CORPUS
PHILOSOPHORUM DANICORUM
MEDII AEVI

X.1

CORPUS PHILOSOPHORUM

DANICORUM

MEDII AEVI

X.1

PETRI PHILOMENAE
DE DACIA ET
PETRI DE S. AUDOMARO

OPERA QUADRIVIALIA

PARS I

OPERA PETRI PHILOMENAE

EDIDIT

FRIDERICUS SAABY PEDERSEN

SUMPTUS FECIT

INSTITUTUM CARLSBERGICUM

EDITIONI CURANDAE

CONSULUIT

POVL JOHS. JENSEN

CONTENTS OF PART 1

Since the appearance of *Corpus Philosophorum* VIII in 1979, DET DANSKE SPROG- OG LITTERATURSELSKAB (The Danish Society of Language and Literature) and *Corpus* have lost the last of the two founders of this series: Dr HEINRICH ROOS, S.J. (1904-1977) and Dr ALFRED OTTO, S.J. (1903-1982). Moreover, Professor JAN PINBORG (1937-1982), who had carried on the work of the founders, recently succumbed to illness in the midst of his many tasks for Copenhagen University and for Danish and international collaboration projects. These scholars and their work will be remembered with the greatest respect by the Society.

The management of *Corpus* has been handed over to Dr STEN EBBESEN, who worked with Jan Pinborg on vol. IX: *Boethii et aliorum Sophismata*. This volume has been delayed, but the number will be reserved for it because of its connection with the other Boethiana in vols. IV-VIII.

For the present, the first part of vol. X is being issued. In this Mr FRITZ SAABY PEDERSEN, Lic. Phil., presents the two (perhaps identical) astronomers PETRUS PHILOMENA DE DACIA and PETRUS DE SANCTO AUDOMARO. For practical reasons this volume is being divided into two parts, and the second will appear in 1983. Some of the treatises edited are brief, but they are contained in numerous, widely spread manuscripts requiring extensive study, notwithstanding the preparatory work carried out, in particular, by Professor OLAF PEDERSEN (Aarhus University).

In addition, Mr N.J. GREEN-PEDERSEN is working on NICOLAUS DE DACIA: *Quaestiones super Priora Analytica* (ms. from 1342), and Professor SØREN SKOVGAARD JENSEN (Odense University) on THUO DE VIBERGIA: *Quaestiones super Metaphysica* (ms. from 1438). It is also hoped to reissue ANDREAS SUNONIS: *Hexaëmeron,* a creation epic of 8000 verses, as well as a large astrological work by another NICOLAUS DE DACIA:

Libri tres Anaglypharum (c. 1450). A further volume of scientific treatises is envisaged, whereafter it is intended to bring *Corpus* to an end with a volume that will gather up any texts recently discovered and contain certain improvements to the whole series.

The Society is deeply grateful to the CARLSBERG FOUNDATION, the steadfast and of late the only source of grants for the printing of *Corpus Philosophorum*. We also thank the printer FR. BAGGES KGL. HOFBOGTRYKKERI for their excellent collaboration, in particular regarding the complicated typographical problems set by the present volume.

DET DANSKE SPROG- OG LITTERATURSELSKAB

February 1983

Iver Kjær, Chairman   *Poul Lindegård Hjorth*   *Torben Nielsen*
   † *Jan Pinborg*   *Erik Sønderholm*   */Erik Dal*

København, Kgl.Bibl., Ny kgl.Saml. 275ᵃ.4°, 1r. Beginning of Sacrobosco's Algorism, with notes including extracts from *Exp.Alg.* See pp.168 and 174.

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Erfurt, Wiss. Allgemeinbibl., CA 4º234, 136vb-137ra. End of *Exp.Alg.* See pp.72 and 161-3.

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København, Kgl.Bibl., Add.447,2º, 41v. *Calendar* of Peter Philomena (July), with *Kal.canon B* secondarily added. See pp.230 and 334-5.

København, Kgl.Bibl., Ny kgl.Saml. 275ª,4º, 78v,79v,80r. Calendar of Grosse-teste with secondary notes. Bottom: same ms., 84v. Index mentioning P. de Dacia. See pp.33 and 167-8.
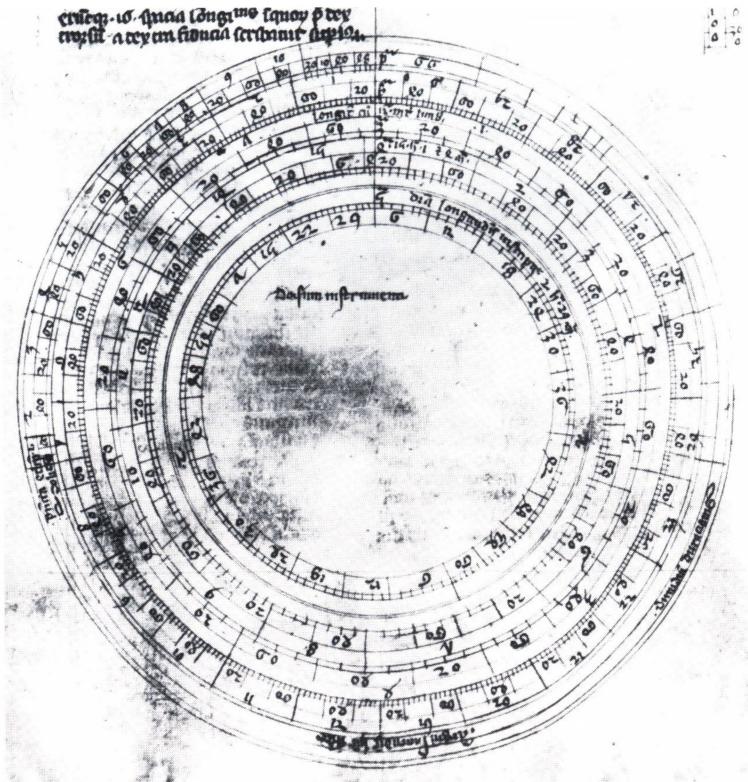
München, Bayerische Staatsbibl., Clm 5538, 55r. Quadratic lunar table, secondarily ascribed and fitted with numbers from *T.L.* See pp.247, 326-7, 360 and 393.

Napoli, Bibl. Nazionale, VII.A.26, 249vb. *Tractatus instrumenti eclipsium,* with corrections. See pp.460 and 489-90.

