CHRISTIAN CALENDARS IN MEDIEVAL HEBREW MANUSCRIPTS

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Christian calendars appear in a small but significant number of medieval Hebrew manuscripts. They include the days and months of the Julian year, with Christian festivals, saint days, and other elements of the Christian liturgical year – all in Hebrew translation and/or transliteration (the latter resulting in a form of Judeo-Latin, or more often, Judeo-German and Judeo-French). The manuscripts where these calendars are attested appear to be all from France and Germany, dating from the late 13th – late 15th centuries. The following Christian calendars in Hebrew (in rough chronological order), which happen to be known to me, will be described and discussed in this present paper:[1]

- Ms London, British Library Add. 11639, fol. 542v (the 'North French Hebrew Miscellany', dated 1278)
- Ms Oxford, Bodleian Heb. d.11, fols. 2v-3r and 372r-v (mid 14th cent., German)
- Ms Cambridge, Add. 3127, fols. 345r – 350v (1399, French)
- Ms Berlin, Preussischer Kulturbesitz 1198, fols. 32r – 34v (late 14th cent., French)
- Ms Budapest, Hungarian Academy of Sciences, Kaufmann A370, fols. 734-50 (early 15th cent., French)
- Ms Heidenheim 51, fols. 153a-159a (c. 1438, German)
- Ms Oxford, Bodleian Heb. g.1, fols. 181v-188v (1493, French)
- Cairo Genizah join T-S AS 144.322 + T-S AS 144.307 + T-S K2.11 (French)
- Ms Paris, Bibliothèque Nationale de France, Heb. 1120, fols. 75v-76v (Hebrew Cisiojanus, 16th cent., German).[2]

The phenomenon of Christian calendars in Hebrew has largely been ignored in modern scholarship; yet it points to an important dimension of Jewish-Christian relations, and more specifically Jewish attitudes towards Christianity, in late medieval northern Europe.[3] It is also evidence of transfer of religious knowledge between Christians and Jews: for as we shall see, the Hebrew texts closely replicate, in contents as well as in layout and presentation, the Latin liturgical calendars, which in many cases the Hebrew scribes must have used directly as base texts.

But although closely based on Latin liturgical calendars, Christian calendars in Hebrew were Judaized in several ways, through the inclusion of Jewish calendar elements, and most importantly, through the pejorative distortion of the Christian religious elements such as the names of the saints – although the degree to which this occurs varies considerably from one manuscript to the other. These distortions are evidence of the distinctly Jewish, non-Christian authorship of the Christian calendars in Hebrew.

Jewish authorship of these calendar texts is also evident from their frequent attestation in Jewish liturgical compendia, where they are often included in sections on the (Jewish) calendar (which explain how the Jewish calendar is reckoned, how to determine the dates of Jewish festivals and other significant dates, and providing calendar data for several years and decades in advance). This suggests that Christian calendars had become, somehow, an intrinsic part of Jewish time reckoning. Why this is requires an explanation.

As will be seen below, the production of Christian calendars in Hebrew was largely motivated by the necessities of commercial life. Markets and fairs were commonly held on saint days and other Christian festivals, and it was essential for Jewish traders to know when (and where) these would be taking place.[4] Knowledge of the Christian calendar was also essential to Jews for dating documents, especially (but not exclusively) those intended for Christians, for understanding dates in documents, for scheduling business or other meetings

with Christians, and in short, for effectively coordinating their socio-economic activities with the rhythms and structure of Christian medieval life.

Beyond these utilitarian functions, the production of Christian calendars in Hebrew may have also evinced a certain Jewish interest and curiosity in Christian culture and religion. They also represented, of course, an opportunity for subtle inter-faith polemics.

A cursory look at the calendars in our corpus reveals that they were not the copies of a single, transmitted work. Although they share in common some general principles of structure and contents, the calendars in each of these manuscripts are original compositions, whose authors must be identified, presumably, as none other but the scribes themselves. For that reason, the dates that appear in some of these calendars should enable us to determine not only the dates of the texts, but also of the manuscripts themselves. Furthermore, the very significant differences that can be found between the calendars, especially in the lists of the saint days, reflect the great variety of local traditions and customs in the Christian liturgical calendars of medieval France and Germany, and should thus help to determine the provenance of our texts and manuscripts. Sporadic attempts have already been made in this direction by the editors of the North French Miscellany and of the Hebrew Cisiojanus, the only texts in the list above that have been already edited, and with which this paper will begin.

1. The spiral calendar of the North French Hebrew Miscellany

The 'North French Hebrew Miscellany' (ms London, British Library Add. 11639), as it has been named by its editor, is dated 1278 and by far the earliest of our manuscripts. The unusual layout of its Christian calendar, on fol. 542v – a rather intriguing spiral – and its

contents reflect, perhaps, the fact that Christian calendars in Hebrew had not yet emerged, in the 13th century, as a standard genre. [5]

The text in the spiral consists, very simply, of a list of the months of the Julian year with a selection of Christian Saint days. Each month is named in French as well as in Hebrew, starting with 'Shevat' for January. In this context, 'Shevat' designates the Julian, solar month of January (it is not the Jewish, lunar month of Shevat);[6] as we shall see, this Hebrew nomenclature of Julian months is standard to all our calendars. The calendar specifies the number of days in each month, and then proceeds to list its Saint days. Thus it begins:

> אילו חדשי גוים ושיקוציהם. שבט זה יינבייר והוא בן לא יום ה בו צמאון ...
>
> These are the months of the non-Jews and their abominations. Shevat is January, and it has 31 days. The 5th is Simeon...

Anti-Christian invective is evident from the outset with the phrase 'and their abominations', which in the manuscript has been blackened out (although it is still quite legible). The title of 'Saint' (or any Hebrew equivalent) is not attributed to Simeon (nor to any other saint in the calendar); and his name in Hebrew, instead of the expected שמעון (*Shim'on*, 'Simeon'), is the phonetically similar *Ṣima'on*, 'thirst'. This is evidently a deliberate distortion of the name. It is intended either for polemical purposes (i.e. to express, or to stir up, anti-Christian feelings) or, more moderately, as a way of neutralizing the religious implications of the name and, on the halakhic plane, of avoiding the utterance of idolatrous names (i.e. names of objects of alien worship, *avodah zarah*) which the Talmud proscribes on the basis of Ex. 23:13.[7] Distortions of saint names are common elsewhere in the calendar. For example, St John the Baptist on 24 June is יחרם (*Yaḥoram*, 'may he be destroyed', from Ex. 22:19, a distortion of the Hebrew name *Yoḥanan* or 'John'); this is a common, medieval Hebrew pejorative designation of this Christian day. The days of St Mary appear, at several points in the year,

under the name of *ḥariah* ('excrement'), another common distortion;[8] and of St Peter, at several points in the year, under the name of *peṭer ḥamor* ('first born ass').[9] Many of these are blackened out in the manuscript.

Above and below the Christian calendar spiral, as well as in the four corners of the square that surrounds it, is a detailed text explaining how to determine the dates of the *tequfot* (equinoxes and solstices) and the date of the 'request' (שאלה), i.e. the beginning of the winter season when a request for rain is made in the Jewish daily prayers. The *tequfot* were particularly significant to medieval Jews because of the well established practice not to drink water at their times.[10] Because the dates of *tequfot* and 'request' are solar, they tend to be stable in relation to the Julian calendar: 'request', for example, falls on 22 November.[11] The presence of this text alongside and around the Christian, Julian calendar in Hebrew indicates one of the latter's functions in a Jewish liturgical miscellany: it helps to determine the solar dates of the Jewish liturgical year.

As stated above, the text of the Christian calendar is laid out in the shape of a spiral. The year begins at the top of the circle, and then spirals anti-clockwise and inwards; it ends with the day of Sylvester (31 December) after three full circles are completed, a little below the point at which it started. It is important to stress that this layout bears no relationship to the contents of the text: the calendar could just as well have been written in a straight, linear form, and indeed, it would have been more legible in this way. The arbitrary nature of this layout is even clearer when we consider the text that follows Sylvester, and that is written in a triangle that continues inside the spiral. This text explains the four-part division of the ecclesiastical year (which was significant in medieval society for the payment of rents and taxes):

> From *Yaḥoram* to Saint Maurice, 13 weeks; from Saint Maurice / Maurice[12] to Christmas, 13 weeks; from Christmas to Marcheque / 13 weeks; Marcheque to *Yaḥoram*, 13 weeks.[13]

In order to fit into the triangle, the text is divided into three segments (as I have indicated), although its natural division should have been four. The triangular layout is thus a complete mismatch to the contents of the text.

