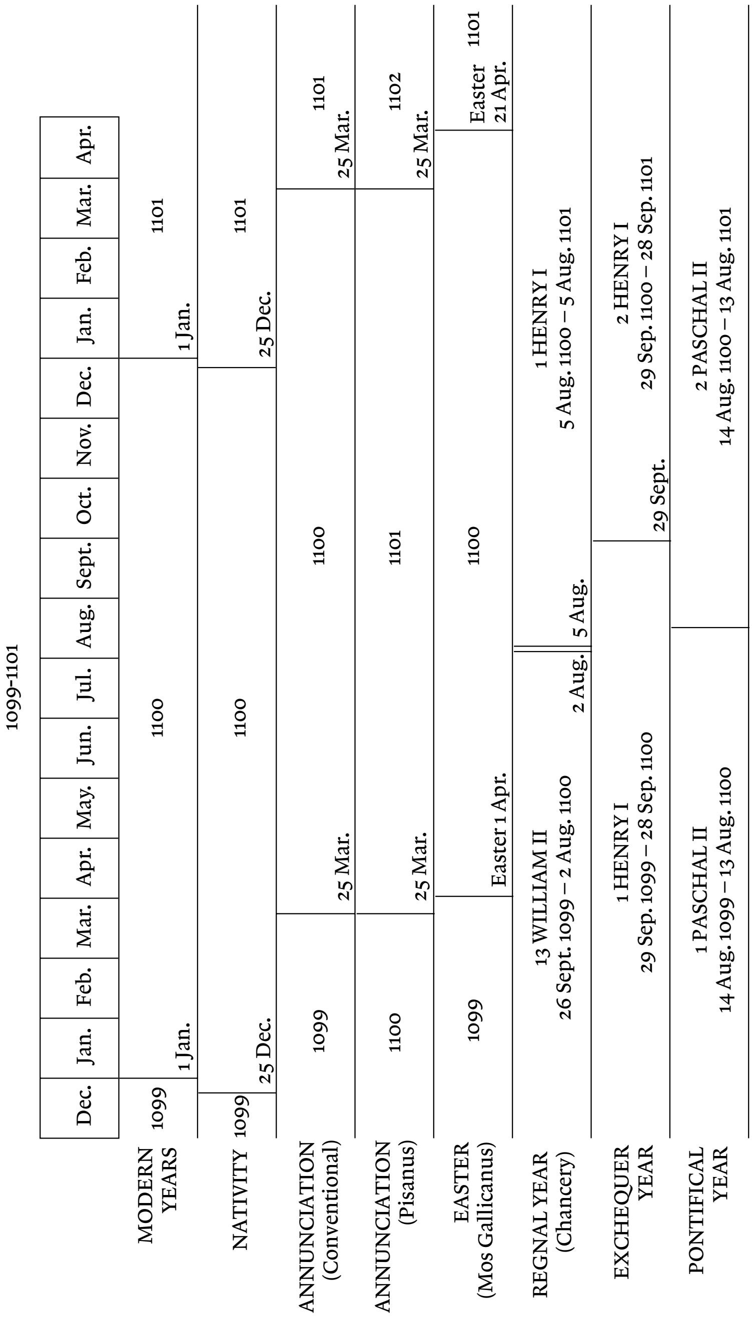

Figure 2 Calendars for 1099–1101