Firenze, Bibl.Naz.Centrale, II.III.24, 209r,209v,210r. *Tractatus instrumenti eclipsium*: front of instrument with cursor; *novella maior* (="volvella solis"); and back of instrument. See p.464 ff. as concerns the differences between the instruments described in this manuscript and in the one edited below.
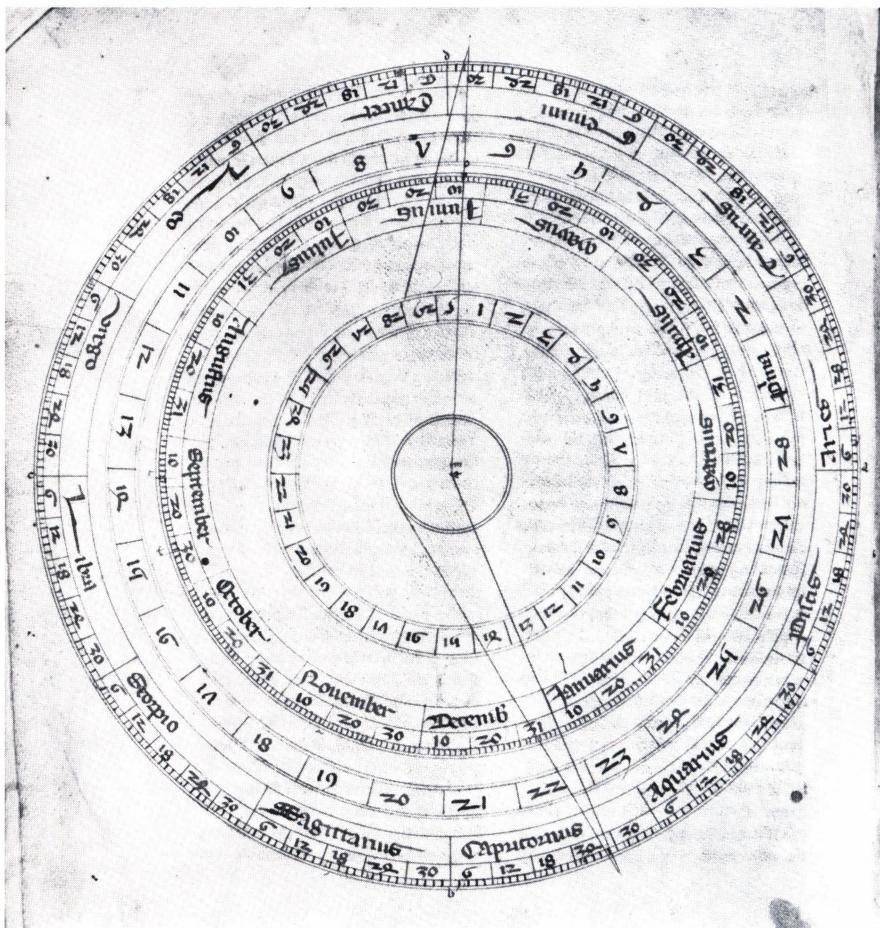
København, Kgl.Bibl., Gl.kgl.Saml. 1810, 4º, 74v. "Frater Petrus Inguari studens Roskildensis." See pp.41 and 562-3.

p.19-20: Torino, Bibl.Naz., E.IV.20, 6v,7v. *Tractatus novi quadrantis* (*Quadrans 1*): front and back of instrument, the latter with pointers sketched according to the later version (cf.p.24).

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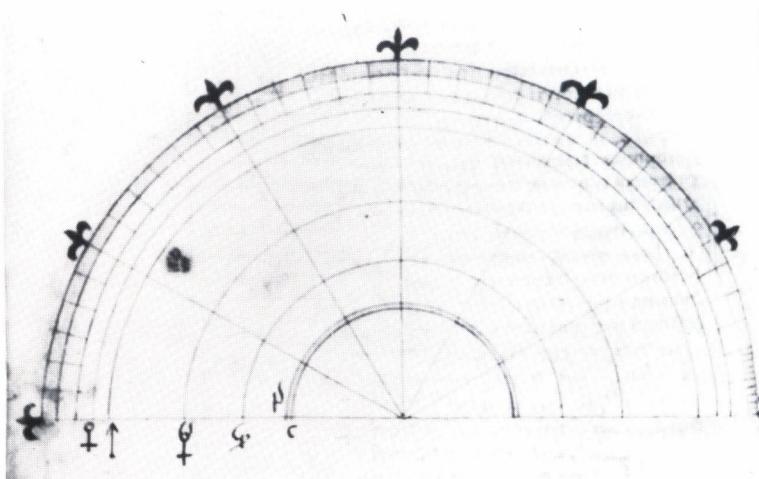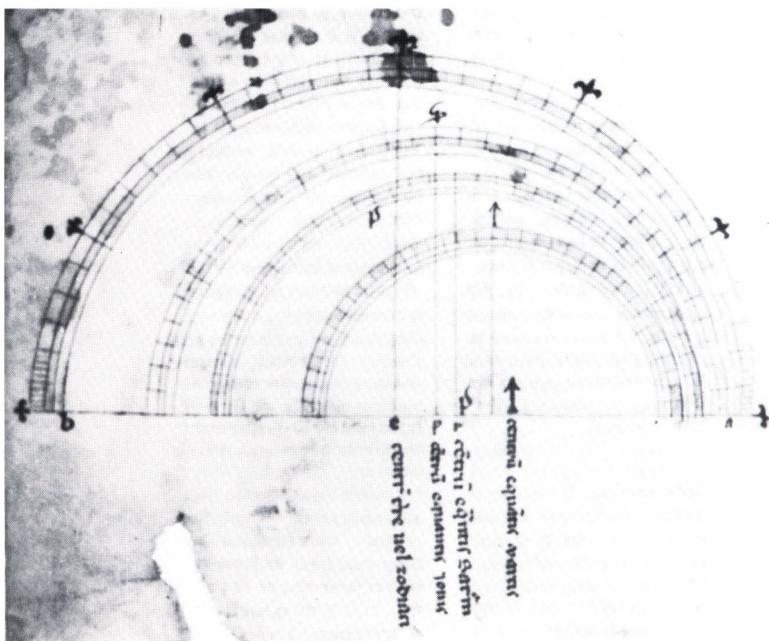
Paris, Bibl.Nat., lat. 7195, 91vb. See pp.42 and 58.

Basel, Universitätsbibl., F.III.25, 16r. *Tractatus de semissis*: end of Ch.10. See p.43 and Part 2.

Bernkastel-Kues, Skt. Nikolaus-Hospital, 214, 1v,4v. *Tractatus de semissis*: front of *semissa sphaerarum,* and *semissa epicyclorum.*

p.23-24: Oxford, Bodleian Libr., Bodl.177, 63ᵃr-v. *Ars et operatio novi quadrantis* (*Quadrans 2*): front and back of instrument. See p.44 and Part 2.

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§1-10 *Petrus Philomena de Dacia.*

PETRUS PHILOMENA DE DACIA.