The explanation of this arbitrary layout is, quite simply, that it was forced upon the scribe as the result of ink penetration from the other side of the folio (fol. 542r), where a cosmological diagram of the zodiac and planets, with three concentric circles and one triangle, is represented. The penetration of ink to this side of the folio made it a 'bad page'; but the scribe was still able to make use of it, by inscribing his calendar in the shape of a spiral (laid out on three concentric circles) and a triangle.[14] The result was neat, although its layout was arbitrary and awkward to read. The scribe's decision to relegate his Christian calendar to a 'bad page' can be interpreted, in itself, as an expression of his anti-Christian feelings.[16]

2. Hebrew Cisiojanus

This unique text will only be briefly described as it has already been edited and elucidated by Simon Neuberg.[17] It is essentially a Hebrew transliteration of the Latin *Cisiojanus*, appearing in a largely medical manuscript, which Neuberg identifies as originating from Swabia (Schwaben, south-western Germany) in the early 15th century; as noted above, however, the

folio containing this text was inserted later into the manuscript, perhaps in the 16th century (ms Paris BNF Heb. 1120, fols. 75v-76v). This text is thus possibly much later than the others in our corpus; it is also structurally very different from them. Nevertheless, I have included it in this survey because of its potential relevance to the other calendars.

The Cisiojanus is a well-known medieval mnemonic poem that circulated in several versions, originally in Latin and then also in vernacular languages, to help the memorization of the days of the Christian calendar.[18] It is written in hexameters, and was clearly designed for oral recitation. Every syllable corresponds to one day; there are thus a total of 365 syllables in the whole poem, corresponding to the days of the Julian year. The information conveyed by these syllables includes the names of the months and the names of the main saint days and festivals. The syllables are either abbreviations of these names (typically, their first syllables), or they join together to form whole words. Thus, the poem opens with the syllables *ci-si-io-ia-nus* (from which it takes its name); these five syllables count for first five days of January, but they only describe the first day in the sequence: 1 **Janu**ary is the Circum**cision** of Jesus. The next two syllables, *e-pi*, count for 6-7 January but refer to Epiphany on 6 January, etc.

The present manuscript offers a Hebrew transliteration of one of the Latin versions of the Cisiojanus. As Neuberg argues on linguistic grounds, this transliteration is likely to have been based on a purely oral transmission of the Cisiojanus, rather than based on a written Latin text. The syllables are written vertically in several columns. Some of the syllables are elucidated on the left side of each column: for example, the syllable אנ (*an*) is annotated alongside it with אנטוני (St Anthony, 17 January), and מר-טין (*mar-tin*), alongside the first syllable, with מרטיין (St Martin, 11 November).

In some cases a longer note is inserted: thus next to 24 February, St Matthias, the reader is told to double up the syllable *mat* in a leap year (which is called in Hebrew עיבור), as

in the Julian calendar this day is repeated in a leap year.[19] In darker ink, the zodiac signs are indicated in Judeo-German at their right dates: e.g. for 12 January, די זוין אים ווסר (‘the sun in water’, i.e. Aquarius). A comment in Hebrew about regional variety is inserted next to 23 April, St George: in Augsburg,[20] this festival (חגה) is held on the next day. Further notes are added at the end of the *Cisiojanus*, with rough guidelines for determining the dates of Lent, the leap years, and other moveable festivals.[21]

The deliberate distortion of Christian names and terms is particularly noteworthy in this text. For example, Mary is called אשה אחרונה, ‘last woman’, a pejorative designation (e.g. next to 8 September, the birth of Mary). The feast of the eleven thousand virgins, on 21 October, is rendered as(ת)יא אלף פסולו, i.e. ’11 thousand statues (or idols)’ (better than: ’11 thousand rejects’), which Neuberg (p. 129) explains as a phonetic distortion of בתולות (‘virgins’). The entry for 1 November, All Saints day, is featured as in the Latin with the syllables אמ-מני (*om-ne* – the letter מ is unnecessarily geminated), with alongside it the following elucidation: אלר צלומים טק, ‘the day of all idols’ – a Jewish, uninhibited perversion of the German *Allerheiligen Tag*.[22]

3. Julian calendar in 12 columns

A relatively early manuscript (mid 14th century), ms Oxford Bodleian Heb. d.11, presents the Julian calendar in the simple layout of twelve columns, one for each month of the year, over two pages. Two very similar versions of this calendar are represented in the manuscript, on fols. 2v-3r and again on fols. 372r-v (minor differences between them will be noted below).

Each column, in this calendar, is headed with the name of the month in Hebrew, starting with Shevat for January. Above these Hebrew names, in smaller characters, is a transliteration of the vernacular names with an indication of how many days are in the month.

The columns themselves list the days of the month, which are not continuously numbered (e.g. from 1 to 31 in January) – an interesting feature that I shall return to – but instead, are numbered in repetitive sequences of 1-7, represented with the letters א to ז. The purpose of this lettering is to identify the days of the week. In this calendar, indeed, 1 January is marked with the letter א; this means that in any given year, the letter א corresponds, throughout the calendar, to the weekday that 1 January happens to have been, ב corresponds to the following weekday, etc.; as long as the weekday of 1 January for this year is known, the weekday of any other day of this year can easily be identified. This system, as we shall see, is a standard characteristic of Latin Julian calendars (where the letters A to G are used).

Additional information is provided alongside the day numbers, on the left. This includes a few saint days and Christian festivals, the day of 'request' on 22 November, and the days of the *tequfot*. The latter are the equinoxes and solstices as computed in the Jewish calendar according to the scheme of Samuel;[23] because this scheme assumes, like the Julian calendar, a 365 ¼-day year, the *tequfot* generally fall on a fixed date in the Julian calendar, and thus can be entered on specific dates within this calendar. To cite a few examples, alongside the dates of 24-26 December the manuscript on fol. 3r notes:

תקופה אבגד

ניתל

שטיפן

i.e. the (winter) solstice in all four years (אבגד) of the Julian leap-year cycle (24 December); *Nital* (Christmas); and St Stephen (26 December). Similarly, alongside 22 February and 1 August we find פיטר, St Peter (without distortion, although in one place it appears as פיפטר);

and for 24 February, מטיאש יום הדילוג, 'St Matthias the leap day', i.e. the day in February that doubles up in the Julian calendar when the year is a leap year.[24]

The calendar of fols. 2v-3r identifies in addition the days that are 'difficult' or 'bad' (קשה), i.e. presumably not suitable for bloodletting (as will become evident in later calendars, where the full phrase קשה להקיז, 'bad for bloodletting', is used). In the calendar of 372r-v, these days are indicated with a degree-like symbol. This latter calendar also contains, in addition, the first days of the zodiac signs, as well as the so-called 'golden number'. The golden number, ranging from 1 to 19, is a standard feature of medieval Christian calendars, and represents the year numbers in the 19-year (Easter) cycle; for every month, golden numbers are entered next to the days when the lunar month begins in every year of the cycle (for example, in our calendar, 13 is entered next to 31 December; this means that in the 13th year of the cycle, 31 December is the first day of the lunar month). This feature is particularly useful for calculating every year the date of Easter.

Both versions of the calendar comprise in addition four tables, at the bottom of both pages, indicating the times of the day of the four *tequfot*. The times of the *tequfot* depend on the year within the four-year cycle of Julian leap years (there are thus four possible times for each of the *tequfot*). The German names of the four seasons, associated with each of the *tequfot*, are given below the tables, in transliteration. There is also a table to enable the identification of leap years, in the top left margin of the second page of the calendars (although it is cropped on fol. 372v). The Jewish years indicated in this table, in fol. 3r, are in the range of 5090-5120, which suggests, incidentally, a mid-14th century dating.[25] The author of this calendar clearly has a particular interest in both the *tequfot* and the Julian leap years, the latter, presumably, to help determine the times of the former. As suggested above, one of the functions of Christian calendars in Hebrew was evidently to facilitate the determination of time of the *tequfot*. The *tequfot*, indeed, are not easily calculated according to the Jewish

calendar, because the Jewish calendar is lunar, and thus its dates of the *tequfot* vary from year to year; whereas in the solar, Julian calendar, these dates are stable and fixed.

The absence in this manuscript of titles such as 'Saint', which we have also encountered in the spiral calendar of the North French Miscellany, reflects perhaps a deliberate decision on the part of the Jewish scribe. Many of the saint names, likewise, have been distorted: besides the common יחרם ('may he be destroyed') for St John the Baptist on 24 June, there is the regular substitution of תלויה, 'crucified', for Mary: thus St Mary on 25 March (the Annunciation), St Mary in mid August (the Assumption), and St Mary Magdalene on 22 July are all called תלויה (the latter, תלויה מדלינא).[26] The feast of the Cross, on 3 May, is simply labelled תועבה, 'abomination'. All Saints day is translated more faithfully as קדשים (*qedoshim*, 'saints' – but more on this term below); the omission of a word for 'all' is either careless, or a mild form of distortion. The general tone of this calendar, however, is clearly anti-Christian.

4. Calendars of 12 Julian months

Most of our manuscripts are laid out on twelve pages, one for each month of the year. This twelve-page layout enables a more comprehensive and more elaborate treatment of the Christian calendar than in the twelve-column calendar of ms Oxford Bodleian Heb. d.11 (which we have just seen), and reflects perhaps a historical development of the genre of Christian calendars in Hebrew – these manuscripts, indeed, date from the late 14th and 15th centuries, somewhat later than Bodleian Heb. d.11. I shall begin by outlining the common, standard features of these twelve-page calendars; then I shall briefly describe each calendar and its peculiarities.

The dominant and central feature of the twelve-page calendars are the weekday columns. In all these calendars, just as in the twelve-column calendar, the days of the month are never numbered (a feature that will require discussion at the end of this article); instead, they are represented by weekday columns. But whereas the twelve-column calendar of Bodleian Heb. d.11 has only a single column for each month (consisting of a repeated sequence of weekdays, as we have seen above), these calendars present seven columns for each month, thus providing all the possible weekdays for each day of the month. The first of these columns, in the month of January, begins with the letter א and continues with the letters א to ז in repetitive sequences, consecutively through all the months of the year. This column is presumably to be used, throughout the calendar, in years when 1 January occurs on Sunday. The second column begins in January with ב, for years when 1 January occurs on Monday, etc. Every year, a different column must thus be used. In this seven-column calendar, unlike the single-column system in Bodleian Heb. d.11, the letters have a fixed meaning, their numerical value representing the number of the days of the week.

Alongside the weekdays, in a considerably wider column, the twelve-page calendars provide a wealth of information about the Christian liturgical calendar, in far greater quantity than the twelve-column calendar. This section includes, first and foremost, a number of saint days, vigils, and other festival days, although the list varies from one calendar to the next and is far from standard. In addition, the section variously includes days not fit for bloodletting, zodiac signs, *tequfot*, 'request', and seasonal markers.

The calendars also provide, in this section or more often in separate columns, seasonal-astronomical information such as the lengths of day and night, the altitude (height) of the sun, and shadow lengths, for some or all the days of the year. Some have a 'golden number' column (see above), which in these calendars has been Judaized in such a way as to provide, not entirely accurately, the dates of Jewish lunar months through the 19-year cycle

(more on this below). Finally, the calendars incorporate in their margins and footers additional information, usually of a medical-astrological nature.

The seasonal-astronomical elements and the golden number column are often identical in the calendars where they appear, which clearly indicates a certain degree of standardization. The twelve-page calendars certainly have enough in common, above all in terms of general structure and layout, for us to identify them as an emerging, standard genre of Christian calendar in Hebrew in the late 14th-15th-centuries Franco-Germany.

For convenience, the calendars in this group will now be presented in order of increasing complexity, rather than in chronological order or according to language and provenance.

4a. Ms Budapest Kaufmann A370

Ms Budapest Kaufmann A370 fols. 734-50 is not the earliest in this group of calendars, but it is the most elementary.[27] It consists of seven weekday columns, followed by one section that includes mainly saint days and other Christian days (e.g. vigils); it also shows the dates and times of *tequfot*, and the bissextile day (additional day in February in leap years). There are no additional columns.

Unlike the other calendars in this group, its months are not laid out on separate pages but consecutively. The first month in the calendar is headed *Shevat Janvier* with the number of days in the month, but in subsequent months the Hebrew name is omitted, leaving only the French month name in Hebrew transliteration. The months of June (ג'ול) and July (ג'ולייט) are placed in the wrong order; the scribe acknowledges this and writes after July, before June: 'I have made a mistake and wrote July before June. The following is June, and should have been written first'. June is referred to here as ג'ול (*Jul*), which presumably reflects a certain

pronunciation and oral reception of the word; its similarity with ג'ולייט, *Juillet*, might explain why the scribe erroneously switched them round. The calendar ends with: סלִיק קלנדרייר דנוצרין, 'end of the *calendrier* of the Christians'.

In the last section, the Saints are variously listed with or without the title ק' (an abbreviation of קדש, 'Saint'): thus ק' ג'אן (*St Jean*, i.e. St John the Baptist, 24 June), but מריאה שטנברא (*Marie Setenbre*, St Mary of 8 September). Either way, the names are not distorted in the standard, pejorative manner that we have already encountered above. Pejorative designations are generally absent in this calendar, with one notable exception: All Saints day, on 1 November, is called קדישים או פגרים, 'Saints or corpses'. The word for 'Saints' is spelled in such a way as to read *qedeshim*, i.e. 'prostitutes' – an interesting double entendre that will be discussed further on in this article.

An early 15th-century dating can be inferred from another part of the manuscript, fol. 434, which presents a table of the Christian Easter 19-year cycle. This table consists very simply of a column with the cycle's year number (1-19), followed by a column with the *claves terminorum* (a number that enables to determine the dates of Easter, Pentecost, and other moveable Christian festivals in every year of the cycle).[28] A third and last column gives the corresponding Jewish 19-year cycle years (which are offset by 3 years from the Christian ones). Two dates are given in the middle of the second column: 178 and 182, which can be identified as (4)178 and (4)182, i.e. 1418 and 1422 CE, presumably the years around which this table was written. This table is, effectively, another type of Christian calendar in Hebrew.

4b. Ms Heidenheim 51

This slightly later German calendar (ms Heidenheim 51 fols. 153a-159a, c. 1438 CE) is also quite elementary, with only seven weekday columns followed by the section of saint days. On

the January page, written sideways in the right margin, the calendar introduces itself as ‘their year’.

The saint days are listed in the last column in Judeo-German, sometimes with the title ק' (‘Saint’), but not always, e.g. for 6 December: ניקלאש טק (‘Nicholas day’). The entry for 26 June is ק' יהנש עם פה זהב, ‘St Johannes with a gold mouth’, which suggests a German and Hebrew translation of ‘John Chrysostom’, whose festival is not on that day; perhaps this is an error for St John and Paul. Two names, in Judeo-French and German, are given for 25 December: ניתל ווינכטן (*Nital Weihnachten*). The calendar is replete with strong anti-Christian sentiment: thus the many vigil days are invariably called וילגא תענית שקר, ‘*vilge* (*sic* – perhaps a deliberated distortion) fast of falsehood’. The day of Mary Magdalene, 22 July, is called תלויהא מדליינן, similarly to what we have seen in ms Oxford Bodleian Heb. d.11.

Some days are also marked as קשה להקיז, ‘bad for bloodletting’, e.g. 6 December (Nicholas); and there are further lines of text, in the footer of each page, with dietary and medical prescriptions for each month.[29] In some months, but not all, the date of the zodiac sign is given, e.g. on 16 June the sun enters Cancer (but 14 June is indicated as the mid-summer day). 22 November is marked with שאלה (‘request’).

Each month is headed with the name of the month in Hebrew, in French, and sometimes also in German (all, of course, in Hebrew transliteration), together with the month’s number of days, its zodiac sign,[30] and the length of its days and nights. The latter is a very gross simplification: the winter months are all given the ratio of 8 hours of day, 16 hours of night, whilst the summer months are given the opposite, 16 hours of day and 8 hours of night, except for June, that oddly has 18 hours of day and 6 hours of night. A more sophisticated system, but following the same broad principle, will be encountered in the other calendars below.

The presentation of this calendar is somewhat untidy. Several hands appear to have tampered with it, sometimes in a repetitive way. This overlaying of different handwritings suggests that the calendar was used in practice, for whatever purposes it might have served.

4c. Ms Cambridge Add. 3127

This somewhat earlier Christian calendar in Hebrew, far more elaborate than the previous ones, is part of a French liturgical compendium which is dated 1399 in the colophon (fol. 309v). In contrast to the previous calendar, but similarly to ms Budapest, its approach to Christianity is very neutral.

Each month of the Julian calendar is laid out on one page (fols. 345r – 350v); it is headed by its name in French (in Hebrew transliteration), identified as the 'solar month', but also with a Hebrew name, which in this calendar is explicitly identified as 'lunar month'. For example:

ג'אנבייר ל'א' יום (ב)חדשי החמה שבט ל יום בחדשי הלבנה

'January 31 days (in) the solar months, Shevat 30 days in the lunar months'.

This lunar month, e.g. Shevat, should not be mistaken as a month of the Jewish calendar; it refers in fact to a Christian lunar month, which was reckoned as part of the Computus (the Christian computation of the date of Easter). The lunar months referred to in this calendar follow the rule in Christian Computus that any lunar month ending in an odd-numbered month (e.g. in January, which is month 1 of the year) has 30 days, and in even-numbered months (e.g. February month 2), 29 days.[31]

As in ms Heidenheim, the month headings also include the zodiac sign of the month, in Hebrew and in Judeo-Latin; this is written in faint ink, possibly by another hand.