§1. *Main features of the literature.*

Petrus (Philomena) de Dacia, or Petrus Dacus, canon in Roskilde about 1300 and the only Danish mathematician and astronomer of any repute during the Middle Ages, has had some attention since the invention of printing. Trithemius[1], correctly though incompletely, credited "Petrus de Dacia" with a book *de calculo seu computo*, a calendar, and a book of (astronomical) tables. From then until the late 19th century, several authors attempted to identify him with one or both of two contemporary Peters of Dacia (see §10a,c), on no other foundation than the coincidence of names. This story of conflation has been engagingly told by O.Pedersen[2] and need not be repeated here; in general, however, the problem persists. In modern times, besides a lot of notes on incidental discoveries, a few notable special studies have appeared. Thus, Gustav Eneström (1885;1886) indicated some manuscripts of the Calendar (which had been printed in 1880; see §3b), the lunar table (§3c), the commentary on Sacrobosco's *Algorismus* (§3a; printed by Curtze in 1897), and other pieces ascribed to one Peter of Dacia (§4c-e;§10b; Notes 13,32). Ernst Zinner published an expanded list of manuscripts in 1932(1936)[3], and made suggestive comparisons with the works of William of St.Cloud and other contemporary astronomers. He also proposed that Peter Philomena was the author of two works edited in 1293/4 "a magistro Petro (Dane *or* Dano) de sancto Audomaro" (§11,§14). The certainly authentic treatise on an eclipse instrument, the *Eclipsorium*, discovered by Lynn Thorndike (1959;§3d), serves to corroborate earlier biographical findings (§8-9), and furnishes a basis for evaluating Zinner's conjecture just mentioned (§14). The most important recent contributions were made by Olaf Pedersen, notably in his survey of the whole subject (1976), which includes a list of manu-

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1: Liber de scriptoribus ecclesiasticis, Basle 1494, 76v-77r, as cited by Eneström(1885,3)17 n.1 and O.Pedersen 1976,2.

2: 1976,2-5. Refs. also in Eneström (1885,3)17-8, cf. (1886,3)57.

3: The 1932 article is a Danish translation of a German original which was printed, unaltered, in 1936. In the sequel I cite from the latter.

scripts considerably extended by independent findings. The present edition proposes to continue this work.

§**2.** *Texts classed according to ascriptions.*
When taking into account the manuscript ascriptions, four classes of texts seem to demand separate consideration. (*1*) The texts consistently and reliably ascribed to "mag. Petrus de Dacia dictus Philomena", or some other form of the name including the surname, are the Algorism-commentary (*Exp.Alg.*); the *Calendar* with canons and the auxiliary moon-table (*T.L.*) plus its canon; and also the treatise of the *Eclipsorium*. These are all considered genuine, with some hesitation, however, concerning one of the canons to the *Calendar,* and are treated in §3. (*2*) The treatises ascribed to "Petrus de Dacia", which are suspect either for intrinsic reasons, or because the ascription is badly attested or alternates with ascriptions to other authors, are described in §4. These are considered unauthentic, but have been printed with one exception. (*3*) Some lesser anonymous pieces, mainly computistical and astrological ones adhering to the *Calendar* in later manuscripts, have been attributed to our author by modern writers, for reasons which the present editor considers inadequate. The commoner ones have been listed in Appendices 5 and 6 to the *Calendar,* and a few older ones in §5 below. (*4*) Of the treatises consistently bearing author's names which have been suggested as aliases of Peter Philomena, one lesser piece subscribed "frater Petrus Inguari studens Roskildensis" is printed at p. 562-3, if only for its shortness; cf.§10d. The treatises ascribed to Peter of St.Omer are discussed in §11 ff., and will be printed in Part 2 of this volume. As will appear, the present editor is inclined to reject this identification; but since the state of the problem is such that the reader should be allowed to judge for himself, and since these texts are worth printing in any event, it was decided to include them.

§**3.** *Summary of the evidence for the works supposed to be genuine.* The prefaces to the single works should be consulted for details.

(**3a**) *Expositio super algorismum* (*Exp.Alg.*). Literal commentary, with worked-out examples, on the *Algorism* of Sacrobosco. Printed earlier by Curtze (1897). A well attested subscription states that the work was

finished on July 31,1292[4] "per magistrum Petrum de Dacia dictum Philomenam". No place is given, and one late and unconfirmed addition calling the author "bono compotista in villa Parisiensi" should be regarded with caution (see Note 26). In an appendix to the treatise the author presents his own simplified method for extracting cube roots; the sources for this[5], as for the treatise in general, remain unexplored. As a possible source I print a set of glosses on Sacrobosco, which present some textual parallels to our treatise without being obviously dependent on it[6]. For reference a text of the Algorism itself is also printed, as was done by Curtze. Except for the form of the treatise, which is typical for university instruction, and the fact that two passages, which may be commonplace, hint at the subject's connexion with astronomy[7], nothing seems to indicate the applications intended.

(3b) *Kalendarium magistri Petri de Dacia* (*Calendar*: for the titles occurring in the manuscripts see *Preface* to that work, §10a). A version of it was printed in the Bibliotheca Casinensis, 1880, from ms. Mt (*Pref.*§2b). It has obviously been designed to supplant the common new-moon calendar of Robert Grosseteste (Beckman/Kålund 1914,XL, who were the first to distinguish between them on the basis of the numerical material); in fact, nearly all older manuscripts present it in surroundings very similar to that work (*Pref.*§6,§10b).

In most manuscripts the *Calendar* consists of 12 pages (one for each month) containing various calendarial sub-tables (each of them with room for 365 values) and accompanied by *canones,* as specified in this

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4: Variant: "12901"=1291, in one ms., drawn on by Eneström (1885,8 p.65 with the reading "1290") and Curtze (1897,IX n.1, X). Accepted by O.Pedersen (e.g.1976,13) and others.

5: A query for the sources, by Eneström in Bibl.Math.3.F.14(1914)83-4, was apparently left unanswered. The method is said to be ultimately Indian (Rasch 1932,15, whence probably Jørgensen/Heegaard 1940,292); on the face of it, Sacrobosco's procedure is followed except for the fact that some of the trials are facilitated by using only the most significant figures. More refs. in O.Pedersen 1976,6 n.20-1.

6: Thus partly following a suggestion by Beckman/Kålund 1914, XXXIX n.2., to examine the glosses in Scandinavian manuscripts of the *Algorism* for earlier stages of the *Exp.Alg.* The possibilities are by no means exhausted: cf. *Algorism, Pref.*§1 and §4.

7: Form of treatise: Curtze 1897,IV; Rasch 1932,12. Astronomy: Curtze,XII.

section. Appended to all this one usually finds computistical tables
with canons, notably the lunar table by our author, plus other matter
(§3c below).

As concerns the month-pages, the only sub-table made by our
author appears to be the table of mean conjunctions of the sun and
moon for the 76 years 1293-1368 (*Pref.*§3). This is accompanied by
one or two canons (*Kal.canon A/B*), the first of which is almost
certainly authentic and modelled on a canon to Grosseteste's calen-
dar; the other one rests on the same canon and apparently also on a
rare canon to the table of Gerland (§5c below). These two canons
only mention the table of conjunctions. However, besides that table
and the frame-work meant to contain it and to make up the month-
pages required in any calendar, many manuscripts exhibit varying
selections of other calendarial sub-tables; the commonest of these,
e.g. the table of day-lengths (§9), appear to have been taken over by
some users from the calendar of William of St.Cloud, edited 1296. I
print the two canons, the conjunction table mainly as re-calculated
from the parameters (§21 below; *Pref.*§3), and for convenience, those
other calendarial tables most commonly found.