The days of the month, as in all our calendars, are not numbered. The first column, on the right, provides instead the length of daylight for every single day of the month, in hours (שעות) and minutes (דקים). Thus, daylight on 1 January is 8 hours and 18 minutes; by the end of the month, on the 31st, it has increased to 9 hours and 36 minutes. This daily list, with periods of daylight in hours and minutes, is far more precise than the monthly daylight hours that are given in ms Heidenheim (see above). However, even in this calendar, the values provided are not based on scientific knowledge derived from empirical observation, but follow a simple arithmetic scheme. The shortest day of the year, around the astronomical winter solstice, is assumed as 8 hours exactly (a value which lasts through the period of 12-17 December); the longest day, summer solstice, as 16 hours (11-15 June); whilst the equinoxes, in March and September, are given as 12 hours. This simple ratio of 2:1 (for the daylight periods of summer:winter), implicit also in ms Heidenheim, happens to be approximately correct for the latitude of Paris, but this is only a coincidence. In actual fact, it is an astronomical convention that goes back to Antiquity and is attested already in ancient Babylonian astronomical sources.

After the seven weekday columns that follow, the last column on the far left includes mainly saint days and other Christian feasts, zodiac signs, and bloodletting prohibited days. In this calendar, the saints are consistently given the title of 'Saint'. Thus on 17 January on finds אנטונא ק', St Anthony; 25 January is לקורורשאשייון ק' פול אפוטרא, the Conversion of St Paul the Apostle (*la conversation* – an admissible alternative for *conversion* – is transliterated, by phonetic slippage, as *lacorversation*). Some entries are not transliterated but rather translated into Hebrew: thus 1 January, the Circumcision of Jesus, is rendered as יום המילה ישו; 2 January, the Octave of St Stephen, as אטינא ק' אח' ימים ח' ('8 days after *St*

Etienne'); Epiphany on 6 January as יום המלכים ('the day of the kings'); the Birthday of St John the Baptist (24 June) as יום הלד(ת) ק' גיאן בטיט, a literal translation instead of the pejorative *yaḥoram*; and All Saints, on 1 November, is literally translated כל הקדשים. In this calendar, the saint days and other Christian feasts are rendered in a neutral way, without any signs of polemical distortion.

Zodiac signs are listed here for every month, on the day when the sun enters the zodiac sign; but interestingly, two different dates are given: one plain, and the other 'according to custom' (למנהג). Thus 12 January carries the note 'the sun is in Aquarius', and 18 January 'the sun is in Aquarius according to custom'. The latter, as its name indicates, is a traditional date for zodiac signs, going back to late Antiquity, and still very commonly attested in late medieval breviaries.[32] The former, plain dates, seem to be original to our calendar and based on more accurate astronomical values, the source of which would be interesting to trace. In addition to zodiac signs, the dates of the *tequfot* (equinox and solstice, according to the more common scheme of Samuel) are listed, although the *tequfah* of Tishri, in September, is missing. The date of 22 November is marked in large letters as שאלה, ('request'). These are perhaps the only Jewish elements in this calendar.

Bloodletting prohibited days present themselves, in this same column, in several forms. The most simple form is לא יקיז, 'do not let (blood)', which appears in many days of the calendar, e.g. 2 and 13 January, 2 and 20 February. The other is designated variously as *yom agisiel* (e.g. 1 January, 26 February), *yom agirsiel* (4 February), and *yom agrisiel* (3 September), and often accompanied by an hour of the day; after much research, Justine Isserles has been able to identify this term with the Latin *aegri dies*, unfavourable days, which are sometimes known as 'Egyptian days' and appear in Latin calendars as days when bloodletting and other forms of medication are forbidden.[33]

Additional materials are inserted in the far left margin and in the bottom margin of the manuscript, not all in the same hand. In the margin of the month of January, an explanation is given of bissextile (leap) years, how to determine which years are bissextile, and how to use the calendar (in particular, the weekday columns) in a leap year. In the margin of February, the basic structure of the Christian liturgical year (mainly the schedule of the moveable festivals) is given, including the limits of Lent, Easter, and Pentecost (Julian calendar dates within which these events are allowed to occur), the intervals between them and between further dates in the Christian liturgical year. The interpretation of this text, and the accuracy of its data, remains at present unclear. Noteworthy in this text is the consistent erasure of the word for 'Easter', which can be nevertheless deciphered as קסח or קצח, standard medieval Hebrew distortions of its proper name פסח. Every month of the year contains, in addition, a short text with astrological-medical prescriptions for its zodiac sign.

4d. Ms Berlin, Preussischer Kulturbesitz 1198

This more or less contemporary calendar is neatly presented and evinces a particular interest in astronomy and in the Christian Computus. However, it is also more Judaic than the previous calendar, inasmuch as some of its features – the zodiac days and the golden number – have been redesigned to conform to the Jewish calendar, as we shall presently see.

The scribe has fitted two months per page, each month in a fully gridded table (fols. 32r – 34v). Each month is headed with its vernacular name and Hebrew name above it, e.g. January and Shevat, and the number of days in the month: for example, פברייר כ'ח' יום בישש ט יום כ'ט' ('February 28 days, bissextile 29 days'), with 'Adar' above 'February'. In this context, the Hebrew name designates the solar, Julian month.

The tables are structured with seven weekday columns, and a wider column at the end. The latter contains saint days, all with the title ק, 'Saint'. Again, anti-Christian expressions are hardly evident in this calendar: for example, St John the Baptist on 24 June is simply called יואן ק', 'St Jean' (not the common יחרם – see above), and vigils are simply called עינוי, 'fast' (e.g. 24 December). All Saints day on 1 November is called קדשים, 'Saints', but below this the scribe has added: כל הפגרים, 'all the corpses' (similarly to ms Budapest – see above); this gloss, perhaps an afterthought, may be read as a token expression of anti-Christianism, which the scribe may have added to assert his Jewish identity or to protect himself against any charge of philo-Christianism.

This section also includes forbidden bloodletting days (קשה להקיז), as well as shadow lengths and zodiac days. Indications of shadow lengths are spread throughout the calendar; as expected, shadows are deemed to be the shortest in June, when the sun in high, and the longest in December. The shortest shadow is indicated as צל ב, 'shadow 2'; the longest is צל כ, 'shadow 20' (see further below). The dates of the zodiac days, very originally, have been calculated according to the Jewish calendar's *tequfot* schemes of Samuel (see above) and of Rav Ada:[34] thus in January, for example, the sun enters Aquarius on the 14th according to R.Ada (שמש בדלי לרב אדא) and on the 24 according to Samuel (שמש בדלי למר שמואל). In this way, a Jewish element has been introduced into this Christian calendar.

Between the weekday columns and the saint day (etc.) section, two additional columns have been inserted. The first contains a Judaized golden number: instead of representing the Easter 19-year cycle, i.e. the beginning of lunar months in the Christian, Easter cycle, the golden numbers represent in this calendar the Jewish 19-year cycle, and the beginning of months of the Jewish calendar. Judaization of this golden number column may have been considered necessary to prevent readers from mistaking the Easter cycle for the Jewish calendar.[35]

The second additional column is entitled נטיה, i.e. the sun's declination, although the values it gives really represent the sun's altitude at noon. The highest altitude is in June, at 72 degrees, and the lowest in December, at 26 degrees. These values are correct for a geographical latitude of about 41 degrees north, which corresponds roughly with Toledo; I would assume these values were taken from the Toledan tables.[36] The notes at the bottom of fol. 32r explain that these values are useful for measuring the time of the day with a quadrant (קדראן); the number given in the tables enables one 'to calculate the degrees on the instrument (i.e. to calculate the time of the day, on the basis of the degrees inscribed on the quadrant?), and to know where to place the bead (פירלא, French *perle*) that is fitted to the (quadrant's) plumb line, in order to know the midday (i.e. southern) point'.

Notes of this kind accompany every page of the calendar. Fol. 31v, before the calendar actually begins, introduces the Julian calendar and explains the system of leap (bissextile) years. This is followed, at the bottom of the pages of the calendar (from fol. 32r onwards), with notes explaining, for example, that the golden number indicates the beginning of the lunar month (no mention is made, however, that in this calendar the golden number and its lunar month are specifically Jewish). Another note explains that the shadow lengths are helpful to determine time of day, and that they are measured in inches ('fingers') with a 12-inch gnomon. If what is meant is a vertical gnomon, then the values given in this calendar (2 in June, 20 in December, etc. – see above), do not tally with the values of the sun's altitude.[37] They are correct for a more southern geographical latitude, perhaps that of Baghdad. Evidently, they have been taken from a different source; although interested in astronomy, our scribe is evidently not concerned about consistency or scientific accuracy.

At the end of the 12-month calendar, an additional table (fol.35a) provides the dates of the Christian movable feasts (and some other details) for a period of 84 years, divided in three groups of 28 years, starting from Christmas 1380 (which falls in the Jewish year (51)41,

as indicated in the table); this gives, incidentally, an approximate date to the manuscript. The table provides the following information for all these years (in order of appearance): weekday of Christmas, leap years, number of weeks and days between Christmas and the beginning of Lent (עינוי), the date of the latter (in February or March), date of Easter (פשקש, in March or April), date of Ascension (חגת לשנציאון, in April, May, or June), date of Pentecost (פנטקוטא, in May or June), number of weeks and days between Pentecost and St John (ק' יואן, as above), number of weeks between Pentecost and Advent (אוינש מניתל, *Avins* of Christmas). The table employs a system of sigla, into which the scribe's name in inserted: שלמה הסופר (Solomon the scribe).