The ascription to *mag. Petrus Philomena de Dacia,* or other forms
containing the surname, is well enough attested (*Pref.*§10a). It is less
certain when and where the work was composed. An auxiliary table in
Kal.canon B begins with the date 1292, for purposes of reckoning; this
is, then, the date of composition proposed by some of the less im-
portant manuscripts (*ibid.*) and also accepted, *i.a.,* by Duhem and
O.Pedersen[8]. The oldest datable manuscript (*Pref.*§2b, ms.Re) appears
to be from about 1304. There is also some evidence for the
assumption that the work was originally released in Paris (*Pref.*§10a);
in particular, the martyrologies of a notable group of manuscripts
point to Paris or at least to Northern France (*Pref.*§13b). Further, two
late witnesses state that the calendar was in fact calculated for the
meridian of Paris; and an early addition to *Kal.canon A* says that new
values for the Calendar can be found *per tabulas meas coniunctionum
supra Parisius*[9]. This is, however, not confirmed from the values in the

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8: Duhem IV,1916,30 "très certainement"; O.Pedersen 1968,4;1976,23.
9: Lost(*Pref.*§7a); ref. observed by O.Pedersen (1968,4;1974,540;1976,36). All
    three mss. in question read "meas". The value quoted as found in this
    way is tolerably consistent with those in the Calendar.

conjunction table: indeed, the times do not seem to have been calculated from any set of tables valid for Paris (see §21 below), but rather resemble those which could be obtained from the widely used Toledan Tables. See §8 for further discussion of dating and location.

The canons contain instructions for revising the conjunction table for use in the period 1369-1444 (*Pref.*§7a). Such a revised version, ascribed to himself by one Jo. de Palmis, appears in a few, mostly Swiss, manuscripts (*Pref.*§3), but the original version is also found in manuscripts written as late as the 16th century[10].

(3c) Of the computistical and medical/astrological pieces which occur in varying selections as additions to the Calendar, probably the only authentic one is the *Tabula Petri Daci de loco lunae inveniendo. . .* (*T.L.*) This is a 14 × 12 table for finding the mean ecliptical longitude of the moon to within a degree, with a canon which presupposes the use of a calendar such as Peter's[11]. The table is no doubt a revision of the early 12 × 12 lunar table, often found with Grosseteste's calendar. The *T.L.* with its canon are here printed together with the Calendar.

A summary of the other additional pieces is given in Appendices 4-6 to the *Calendar*. Since part of this material has been taken over from computistical collections centered around other calendars, Appendix 5(j) contains indications on calendars that may have yielded or received pieces commonly found with Peter's.

(3d) *Tractatus instrumenti eclipsium magistri Petri de Dacia (Eclipsorium).* Construction and use of an instrument for computing eclipses. The treatise is known from two manuscripts, whose texts differ considerably; one text has been printed by myself (1978); the present edition reproduces the other one. Ascribed to *mag. Petrus de Dacia* or *Petrus*

10: I have found no conjunction tables whose values can have been revised for still another 76-year period on the lines indicated by the author. Cf. O.Pedersen 1968,6;1974,540;1976,22.

11: Eneström (1885,3)20,25-27 took Trithemius' attribution of the "calendar" and "tables" to mean that Peter was the author of a larger work on ecclesiastical computus, and found an example in a manuscript in French (*Calendar,* §2b, ms.Kt). The assumption was correctly rejected by Zinner (1936,321-2). A similar assertion is, however, still found in Bober 1948,16-17. *T.L.* belonging to Calendar: Zinner 1936,321;325. *T.L.* is sometimes styled "tabula medicorum" (O.Pedersen 1976,31; *Calendar, Pref.*§21), whence ultimately the putative "medizinische Arbeit" in Grabmann I,1926,128 n.48.

Dacus; for the surname see below. The manuscripts contain preces-
sion values derived from the *Almanach* of William of St.Cloud (1292),
corresponding to the years 1297 and 1300 if William's own reckoning
is used. The treatise is accompanied by the tables necessary to make
it self-sufficient, among which are: (*a*) mean conjunction tables said to
be valid for Paris[12] and in fact yielding results quite close to the
values of William's Almanach (§21); (*b*) a *tabula portionis* appearing as a
59 × 59 multiplication table, ascribed to *mag. Petrus Philomena de Dacia,*
and acknowledged by the author in the treatise[13]. Except for one
obscure case, the rest of the tables are from the Toledan Tables, or
transforms of them. One manuscript mentions the town of Roskilde,
situating it 25 minutes of time to the East of Paris[14]. The construc-
tional directions borrow their phraseology from the treatise of the
Old Quadrant; and some features of the design could be thought to
derive from the second version of Profatius' New Quadrant, from
A.D.1301, if one is prepared to date our treatise as late as that. The
canons to the tables mostly seem to be paraphrases of the commonly
used *canones Azarchelis* to the Toledan Tables; some influence from the
commentary on that work by John of Sicily (1290) may also be
perceptible.   ˋ

The works **(3a-d)** are all ascribed to *mag. Petrus de Dacia* (*dictus Philo-
mena*) or *mag. Petrus Philomena de Dacia,* or simply *Petrus Dacus* (as it
happens, never "Petrus Danus", which would be equally possible as
ethnic). The characteristic surname is well attested for all the works. It
is uncertain when and where the author got it[15]: it is seen to be
attested from 1292, and in 1303 the Papal Curia still knew him to
possess it (§9). Where the surname is missing, and there are no other
points of comparison, the intention of the ascription must remain in
doubt, as in some of the attempted attributions mentioned below.

12: Table-headings and text mentioning Paris: O.Pedersen 1976,34;36.
13: First discovered out of context (in ms. Vat.Reg.lat.1452, see *Eclipsorium,
    Pref.*§2) by Eneström (1885,3)21, and since then thought to be a separate
    work.
14: Roskilde: seen by O.Pedersen (1974,540;1976,34).
15: Uncertainty about surname: Jørgensen 1910,254. The name was translated
    into "Rosignol" by the Rennes-ms. of the Calendar (Jørgensen 1910,253;
    254 n.2). Eneström (1885,3)27 and Zinner (1936,320) suggest that the

§4. *Uncertain and false ascriptions.*

(4a) *Declaratio super computum metricum manualem.* Paraphrasing commentary on the *computus metricus manualis* attributed to Anianus. Ascribed to *magister Petrus de Dacia.* Three manuscripts, all Italian from the 15th century; a mention of the 1320's in the text is not very well attested. The treatise seems to draw at least on Sacrobosco's Compotus and Alexander de Villadei's Massa Compoti. One manuscript is intended for use in a Dominican environment; but generally the text is nondescript and apparently lacks features which might confirm the attribution to Peter Philomena. Thus, considering the age of the tradition, the authorship must remain in doubt.

(4b) *Demonstrationes magistri Petri Dace* (hardly *datae*) *super quadrantem.* On measurements of altitudes; possibly an extract from some Geometria practica. In one manuscript from the 15th century. The text has no distinctive features obvious to me.