4e. Ms Oxford Bodleian Heb. g.1

This calendar text, dated 1493, also displays an interest in the Christian Computus. It begins with a table on two pages (fols. 181v-182r) with the relative dates of the following moveable feasts or days, in order: Easter (פאשקא), beginning of Lent (here transliterated as קריימא, *Carême*), Mid-Lent, Ascension (שנשיאון), Pentecost (פנטקושטא), Corpus Christi (חגת אותו, 'his' feast), and the number of days between Christmas and Lent. In the bottom left corner, an instruction is added for leap years. As the heading explains, this table can be used to work out any of these dates, for any given year, if one knows the date of Easter (although the date of any other of these feasts could similarly be used as a point of reference).

The date of Easter, in turn, can be worked out from a 19-year Easter cycle that is provided on the next page (182v). This table is presented, as always, entirely in Hebrew. The second column numbers the years of the Christian Easter cycle; on its right, the first column numbers the equivalent years in Jewish 19-year cycle (whereby Christian year 1 = Jewish year 17). The table then gives, in seven columns, the seven possible Easter Sunday dates for

each year of the cycle.[38] Below, a long caption explains how to use the table, with the year 1493 as a paradigm. The caption begins as follows: 'I have copied/translated this table from a Christian written text (כתב), and it is made to know when will be the date of Easter (here called by its traditional medieval Hebrew name, קצח)...' This is a rare passage where the source of the Christian calendars in Hebrew is explicitly referred to.

The 12-month calendar is laid on the following pages (fols. 183r-188v). Each month is headed with the Hebrew and French names of the month (e.g. שבט גנוייר, *Shevat Janvier*) and the number of days in the month. As usual, the days of the month are not numbered; instead, there are seven columns for the seven possible weekdays. Additional columns are laid on either side, but in this calendar, in a symmetrical order: thus the golden number column is always the nearest to the spine, followed by the declination column, then the seven weekday columns, a shadow length column, and near the outside of the page, the wider column with names of the saint days and other data.

The astronomical and computistic columns resemble closely those of ms Berlin (see above). The column of golden numbers is Judaized exactly as in ms Berlin, suggesting a common source or perhaps even direct dependence. The column of declinations, actually of the sun's altitude at noon, assumes the same values as ms Berlin, with the highest in June at 72 degrees and the lowest in December at 26; again, a common source is evident. In the shadow length column, the lowest value is 2 in June, as in ms Berlin; but the highest, in December, is 23 (in ms Berlin it is 20), whilst at the equinox (mid-March) it is 11. This December value is more difficult to make sense of than that of ms Berlin.

The saint days appear, as in the other calendars, in the outer column. Saint names (introduced with ק', 'St') and their preceding vigils (וגילא עינוי) are very common, with little or no sign of polemical distortion: thus St John the Baptist, on 24 June, is simply ק' גואן בטישטא ,

and All Saints day on 1 November is קדש' (‘Saints’). The nativity of Mary, on 8 September, is called מריאה שנטמברא, ‘Mary of September’ – perhaps a regional name.

The most distinctive feature of this calendar, and perhaps its more interesting one, is the frequent reference to fairs or market days. Several market days appear every month, usually with their geographical location. To cite just one example, on 9 September, after the day of Mary of September, is יריד בריאנשון, the market of Briançon (*département* of Hautes-Alpes – famous for its medieval September market); this is followed on 14 September, the day of St Cross, with the market of Revel (ק קרוויץ יריד רבייל), perhaps the locality now known as Revel-Tourdan, in the same broader region of the Dauphiné.[39] The location of the markets in this calendar should enable us to determine the geographical area for which this calendar was designed. It is also worth stressing the importance of market days in this calendar: the market of Briançon is given particular prominence in the month of September, being surrounded with a border and underlined with two zigzag lines. The commercial purpose of this Christian calendar in Hebrew, listing market days and the saint days associated with them, is abundantly clear but also says something, perhaps, of the purpose of the other calendars we have been considering.

In addition to market days, one day – 7 February – is marked as the ‘season of growth of seeds’ (עת צמיח זרעים); this agricultural landmark, which needs further clarification, confirms the specifically economic interests of the author of this calendar.

Other features, common to our calendars, are also attested here. Some days are marked as bad for bloodletting (ק'ל= קשה להקיז). The days of *tequfot* (equinox and solstice, according to the more common scheme of Samuel) and the beginning of zodiac signs are given, though not consistently for every month; November has strangely two zodiac days, on the 14th and the 16th, the latter being marked as ‘hot and dry’ (probably a medical entry). Daylight and night hours are also indicated, but only sporadically and incompletely: thus for

15 February, ‘day 10 hours night 14’, but for 29 January, only ‘nights 16 hours’. Near 22-23 November, שאלה (‘request’) is mentioned.

4f. Cairo Genizah join T-S AS 144.322 + T-S AS 144.307 + T-S K2.11

A single and almost complete folio of this calendar survives, as a join of three Cairo Genizah fragments. The folio is written on one side only. It comprises the months of March and April, for which there are seven columns of days of the week and a column for saint days. The zodiac sign is listed in March (Aries, 17 March) but not in April. This calendar is not precisely datable, but seems to belong to the same period as the others above.

The French identity of this calendar is evident from the vernacular used, but also from the names of saints, many of whom are specifically French and associated with western and south-western France: St Aulbin (i.e. Albinus or Aubin, 1 March), St Bénigne (20 March), St Paul (of Narbonne, 22 March), St Aphrodise of Béziers (ש' פרודילי מבדרש, 28 April), and St Eutrope of Saintes (Charente-Maritime, 30 April).

The pejorative *ḥariah*, which we have seen above (in the North French Miscellany), appears on 2 April for St Mary of Egypt, but elsewhere the name Mary is undistorted (Annunciation of Mary, 25 March, also the day of the *tequfah*; and another Mary on 20 April).

5. Dating with Saints: the purpose of Christian calendars in Hebrew

The most obvious purpose of Christian calendars in Hebrew was to enable Jews to track the Christian calendar of their dominant society. For this purpose, one would expect the calendars to have been designed in a way that was easy to use. Yet a common feature of these calendars, which has been noted above, is that the days of the months are never numbered. This omission is odd, because it makes it difficult for the reader to work out the date of any given entry (the reader needs to count the rows, from the top of the page, in order to establish the day number and date of the entry). This curious feature demands an explanation.

If one compares the Hebrew calendars to Latin Christian calendars (which will be considered more in detail below), one finds that also in the latter, the days of the month are not numbered consecutively (e.g. January from 1 to 31), but instead, they are counted according to the system of Roman calendar. This system, which has very early origins in the history of Roman time reckoning, consists rather strangely in a backward count from three named days that serve as reference points within the month: the Kalends (the first day of the month), the Nones (either the 5th or the 7th, depending on the month), and the Ides (13th or 15th). The days of the month thus begin with Kalends, followed by a count in descending order until the Nones, then another descending count until the Ides, and then the same until the Kalends of the following month.[40] This cumbersome system, which was still in use throughout medieval Europe (and later), may have been difficult to translate into Hebrew, and hence to represent in Hebrew Christian calendars; this may perhaps explain why Hebrew scribes omitted altogether the column of day numbers from their translations. However, attempts to translate this system and to use it are attested in Hebrew documents from medieval Iberia and Italy, and there is no good reason why the same could not have been attempted here too.[41] Moreover, avoidance of the Roman day numbering system is perhaps not an excuse for failing to number the days of the month in any form.

The explanation for this omission of day numbers, which I shall presently suggest, sheds further light on the function and purpose of the Christian calendars in Hebrew. The main purpose of these calendars, as suggested already above, was to enable Jews to keep track of Christian time reckoning, which was essential for conducting commerce with Christians. As we have seen, the dates of fairs are explicitly mentioned in some of the Hebrew calendars (ms Oxford Bodleian Heb. g.1); knowledge of these dates was obviously essential for Jewish traders, and could only be known on the basis of a Julian, Christian calendar. But the importance of the Christian calendar to Jews went well beyond the dating of market days. Its knowledge was necessary for Jews to date legal documents or understand their dates, to schedule business or other meetings with Christians, and in short, to coordinate effectively their socio-economic activities with the rhythms and structure of Christian medieval life.

What mattered to Jews, however, was not the theory of Christian time reckoning but rather how Christians reckoned time and dated events in real life. Christian real-life practice, in this respect, is likely to have varied across the medieval Christian West, but it seems evident that the Roman day count was not always used, even though it appears in all Christian liturgical calendars. Instead, Christians commonly reckoned time and dated events with reference to significant days in the Christian liturgical calendar: 'on St Anthony's day', or 'three days before St Anthony', etc. The common time frame, in popular Christian culture, was thus not the abstract succession of Julian months, but rather the concrete, culturally embedded, religiously loaded sequence of Christian festivals, fasts, and above all, saint days – a sequence that was enshrined, memorized, and transmitted through the medium, for example, of the *Cisiojanus*.