(4c) The *Tabula planetarum secundum magistrum Petrum de Dacia, Parisius facta,* with a canon, and the *Expositiones signorum secundum praedictum magistrum Petrum de Dacia,* are transmitted by one English ms. of the 14th century (*Calendar,* App.6(b)) alongside with a lunar table and its canon, correctly attributed to our author. The table, on planets dominating the hours of each day, is common in some form in calendar works from the 14th century on; and the texts indicated are a close paraphrase of the anonymous moon-and-planet-book "Quicumque cursum lunae" frequently encountered.

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epithet was caused by his occupation with lunar motions. In any case, the name *Naktergale* occurred in Denmark in the 15th century (Knudsen *& all.,* Danmarks gamle Personnavne II,763). – "Philomena" is the title of a poem by Chrétien de Troyes, of two others attributed to John of Hoveden (Walther 17410, cf. T&K 1414 and Thorndike 1934,647 n.3; Chevalier, *Repert. Hymnol.* III,1904, no.23925), and of a medical work in 7 books (T&K 176=1355, one ms. from the 14th c.). The common "Philomena praevia" (Walther 14071, ?Jo. Peckham), by occurring in København N.k.S.134,4°, caused J.W.S.Johnsson (1913,583) to assume that a preceding page of medical recipes was by Peter Philomena. – The assumption that the name "Philomena" somewhere attaches to Peter Philomena's writings rather than to the author (Eneström (1885,3)20, followed by Duhem 1916,29; Thorndike 1959,37 n.34) appears to rest on mis-readings by cataloguers, and on the fact that the word may be uninflected.

(4d) *"Calendarium magistri P. de Dacia"* is a contemporary index *p.13*
entry in a late 13th-century manuscript from France, which has been
in Danish possession at least since the 16th century, now in
Copenhagen. On the strength of the index entry, Langebek/Suhm
(1786) printed extracts of the calendar, attributing it to Peter.
However, in 1914 Beckman/Kålund showed that the calendar in que-
stion was Grosseteste's. Secondary notes in the calendar, in different
hands and mentioning the years 1294 and 1295, show that the book
was used by some Danes in Paris, probably at the University, about
that time[16]. Langebek's opinion was that the manuscript had been in
our author's possession: and Suhm supposed that he was the scribe
of the secondary notes and the author of some of the works in the
text-hand. The last assumption appears to be false, whereas the
others cannot be as lightly dismissed.

(4e) The *Summa artis geometriae valde bona, edita a magistro Petro de
Dacia* was brought to notice by Eneström; shortly after, the text was
shown to be almost identical to the treatise attributed with certainty
to Thomas Bradwardine[17]. I have not examined the texts further.

For some stray ascriptions of lunar tables other than the *T.L.*, see
Appendices (4a) and (4c) to the *Calendar.*

This concludes the list of scientific and astrological works ascribed
to one Petrus de Dacia. For further works see the discussion of our
author's namesakes, §10 below.

§5. *Anonymous works, attempts at attributions.*

Some anonymous works have been attributed to our author in
modern times, mainly because in some manuscripts they are found

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16: Jørgensen 1923,420. Manuscript: København, K.B., N.k.S.275ª,4°. For
details and refs., see *Algorism, Pref.*§1.

17: Incipit "Geometria assecutiva" or "Geometria est arismetrice" (T&K
584(*bis*), 1548). Cf. Eneström (1885,3)26 no.3; (1885,8)67,69, both on ms.
Vat.Ottob.lat.1389, from the 15th c.; further, Eneström (1886,3)59, on a
ms. with this ascription bought by Boncompagni in 1885: this was written
in 1365, consists of 85 leaves and has this text on ff.31-64. It does not
appear in T&K. More refs. in O.Pedersen 1976,5 n.14-5. Bradwardine's
authorship is asserted by Curtze 1897,III n.2 and Rasch 1932,15; Daly
(*Manuscripta* 8(1964)11), on the Vatican ms., affirms that the work is largely
identical with Bradwardine's.

with some of this authentic works, notably the *Calendar* and *T.L.* This is the case for some medical or astrological works[18]. As I shall try to show in the edition of the Calendar, hardly any of these are likely to have been transmitted alongside with the genuine works from a point where these were still under the author's control.

(5a) The old 12 × 12 lunar table has been confused with the *T.L.* both in the Middle Ages (Note 18 and *Calendar*, App.4(a)) and in modern times. For an ascription derived from this see Note 20.

(5b) *Tables of solar longitudes* for each day of 4 successive years, mostly with a table ascribed to Albattani and giving the solar declination for any longitude, are a standard accompaniment to the treatise of the Old Quadrant[19]. Dated versions, commonly beginning in 1292 or 1296, appear in this and other contexts (*Calendar*, App.5(g1)) and have sometimes been attributed to our author; in fact the values are those of the Almanach of William of St.Cloud[20].

(5c) One might for a moment consider the merits of the canon *"Theorica huius tabulae"* to the Tabula Gerlandi (text, *Calendar*, App.5(a3)). It has been found, *i.a.*, in three manuscripts of the *Calendar*, twice as secondary additions to fairly old copies. One of the versions includes a note showing that the text had been through the hands of someone connected with Jens Grand, arch-bishop of Lund during the 1290's. There is also some verbal similarity to the second canon to the *Calendar* (§3b). These, however, seem to be the only suggestive points.

18: cf., *e.g.*, Halliwell's attribution of the common sign-man (*Rara Mathematica*, 1841, p.117; *contra*, Eneström(1885,8)69; text, *Calendar*,App.6(d7)). The *computus ecclesiasticus* posited by Eneström, see Note 11. Attribution by Johnsson of a medical work, see Note 15; for some further, unpublished, notes by Johnsson, see O.Pedersen 1976, 32 n.40, and Note 39 below. A text on shadow-lengths connected to the Calendar, see *Calendar, Pref.* §2b, ms.N. Some confusion was caused by a secondary ascription of the old lunar table in a Munich ms. (*Calendar, Pref.*§2b,ms.M8).

19: Tannery 1922,147.

20: Attributions: Suhm *ap.* Langebek/Suhm VI,1786,260 (cf. O.Pedersen 1976,4-5), on the ms. mentioned in §4d above; Zinner 1925, no.3818 with p.428 (Wien, Oe.N.B., 2367, on the basis of a mistaken attribution of an anonymous lunar table). I have seen a pre-print of a paper by R.P.Mercier, treating of solar tables including the kinds mentioned here, and making the comparison with William. Cf. also *Calendar, Pref.*§17a and App.5(g1).

(5d) The anonymous defence of astrology *"In bono quod deus operatur"* is appended to a fairly old and textually independent copy of *Exp.Alg.* The text contains five *quaestiones* (ending abruptly), and mentions *studium Parisiense* in an example. The latest authority cited is Campanus of Novara (d.1296), and the manuscript does not seem to be later than the first quarter of the 14th century. There seems to be nothing but the place and date to connect the treatise with our author[21]. I have not examined it further.

§6. *Two texts by others, dependent on the Calendar.*

(6a) *"Ars istius tabulae lunae sequentis"*, rubric to a lunar table with canon in ms.K of the Calendar (text: *Calendar,*App.4(b)). The day of conjunction is to be sought "in kalendario magistri P.de Dacia, qui magis appropinquat veritati", and the solar longitude "per tabulas quadrantis", *i.e.* a set of solar longitude tables (§5b): the set contained in this manuscript covers Jan.1296-Dec.1299.

(6b) *"Omnis creatura"* (text, *Calendar,*App.6(a)) is quite an extensive moon-and-planet-book found in the family of manuscripts where the Calendar has been up-dated for the years beginning with 1369. The text refers back to the Calendar, and was meant as a supplement to it; the author is a German.

§7-9. *Biographical evidence: Bologna, Paris, Roskilde.*

It may be repeated that Peter Philomena is only known from the period between 1292 and 1303[22]. He is never spoken of as a friar[23]. As was seen (§3), there is sufficient evidence to connect him with the towns of Paris and Roskilde; this will be further discussed below.

21: I have used a transcription with full comments (1980,unpublished) kindly given to me by Mr. Søren Balle, Aarhus. Manuscript: München, BSb, Clm 14401, 180r-182v (text lost at end). Tentative attribution by the catalogue of Halm and Meyer, doubted by O.Pedersen (1963,4;1968,4;1976,47-48) and by S.Balle.

22: For the variant '1291' for '1292', see Note 4. No Peter Philomena occurs in the surviving excerpts of the Roskilde obituary (see §18); and if the extracts are fairly complete for this period (as is believed by Jørgensen 1933,195, cf. Sällström 1957,198), Peter might either have changed his

§7. There is also some reason to believe that our author was at *Bologna* in the beginning of the 1290's. Indeed, the protocol of the German Nation at the University of Bologna contains two entries on payments from "dominus Petrus de Dacia", made between Jan. 13,1292 and Feb.13,1293 (refs., §15). Some alternatives to our author have been suggested, including two Peters attested at Bologna in 1294, one or both of whom were probably students. Further, in a letter from the Dominican (Vice-)Provincial Hermann v.Minden to "Petro Daco" at Bologna, a text highly stylized, teeming with Scripture allusions concerning St.Peter the Apostle, and otherwise notable for its obscurity (text and refs., §16), the recipient is thanked for a "sphaera insperata" and another gift, probably a book; Hermann apparently excuses himself for some indeterminate kind of negligence; also, Petrus is invited to leave Italy and come to Germany. The letter is undated, and could be as early as the mid-eighties. Some of the allusions in the text do make it likely that the recipient had scientific interests. There is no sign of his status. Lastly, a work on astrology by one "magister Romanus", citizen and physician in Rome, was composed at the request of "mei magistri Petri Philomena canonici Rolkendensis" (text and refs., §17). The text yields neither dating nor location[24]. Thus, at some point of time our author taught a subject connected with astrology to an Italian; and certainly, at the time and as concerns the universities, both the quadrivial arts and astrology are better attested for Bologna than e.g. for Paris[25].

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surname after 1303 (possibility considered by Sällström p.197) or have died abroad (O.Pedersen, *e.g.* 1974,540;1976,8). The entries on one Peter of Dacia in the obituaries of St.Geneviève and of St.Germain-des-Près are, however, undated (Jørgensen 1914,346; cf. Zinner 1936,320-1).

23: Thus, if needed, one is safe in identifying "Dacia" with Denmark, not with the whole of Scandinavia (O.Pedersen 1963,6;1968,5; cf.1976,6; generally, Jørgensen 1914,345 n.2; 1933,194).

24: The dating by Thorndike (1934 p.648) to about 1300 seems to rest only on an attempted dating of Peter Philomena himself. Cf. §17 below.

25: Astrological/medical studies at Bologna: O.Pedersen 1963,7;1968,6; 1976,8; and the refs. cited there. On such studies at Paris, which may not have been negligible, see P.Kibre, The Quadrivium in 13th century universities...=Actes du IVᵉ congr. int. de philos. méd.(1967; Montreal 1969), 175-191; and R.Lemay, The teaching of astronomy in medieval universities, =Manuscripta 20(1976)197-217.

It must be admitted that the evidence is weak and only loosely connected. Our author's surname is absent from the two first sources just mentioned, whereas the subscription of the *Exp.Alg.* shows that he chose to use it within some months before or after the protocol entries. It is not impossible to assume that he obtained his degree while working up what may have been his old notes on Sacrobosco with a view to a teaching job at Bologna, and that he taught master Romanus in the sequel[26].

§8. It is certain that Peter stayed in *Paris* about the turn of the century or a few years before. This appears from the contents of the *Eclipsorium* (§3d) and, less reliably, from some sparse ascriptions of the *Calendar* (*Pref.* to that work, §10a) and of the *Exp.Alg.* (Note 26). On the other hand there is no external evidence of such a stay, and in particular none to prove or disprove a connection with the University. However, our author shares this fate with several Scandinavians likely to have been teachers during this period[27].

The time of Peter's stay in Paris is difficult to determine. The *Eclipsorium* is likely to be earlier than 1297/1300, and apparently later than 1292 when William published his *Almanach.* Since the *Calendar* seems to use a mistaken or out-moded set of parameters (§21), it may be earlier than the *Eclipsorium.* It starts with 1293, and there would be

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26: Master's degree obtained, and lectures on the Algorism, at Bologna: O.Pedersen 1968,5-6. The scribe's notes calling the author of the *Exp.Alg.* "bono compotista in villa Parisiensi" (*Exp.Alg., Pref.*§1, ms.S; Eneström (1885,3)19, Curtze 1897,VII) were earlier taken to locate that work, e.g. by Duhem 1916,26; the location at Paris is accepted by Beaujouan 1954,100, and by Kibre (cf. Note 25: p.183). The source value of the notes was doubted by Jørgensen 1933,194, in passing; O.Pedersen (1976,7) rejects them on the basis of the Bologna hypothesis.

27: The *liber procuratorum* of the English Nation at the University of Paris starts only in 1333 (Jørgensen 1910,255). Connection with the University was commonly assumed earlier, partly because our author was identified with the Paris rector of 1327 (§10c below); also, e.g., by Jørgensen (1933 p.194) without this premiss. Lehmann's assumption that Peter got his master's degree in Paris (1936 p.53) lacks confirmation (cf. preceding note). O.Pedersen (1963,7;1968,6), on the hypothesis that our author wrote the Paris works from 1293/4 ascribed to Petrus de S.Audomaro (§11) supposes that he would hardly have had time to teach as well.

no point in preparing it long before that year. Since the express datings to 1292 are not solidly founded (*Calendar, Pref.* §10a), one might allow for the possibility that it was made at a later date; a parallel case is William of St.Cloud, who had his *Kalendarium reginae* start with 1292, but did not publish it until 1296[28].