This common time frame, the Christian liturgical year, was adopted by Jews as a matter of sheer necessity, for the purpose of interacting with Christians; and as a result, in

some cases, it ended up being used by Jews among themselves. For example, Jewish contracts and legal documents from 13th-century England that are written in Hebrew but refer, typically, to transactions involving non-Jews, are generally dated with reference to Christian festivals and saint days.[42] Thus, one document releases another person from all debts 'from the creation of the world until Saint Pierres Gule d'Août, year 36 from the coronation of King Henry' (III, i.e. 1252 CE),[43] another promises to deliver the foot of a document 'within three weeks following Saint Michel (Michaelmas), year 40' (1256),[44] and another is dated 'Monday before Toussaint (All Saints), year 49 of the Kingdom' (1264?).[45] A deed of sale of a debt is dated '1 Kislew before the day of Ashes (Ash Wednesday) of said year', following the statement that the term of repayment of the debt is 'the morrow of the day of Ashes, year 48 of the coronation of our Lord King Henry son of King John' (1263/4);[46] the sale of the debt was between two Jews, and thus given a Jewish date, whereas the debt itself was with a non-Jew, hence its Christian date.

The use of Saint Days in Hebrew documents is not surprising, especially in the context of business and commerce, where this common time frame is likely to have been routinized. It explains why some Jews may have found useful a transliterated version of the *Cisiojanus*. More specifically, it explains why it was necessary, for Jews, to include Saint Days and other liturgical occasions in the Hebrew Christian calendars, whereas the Roman day count, in societies were it was perhaps less in use, could be safely omitted. The selectiveness of these calendars, in spite of their close conformity to Latin models (as we shall see below), was indicative of their functionality and intended purpose.

In the Cairo Genizah join, Saints are given the title 'ש, which transliterates the initial letter of 'saint'; but transliteration of this title is otherwise unusual. In all the other manuscripts that we have seen, 'saint' is translated into Hebrew as קדש (or abbreviated as 'ק), *qadosh*. This use of the term *qadosh*, normally restricted to the context of Jewish religion,

may have raised some eyebrows among contemporary Jewish readers. The reference to Christian Saints as *qedoshim* is known, in fact, to have been condemned by some medieval halakhists;[47] but these halakhists were probably responding to a practice that was widespread. Indeed, the use of this Hebrew term for Christian Saints is not only pervasive in the Christian calendars in Hebrew, but also commonly used in other medieval Hebrew sources.[48]

However, it is important to note that the terms *qadosh*, *qedoshim*, are consistently presented in the sources, not least in the Christian calendars in Hebrew, in defective spelling (קדש), which makes it possible for the terms to be vocalized *qadesh, qedeshim*, with the contrary meaning of 'prostitute' (cf Deut. 23:18). This ambiguity may have been deliberately intended as a subtle way of undermining, if not negating entirely, the holiness of the Christian Saints. In a few cases, indeed, the term for 'Saint' is explicitly spelled *qadesh, qedeshim* (in *plene* spelling: קדיש): thus All Saints day, in ms Budapest, is קדישים, and there are further examples in other sources.[49] This suggests that when, as in most cases, the term was left ambiguous with a defective spelling, the possibility of such a pejorative pronunciation was not lost on the scribes and readers.[50]

6. The making of Christian calendars in Hebrew

As noted from the outset of this article, the manuscripts in this corpus do not replicate or transmit a standard text, in spite of sharing many of structural features in common. Although they belong to what might be called the same literary genre, these calendars were all original compositions, with considerable scope for scribal creativity. As we have seen, the authors of our calendars evince a variety of different interests, such as astronomy (with references to zodiac signs, solar declinations, lengths of daylight, etc.: especially ms Cambridge Add.

3127, ms Berlin, ms Oxford g.1), Easter Computus (ms Oxford d.11, ms Budapest, ms Berlin, ms Oxford g.1), the count of leap years (*Cisiojanus*, ms Oxford d.11, ms Cambridge Add. 3127), bloodletting and astro-medicine (all but North French Miscellany, ms Budapest and *Cisiojanus*, although the context of the latter implies it), and markets days (ms Oxford g.1) – which reflects the variety of uses that these calendars may have been intended for. They also include, to varying extents, Jewish elements such as the day of 'request' and the *tequfot*, and in some calendars the Christian (or non-Jewish) contents have been deliberately Judaized, with golden numbers referring to the Jewish 19-year cycle instead of the Christian Easter one, and zodiac signs calculated according to the Jewish values of *tequfot* Shemuel and R.Ada (ms Berlin and ms Oxford g.1).

Most interestingly, Christian calendars in Hebrew evince very different attitudes towards Christianity, ranging from explicit anti-Christian invective (North French Miscellany, *Cisiojanus*, ms Oxford d.11, ms Heidenheim) to nearly complete neutrality (ms Cambridge Add. 3127, ms Oxford g.1, and except for All Saints day, ms Budapest and ms Berlin). These variations cannot simply be classified into linguistic, regional, or chronological groups; but it could be said that the later (late 14^{th} – 15^{th} centuries) French calendars, i.e. ms Cambridge Add. 3127, ms Berlin, ms Budapest, and ms Oxford g.1, are those most interested in astronomy and in the Easter Computus, and they are also religiously the most neutral. Perhaps this is historically significant.

In spite of these variations, all the Christian calendars in Hebrew share in common the use of Latin models for their construction (with the only exception of, significantly, the earliest calendar in our corpus, the spiral of the North French Miscellany). Dependence on a Latin model is obvious in the case of the *Cisiojanus*, although, as Neuberg has argued, it was probably based on a purely oral reception and version of the Latin text. Dependence on *written* exemplars is evident, in contents as well as in layout, in the four 12-month calendars.

To begin with layout, Latin Christian calendars from this period were normally presented over twelve pages, just like our Hebrew calendars, each month consisting of a multi-column table. Like our Hebrew calendars, the Latin month tables included a column of weekdays, although usually only one, as in ms Oxford d.11 (and not over seven columns). Usually before this came one column of golden numbers, as we have seen at least in two calendars in Hebrew, ms Berlin and ms Oxford g.1. Then came the Roman day count, which for reasons explained above were omitted from the calendars in Hebrew; and finally a very wide column, listing the saint days and other special festivals. Some had additional columns that can also be found in the Hebrew versions: thus the column of daylight hours and minutes for every day of the year is found both in Hebrew in ms Cambridge Add. 3127, and in French in its nearly contemporary *Très Riches Heures du Duc de Berry*, a famous, luxury Book of Hours dated c. 1412-1416. Both assume the same 2:1 scheme (see explanation above), although the times are set on slightly different dates.[51]

In Latin Christian calendars, furthermore, each month is headed with the name of the month and its number of days, typically of the solar and the lunar months (as they were reckoned in Easter Computus) – a feature we have seen in ms Cambridge Add. 3127. For example, in the nearly contemporary *Très Riches Heures du Duc de Berry*, the month of January is headed in French with: '*Janvier a xxxi iour et la lune xxx*' (January has 31 days, and the moon 30). A much earlier Latin Christian calendar, from the 12th century, has for January the heading: '*Ianuarius ht dies xxxi luna xxx*', with the exactly same meaning (*ht* is an abbreviation for *habet*); and the same, standard heading is still found in the later 15th century.[52] The month headings in ms Cambridge Add, 3127 are exact Hebrew translations of this standard formula, except that the lunar months are given, by analogy with the Jewish calendar, Jewish month names.

The contents of the last, very wide column in the Christian calendars in Hebrew also replicate their Latin Christian models. Besides Christian saint days and festivals days, bloodletting days are commonly listed in Latin calendars,[53] as are zodiac signs. The *Bréviaire de Belleville*, a Parisian breviary dating from the early 14th century, provides in addition the dates of equinoxes and solstices, e.g. the winter solstice on 15 December, which is distinct from the entry of the sun in Capricorn on 18 December; in a number of Christian calendars in Hebrew (ms Cambridge Add. 3127, ms Berlin, and ms Oxford g.1), similarly, the dates of the *tequfot* are provided in addition to the zodiac signs. Ms Cambridge Add. 3127 mentions in addition the 'beginning of winter' (מתחיל חורף) on 15 December, which is distinct from its two Capricorn dates (13 December plain, and 18 December 'custom') and from the date of the *tequfah* of Tevet on 24 December, but reminds us of the 15 December winter solstice of the *Bréviaire de Belleville*.[54]

The structural similarity of our Hebrew calendars to Latin calendars, as well as their clearly shared contents, suggest very strongly that the Hebrew calendars were directly modelled on Latin and/or vernacular exemplars (which, incidentally, the scribes must have been able to read). In one case, the scribe explicitly mentions his use of a 'Christian written text' (ms Oxford g.1, in the caption to its Easter table). Jewish scribes are likely to have used several Christian exemplars in combination and in eclectic, selective ways, according to their interests and the specific purposes of their translations; in some cases, they also drew on oral knowledge.[55] Their calendars are, in this manner, vivid examples of exchange of knowledge of all kinds – scientific, social, and also religious – between Christians and Jews in late medieval northern Europe.