At that time William does not appear to have known of Peter's Calendar. The latter, like Grosseteste's, covered four 19-year cycles, whereas William's own contained only one. In his elaborate canon William makes the (seemingly unfulfilled) promise to extend his calendar[29]:

Nolui autem ponere hic cyclum 76 annorum, qui positus est in kalendario Linconiensis – et continet quater istum – propter confusionem numerorum; sed si contingat me facere alia kalendaria ad alia climata, ponam alios cyclos in eis.

Thus, in 1296 or a little earlier, William took notice only of Grosseteste's calendar. Conversely, as was seen, Peter's Calendar takes no account of William's results from 1292, whereas our author did use some such values later. The simplest assumption, then, seems to be that Peter did not make his calendar in Paris, and that he arrived there rather late; but this is far from conclusive, and the Paris conjunction-tables alleged by the addition to Peter's first canon are a stumbling-block in any event.

§9. When writing in Paris, Peter already had some kind of connection with the town of *Roskilde,* since one ms. of the *Eclipsorium* mentions that city as situated 25 minutes of time to the East of Paris[30]. A papal letter of July 4, 1303, concerning a matter which appears irrelevant (text and refs., §19a), is addressed to "Petro Philomenae canonico Roskildensi" together with two other Danish clerics of high standing; a repetition of that message, of Nov.22,1303 (§19b), has exchanged two of the addressees, including our author, with two others. The only safe conclusion is the obvious one that in mid-1303 Peter was known at the Curia as a canon of Roskilde. That title also occurs in the undated treatise by magister Romanus (see §7).

28: Other examples of calendars conventionally starting at boundaries of 19-year cycles: North II,1976,101.

29: Harper 1966, p.118,cf.p.33. The present text from ms. Erlangen 434,5ra.

30: O.Pedersen 1976,34; see §18a.

Thus in any case one may suppose Peter to have come from Roskilde. If the Papal Curia was properly informed in 1303, he was back by then, with the status of canon at the Cathedral Chapter. If he met Romanus in the meantime, he was a canon before his return, and if in the early 1290's, probably before he went abroad.

Peter's early connexion with the Chapter of Roskilde appears to be confirmed by the likelihood that he knew the value for Roskilde's geographical longitude which, probably in 1274, had been used in the obituary of that Chapter (text and refs., §18a). Indeed, the *Eclipsorium* passage mentioned above may have used this value together with a longitude for Paris which is, at least, documented as one of those used at the time. From another fragment of the Roskilde obituary, which is the one actually dated to 1274, one also learns that the book contained day-by-day tables of solar altitudes and ecliptical longitudes, and of day-lengths, occurring in connexion with a calendar or separately (§18b). Since some such tables (for the latitude of Paris) were also calculated by William of St.Cloud for his calendar edited in 1296 (cf. *Calendar, Pref.* §15-17), it has been suggested[31] that William owed the idea for this innovation to Peter. But as was seen above (§8), it is hard to assume any connexion between them at that time. Further, with one exception the tables actually occurring in some manuscripts of Peter's own Calendar are likely to have been taken over from William's calendar or Almanach[32]. Because of this state of the evidence, the assumption that Peter influenced William must, regretfully, still be considered unverified. Nor is there any means to confirm Bjørnbo's assumption (§18) that Peter himself was the originator of the Roskilde data.

§10. *Namesakes of Petrus Philomena.*

The following list contains some of our author's namesakes who were his near-contemporaries and have been identified with him occasionally[33]. See also §11 ff. and Note 22.

(10a) *fr. Petrus de Dacia,* from Gotland, in the Dominican order from about 1240; studies at Cologne and Paris 1266-70; died 1289 as

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31: Zinner 1936,327-8; cf. O.Pedersen 1968,7;1976,10.
32: Thus Zinner 1936,325. O.Pedersen (1968,6;1976,24) suggests that Peter introduced these features into his calendar from the beginning. As noted

prior of the convent at Visby. Biographer of Christina of Stommeln[34]. The confusion with our author is early[35].

(10b) *mag. Petrus de Dacia,* author of two University sermons from Paris, and one *prothema,* between 1268 and 1275[36].

(10c) *mag. Petrus de Dacia, canonicus Ripensis,* rector of the University of Paris in 1327. He is probably the same as either "mag. Petrus dictus Wint(er) de Dacia" or "(mag.) Petrus Strangonis de Dacia", both mentioned in a document from 1332-3[37]. Identification with Peter Philomena early, but unlikely for reasons of chronology[38].

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by Eneström (1885,3)25 no.17, one manuscript contains a separate day-length table ascribed to Peter (*Calendar, Pref.* § 16). This, like a shorter table with the same ascription, must be an extract from the Calendar.

33: List: mainly as in Zinner 1936,320-1.

34: Th.Kaeppeli, Scriptores O.P. medii Aevi III,1980, p.224-5(no.3225) with refs.

35: Refs., see Note 2. This identification still in Thorndike 1934,647-8.

36: Kaeppeli (see note 34) p.225 no.3226-8. Edition: H.Roos, =*Classica et Mediaevalia, Dissertationes IX,*1973,470-95; *id.,* =*Lumen* 49(Jan.1974)20-42, with introductions and refs. Dating: Roos, *op.cit.*(1973) p. 481-2, with refs. Attributions etc.: One ref. in Eneström ((1885,3)26;(1885,8)68), from Montfaucon, whence Jørgensen 1910,261. Jørgensen 1933 p.195 rejects attribution to · Peter Philomena; *contra,* Sällström 1957,198-9, by general considerations only. Lehmann (1936,47) and O.Pedersen (1963,4) suggest the Dominican (above), and Kaeppeli makes that identification. Roos, *op.cit.*(1973)480 rejects both attributions, since the Dominican was probably never a master of theology; neither is Peter Philomena known as such, and also his active period seems to have fallen somewhat later.

37: The rectorate: *Chart. Univ. Paris.* II,1(1891) p.300-1 no.863 (a.1327); for the title of *magister* see also *ibid.*p.300, note to no.861. "Petrus dictus Wint(?er) de Dacia" and "Petrus Strangonis", masters in the English Nation: *op.cit.* p.406 no.955 (a.1332-3). "Petrus Strangonis": *op.cit.* p.664a no.1184 (a.1329-1336). "Petrus Strangonis de Dacia" as *magister: Chart. Univ. Paris., Auct.* I(1894) col.16 lin.4 (=Liber procuratorum nat.Angl., a.1333); "sub magistro Petro de Dacia": *ibid.,* col.18 lin.4. I suppose he could be the "Petrus Strangonis f.", master of philosophy and *cantor* in Roskilde, who died there on Aug.16,1343; a homonymous Canon died in 1366 (Otto 1933,76,82, with refs.). I have not checked the statement by Bulaeus (*tom.*4 p.982: *ap.*Langebek/Suhm VI, 1786,260 and Eneström(1885,3)19) that the Paris rector was still alive in 1347.