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[1] This paper is the result of research carried out in collaboration with Justine Isserles (Geneva) as part of a project funded by the Leverhulme Trust on 'Medieval Christian and

Jewish calendar texts from England and Franco-Germany' (UCL, 2011-13), and more recently as part of an ERC Advanced Grant project on 'Calendars in Late Antiquity and the Middle Ages: standardization and fixation' (UCL, 2013-18). Preliminary versions of part of this paper were presented at a colloquium of the EAJS in Oxford, July 2009, and at an Israel Science Foundation workshop convened by Tzvi Langermann at Bar-Ilan University, 2-4 February 2010. I am grateful to Elisheva Baumgarten and Justine Isserles for their comments on this paper, and to the latter, in particular, for originally drawing my attention to these sources. My thanks also to Shamma Boyarin, for pointing out to me the second calendar of Ms Oxford, Bodleian Heb. d.11, on fols. 372r-v.

[2] The 16th century is, as Justine Isserles advises me, the approximate date of the folio containing the Cisiojanus; it is inserted into a manuscript that dates to the early 15th century (see below, near n.16). The identification of the manuscripts in this list as 'French' or 'German' is primarily linguistic, and refers to the vernacular that is used in the calendar texts; their French and German origins may also find palaeographic support.

[3] Two articles on the subject have been published since this paper was written: C. P. E. Nothaft and J. Isserles, 'Calendars beyond borders: exchange of calendrical knowledge between Jews and Christians in medieval Europe (12th-15th century), *Medieval Encounters* 20, 2014, 1-37; E. Baumgarten, 'Shared and contested time: Jews and the Christian ritual calendar in the late thirteenth century', *Viator* 46, 2015, 253-76. The evidence of the manuscript sources, however, has not yet been surveyed or properly described; this is what this present article attempts to contribute. Christian calendars in Hebrew are also attested, very commonly, in the early modern *Sifrei Evronot*; these later calendar texts are discussed more generally by Elisheva Carlebach (*Palaces of Time: Jewish calendar and culture in early modern Europe,* Cambridge, Mass.: Harvard University Press, 2011, 115-40), and are in direct historical continuity with the medieval Christian calendars that are presented here.

[4] I add 'and where' in brackets, because in some calendars the locations of markets are also mentioned. On the early modern period, see Carlebach, *Palaces of Time*, 141-59.

[5] This calendar is transcribed and edited by Raphael Loewe in Schonfield's companion volume (vol. 2) to the facsimile edition of the manuscript (J. Schonfield (ed.), *The North French Hebrew Miscellany (Facsimile of Add.Ms 11639)*, 2 vols., London: Facsimile Editions, 2003). Its dating is based on a calendar of *tequfot* (equinoxes and solstices) starting from the year 5038 (1277/8 CE) on fol. 543r (this year number is not an error, *pace* Loewe citing M. Beit-Arié, ibid. 264-5), and a table of *moladot* (new moons) starting from 5040 (1279/80 CE) on fol. 444a.

[6] Thus it is not a 'month of the Hebrew year with its Julian equivalent', *pace* M. Garel and R. Loewe (ibid. pp. 29 and 261 respectively).

[7] *bSanhedrin* 63b; see Tosafot there, and below n.47.

[8] E.g 2 February, 25 March, 15 August, 8 September. On this substitution for Mary in the later, *Sifrei Evronot*, see Carlebach, *Palaces of Time*, 121.

[9] E.g. 22 February, 29 June, 1 August. This distortion is also attested in literary sources: *Sefer Ḥasidim* 191 (Margaliot ed. p. 188); *Maḥzor Vitry* ed. Hurwitz (Nuremberg, 1923) vol.1, p.282.

[10] The practice and its rationale are discussed in detail in R.Jacob b.Samson's treatise on the calendar (c. 1123 CE), of which only a fragment survives in ms Oxford Bodl. Opp.317 fols. 88a-99b, in fol. 89a. A critical edition of this text is in preparation by Ilana Wartenberg, as part of an AHRC-funded research project at UCL. See further I. M. Ta-Shma, 'The danger of drinking water during the *tequfah* – the history of an idea' (Hebrew), *Jerusalem Studies in Jewish Folklore*, 17 (1995), 21-3; Carlebach, *Palaces of Time*, 160-88.

[11] This corresponds to the 60th day (inclusive count) after the *tequfah* of Tishri (autumn equinox, which is taken as 24 September), in accordance with the Talmudic tradition in *Y.Ta'anit* 1:1 (63d) and *B.Ta'anit* 10a.

[12] Erroneous repetition. St Maurice (22 September) is omitted in the spiral, and unusually given here the title of Saint (קדש מוריז).

[13] Christmas is called here ניטל (a variant spelling of ניתל, which appears in the spiral), *Nital*, a common medieval Hebrew distortion of the Latin *Natalis*, perhaps to signify the Hebrew נתלה ('crucified') – Loewe ibid. 264 n.3; Carlebach, *Palaces of Time*, 121-2 and nn. Marcheque (מרגיקא) is 25 March, the Annunciation, a great market day (see on this Garel, 29-30); it is omitted from the spiral. On the four -part division of the ecclesiastical year, see further Loewe 263-4.

[14] The triangle does not exactly match the ink penetration from the recto, but still, the general intention appears to have been to replicate the design on the other side.

[16] The spiral might also suggest something dark and magical, as spirals are sometimes used in medieval Hebrew magical texts: e.g. ms Rylands Genizah B 6486, ms New York Public Library Heb 190 (ex-Sassoon 56) p.250, and ms Bibliothèque de Genève, Comites Latentes 145, fol. 222r (references courtesy of Gideon Bohak).

[17] S. Neuberg, 'Aschkenasisches Latein: ein westjiddischer Cisiojanus', in W. Röll and S. Neuberg, *Jiddische Philologie. Festschrift für Erika Timm*. Tübingen: Max Niemeyer, 1999, 111-32. Neuberg's main interest, however, lies in the languages employed in the text, Judeo-Latin and Judeo-German. I am grateful to Lucia Raspe for drawing my attention to this publication.

[18] See K. Haebler, 'Le soi-disant cisianus de 1443 et les cisianus allemands', *Le bibliographe moderne, courier international des archives et des bibliothèques*, Paris, 6th year, 1902, pp. 5-40 and 189-210.

[19] See further below, n.39.

[20] A major town in Swabia: see Neuberg, 126.

[21] They are transcribed in Neuberg ibid. nn. 47-50.

[22] This may also be a Talmudic allusion to כל הצלמים, 'All the Statues', which is the title of the third chapter of tractate *Avodah Zarah.*

[23] Babylonian Talmud, *Eruvin* 56a.

[24] So on fol. 2v; on 272r, מטיאש עיבור יום הדילוג. See further below, n.39.

[25] A calendar table on the next page, fol. 4a, similarly begins in the year 5093 (1332/3 CE).

[26] On this substitution for Mary in the *Sifrei Evronot*, see Carlebach, *Palaces of Time*, 128.

[27] I am grateful to Elisheva Baumgarten for drawing my attention to this manuscript.

[28] See B. Blackburn and L. Holford-Strevens, *The Oxford Companion to the Year*, Oxford: Oxford University Press (1999) 811-2 and 821. The last number is given here as 36 instead of 38.

[29] See J. Isserles, 'Some Hygiene and Dietary Calendars in Hebrew Manuscripts from Medieval Ashkenaz', in S. Stern and C. Burnett (eds), *Time, Astronomy and Calendars in the Jewish Tradition* (Leiden, Boston: Brill, 2014, 273-326).

[30] That is the sign that the sun enters at some point during the month: e.g. December is identified as Capricorn, but as the calendar itself indicates, the sun only enters this sign on the 18th.

[31] Blackburn and Holford-Strevens, *Oxford Companion to the Year*, 813.

[32] The dates 'according to custom' correspond almost exactly to the zodiac dates that are given, for example, in the *Bréviaire de Philippe le Bon*, ms. Bruxelles Bib. Roy. 9511 fols. 244v-250r (Paris, early 15th cent.), *Missale Parisienne*, ms. Copenhagen Thott 146 2° (Paris c.1380), *Bréviaire de Belleville*, ms. Paris BN Lat. 10483-4 (Paris, early 14th cent.), and *Les Heures de Peyre de Bonetos*, J.-L. Lemaître (ed.), Ussel: Musée du pays d'Ussel, 1987

(Limousin, early 15th cent.). These dual zodiac dates have nothing to do with the Jewish schemes of Samuel and R.Ada that we will encounter below, in Ms Berlin.

[33] See for example L. Sándor Chardonnens, *Anglo-Saxon Prognostics 900-1100, Studies and Texts*, (Brill, Leiden-Boston: 2007), 330-92 (reference courtesy of Justine Isserles).

[34] Rav Ada's scheme, first attested in the *Sefer haIbbur* of Abraham b.Hiyya (3:4-5) (c.1123 CE), is based on a more precise year length, shorter than 365 ¼ days, which is obtained by dividing 235 (i.e. the number of lunar months, or lunations, in the 19-year cycle) by 19.

[35] Normally the golden number only indicates the beginning of a lunar month, but not its name or its number (which is of minor importance in the context of the Christian Easter cycle). In the context of the Jewish calendar, however, the identity of the lunar month is very important, and for this reason, the names of the months are added in this calendar in an intermediate column, indicating for example, in the month of September, that any golden number on or after the 25th represents the beginning of the month of Marheshwan. It is important to note that a Jewish golden number cannot remain the same for every 19-year cycle, because the Jewish calendar is not cyclical in the same way as the Christian Easter cycle. Although this column clearly represents a Jewish golden number, as it broadly agrees with Jewish calendar dates, I have not found any 19-year period within the 13th-15th centuries in which the Jewish calendar matches exactly the sequence in this text. The way in which this sequence of golden numbers was constructed remains therefore to be established, but it was clearly not modelled on the Christian golden number.

[36] Raymond Mercier points out to me, however, that in the Toledan tables the latitude is usually 35 or 40. Another source cannot be ruled out.

[37] These values imply the sun's altitude at noon of 80 degrees in June, and 31 degrees in December. This fits a terrestial latitude of about 34 degrees north.

[38] The seven columns are headed with the letters א to ז, which seem to represent the concurrent + 1. Why 1 has been added to the concurrent remains to be explained.

[39] I owe these identifications to Justine Isserles.

[40] For example, 24 February is called *ante diem VI kalendas Martias* ('the sixth day before the Kalends of March', inclusive count). In a leap year, when this day is doubled up, the intercalated day is *a.d. bis VI kal. Mart.*, or simply *bissextus* (i.e. the 'second sixth' day) – the origin of the term 'bissextile'.

[41] See M. Perani, 'The "Gerona Genizah": an overview and a rediscovered *Ketubah* of 1377', *Hispania Judaica* 7, 2010, 137-73, on pp. 155-9 and pl.3: a fragment from a moneylender register in Hebrew, dated 1342. The entries are dated by saint days (without the title קדש, 'Saint'), e.g. פליד (*Felid*, St Felix on 1 August), מיקל (Michaelmas, 29 September), but much more frequently by the name of the month (in this document, running from May to December) and the day of the month. The latter is given with reference to the terms כני' (כניסה), חצי, and יצי' (יציאה), i.e. 'entrance', 'half', and 'exit', which may be interpreted as Nones, Ides, and Kalends; the day numbers in the document, however, do not fit this scheme, so the matter requires further investigation. The same dating method appears in another register of 1319-22 (ibid. pl.16), and in further, unpublished documents from Gerona of the same century, as well as in an Italian document (Ms Strasbourg BNU 4038 f 34r). I am grateful to Mauro Perani for sharing this information with me.

[42] M. D. Davis, *Hebrew Deeds of English Jews before 1290*, London: Jewish Chronicle, 1888, with a partial list of examples on p. xiv.

[43] Westminster Abbey Muniment 6747: מבריאת עולם עד קדש פירש גול דאאוט שנת עיטור המלך הנרי שלשים וששה (Davis no.103, p. 232). St Pierre Gule is 1 August.

[44] Id. 6741: ובתוך שלשה שבועות אחר שיינט מיקל שנת ארבעים אמסור הרגל (Davis no.114, p.242).

[45] Id. 6773: יום ב' לפני טוט שיינש שנת מ'ט' למלכות (Davis no.51, p. 131). Henry's regnal years began on 28 October 1216. If 'year 49' refers to All Saints (1 November), then the year is 1264; if it refers to the preceding Monday, then the date is Monday 26 October 1265 (which Davis appears to assume). I am grateful to Judith Schlanger for drawing my attention to these documents and for her advice with regard to the date.

[46] Id. 6782: וזמן פריעת חוב הנקו' למחרת מיום צינדרא שנת ארבעים ושמנה לעטור אדוננו המלך הנרי בן המלך יהן ... זה השטר נעשה יום ראש חדש כסליו הסמוך לפני יום צינדרא שנת האמור (Davis no.47, pp.116-19, wrongly dated to 1264). I am following Judith Schlanger's (personal communication) interpretation of צינדרא as *Cendres* (Ashes); Ash Wednesday in 1264 was on 12 March. Davis interprets it less likely as 'St Andrew' (*sindré*, Saint André), i.e. 30 November (1263).

[47] *Sefer Hasidim* 427 (ed. Margaliot *p. 301*): 'a Jew should not tell a non-Jew: "I shall lend you until such-and-such idolatrous festival, or until the day of this saint" ... even the name of their festival that they call Michael (Michaelmas) a Jew should not mention'. R. Yom Tov b. Assevili, *Ḥiddushei ha-Ritva*, tractate *Avodah Zarah* 46a: 'and all the more so it is forbidden to mention the saints of the Christians as they mention them, with a title of holiness – and this is clear'. R. Yeruḥam (*Toledot Adam ve-Ḥava*, 17:5, Venice edn. 1553, 159c) cites a permissive ruling of *Avi ha-Ezri* whereby '(the names of) their saints, which are like people's', may be mentioned, but he adds the following comment: 'this means only without a title of importance, like the names of people, but to call them 'saints' as the Gentiles refer to them, as a title of importance, is forbidden'.

[48] For example, *Tosafot ad bSanh.* 63b, s.v. *asur*, with parallels in *Tosafot ad Bekhorot* 2b s.v. *shema*; above n.46 (R. Yeruḥam ibid.) and next note (R. Meir of Rottenburg).

[49] E.g Westminster Abbey Muniment 6818: קדישה מריאה (St Mary, a reference to a church in Norwich, document dated 1267 – Davis no.55, p.144); R.Meir of Rottenburg,*Teshuvot Maharam b.Barukh*, ed. Kahana, vol. 2, no.57, p.52 (at least according to the text edition).

[50] It was certainly not lost on an 18th-century censor, who castigated Jewish printers for the ambiguity of the defective spelling of קדש (Carlebach, *Palaces of Time*, 132 and 240 n.72). I am grateful to Ephraim Kanarfogel and Shai Walter for their useful suggestions in this regard.

[51] Thus the equinoxes, with 12 hours of daylight, are on 12 March and 15 September in ms Cambridge, as opposed to 13 March and 16-17 September in the *Très Riches Heures*. Images of the *Très Riches Heures* are available at http://commons.wikimedia.org/wiki/Category:Tr%C3%A8s_Riches_Heures_du_Duc_de_Berry_scan_2004 (accessed 5 March 2013); see also C.P.E. Nothaft, 'The Astronomical data in the *Très Riches Heures* and their fourteenth-century source', *Journal for the History of Astronomy* 46, 2015, 113– 129. Some Christian calendars in Latin also included a column of lunar days, to facilitate the count of the lunar months as reckoned in the Computus (e.g. ms Durham Sp.Coll. Hunter 85). Lunar days were normally arranged in blocks of four or three days, each block being lettered in sequence (starting on 1 January with A – a system going back to late Antiquity, e.g. in the calendar of Philocalus of 354 CE, section VI: A. Degrassi, *Inscriptiones Italiae*, xiii: *Fasti et Elogia*, fasc. 2: *Fasti Anni Numani et Iuliani. Accedunt Ferialia, Menologia Rustica, Parapegmata*, Rome: La Libreria dello Stato, 1963, pp. 237–62, no. 42). This lunar column is not attested in any of our calendars, perhaps because of the confusion this may have caused with the Jewish calendar.

[52] Ms Durham Sp.Coll. Hunter 85 (T.4.2) fol.3r (http://special.lib.gla.ac.uk/exhibns/month/jan2001.html) and the privately owned Limoges calendar of 1475-85 fol.1r (http://www.chd.dk/dismembra/limogesrom.html , both accessed 5 March 2013), respectively. The January heading in the latter is '*Ianuarius ht dies xxxi luna habet xxx*'.

[53] The first printed calendar, Guttenberg's 'Bloodletting Calendar' (Mainz 1457, in Latin; Paris BNF Res V 725), is so named because of its list of bloodletting days, although these are days that are *favourable* for bloodletting.

[54] This seasonal date is only attested in ms Cambridge for the month of December. The similarities between ms Cambridge and the *Bréviaire de Belleville* may justify the assumption that its peculiar, unparalleled double zodiac dates (plain and 'custom', מנהג) were drawn from some Latin calendar rather than an innovative contribution of the Hebrew translator, although the latter cannot be ruled out.

[55] The frequent misspellings of month names (e.g. June in ms Budapest), Saint names, and Christian festivals (in many of the manuscripts), if not due to deliberate distortion, can sometimes be explained as due to misreading or transliteration error, but sometimes as due to inaccurate aural reception (e.g. in the *Cisiojanus*, as noted above).