38: Still by Eneström (1885,3)19-20. Suggestion about P.Strangonis/P.Winter: Curtze 1897,X (cf. H.G.Zeuthen/Gertz/Erslev *in* Oversigt over Det Kgl. Dan.Vid.Selsk.Forh. 1896, p.79), and later authors. The objection seems to

(10d) *fr. Petrus Inguari studens Roskildensis,* scribe or possibly inventor of a *rota* for finding the moon's position, in a 14/15th-century Copen- *p.18* hagen manuscript (text, p. 560 ff.)[39]. Since he was a friar, he can be left out of consideration[40].

(10e) *mag. Petrus Alexandri archidiaconus Roskildensis, decretorum doctor* was *regens in decretis* at the University of Paris in 1312. He must be the same as "magister P.Foot huius ecclesiae archidiaconus et magister in decretis", who died in 1313 according to the Roskilde obituary[41]. Time and place fit very well, but confirmation is lacking.

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be only chronological; at least, Thorndike's extra argument against identifi-
cation with Peter Philomena (1934 p.647-8, *via* an identification with the
Dominican: "since that post (*sc.* as rector) was held by a student") is wrong
on any account.

39: Held to be the same as Peter Philomena by J.W.S.Johnsson (manuscript
notes, København, Kgl.Bibl.,Add.1221,4°, ref. from O.Pedersen 1976, 32
n.40; some notes also included with ms.Add.447,2°), followed by Sarton II
(1931) p.997. One "Petrus Inguari praepositus Roskildensis" died at
Sep.28,1241 (Otto 1933,46), but our text can hardly be as early as that.

40: O.Pedersen 1976,48.

41: From Sällström 1957,197-8;200. Petrus Alexandri: *Dipl.Dan.,* 2.Rk.6 p.350-
1 no.439 (papal letter of July 22,1312). P.Foot: *Liber daticus Roskildensis,* Otto
1933 p.65 (July 24,1313; place of death not stated). See Sällström, *l.c.,* for
some less likely identifications with Roskilde clerics.

PETRUS DE SANCTO AUDOMARO.

§11. *Works from 1293/4.*

Petrus (?Danus) de sancto Audomaro is the author's name connected with the three astronomical works to be printed in Part 2 of this volume. Two of these were written in 1293-4, probably in Paris; the third (see §12a) appears to be later than 1300 and probably unauthentic. The early works are as follows:

(11a) *Novus quadrans correctus a Petro Dane de Sancto Audomaro* (*Quadrans 1*) "Quoniam conceditur". Description and use of the New Quadrant which had been invented by Profatius Iudaeus (Jacob ben Mahir) and described by him in 1288[42]. Not published earlier. The surname "Dane" (with the less certain variant "Dano") is quite well attested; it means 'from Denmark', and one 15/16th-century attribution to "Petrus de Dacia" exists, though not connected with our treatise (§20). The treatise refers to "in hoc tempore quo computantur anni ab incarnatione Christi 1293", thus 1293 or 1294[43]. A few manuscripts locate it to Paris. This is confirmed by the use of the precession value of 10°;14 for the year mentioned, obviously from William of St.Cloud's *Almanach*[44], although about 2 minutes too small on William's own reckoning. The first part of the treatise contains detailed directions for constructing the instrument; this seems to be the first longer text of its kind[45], and may be original. The two remaining parts are extended transcripts of, respectively, Profatius' chapter on astronomical uses, and of the section on terrestrial uses from the treatise of the Old Quadrant[46]. I have found no important external references.

42: Translated from Hebrew into Latin in 1291. See Preface to the *Quadrans 1* for the early publication history of the various treatises on the New Quadrant, and generally Poulle 1964.

43: The dating to 1309, by the scribe of the Venezia manuscript M, was apparently first observed by Meyer (1898 p.575); it persists in the works by Glorieux and is there attached to the *Quadrans 2* (§12). The correct dating was given by Zinner (1936,320) and by Thorndike (1960).

44: Noted by Zinner (1936,326). A less well-attested variant is 10°;10. This may be a scribal error, but see Note 48.

45: Zinner 1936,326.

(11b) *Tractatus de semissis (Semissa)* "Quoniam non conceditur". Construction and use of an instrument, invented by the author, for finding planetary longitudes; with several appendices on calculation of planetary conjunctions and latitudes, eclipses, etc. The instrument was re-constructed by Olaf Pedersen (1963;1968) and the text edited by myself (1979); that text will be reproduced in Part 2, with a few corrections and the same paragraphing. Ascribed to *mag. Petrus de sancto Audomaro.* The text refers to "in tempore nostro quo computantur anni ab incarnatione D.N.J.C. 1293 perfecti", thus probably the same year as the *Quadrans 1.* The author also refers back to that work as his own[47], a fact which confirms the attribution but also seems to explain why some later British sources, mostly unconnected with the text itself, attribute it to Profatius. The location to Paris can be assumed as certain, partly from the use of the Toulouse Tables of mean motions, partly from the dependence on William of St.Cloud's results in his *Almanach,* namely, the corrections to the Toulouse Tables and the (rounded?) value of 10°;10 for the precession[48]. The rest of the tables presupposed or appended are mostly Toledan or, for planetary latitudes, those of Albattani; one table, for the equation of time, was calculated by the author, but is lost except for some values cited in the text. As for the text itself, the directions for the tables are transcripts of the common canons, notably the *Canones Azarchelis* and Albattani; as was seen, the author also knew William's Almanach; further, he used the *Theorica Planetarum,* though apparently not Ptolemy.

46: Poulle 1964,196-7. The relevant section of the *Quadrans 1* was used as an auxiliary witness for Profatius' text by Lydik Garm in his edition of the latter (thesis, Aarhus 1966; cf. O.Pedersen 1976, 44 n.48). Old Quadrant, see Note 19.

47: Dating and ref.to the *Quadrans 1*: Thorndike 1960, cf. O.Pedersen 1976, 40 and 44-5. The double dating makes it hard to share Poulle's (1964,194-5) skepticism about accepting 1293(/4) as the precise date.

48: Paris: apparently unconfirmed by the variant reading *Parisius* for *praecisius* at §2,21 of the text (contrast O.Pedersen 1976,40). Dependence on William: Zinner 1936,326-7. Value of precession adapted to yield a round value for the solar apogee: Poulle 1980,209. The genesis of that value is, however, uncertain, cf. Note 44.

§12. *Dubious works.*

(12a) The *Ars et operatio novi quadrantis editi a magistro Profatio Marsiliensi . . .et postea a Petro de sancto Adomaro Parisius diligenter correcti et perfecti (Quadrans 2)* has the same general content as *Quadrans 1,* but some changes of the instrument have been introduced in accordance with Profatius' revised Quadrant treatise of 1301. The text has not been printed earlier. This was the first treatise known to carry the name of Peter of St.Omer; and thus he was unquestioningly accepted as the author/editor until our text could be compared to the *Quadrans 1* and *Semissa.* One is then left in doubt about all its circumstances[49]. It does not use William's precession value[50], but presents a table, beginning A.D.1300, with the old values from the Toledan Tables. The remaining tables incorporated in the text are also mostly from that source. A solar table, lost, was valid for the year 1300. As a *terminus ante,* one preserved stellar table is dated to 1316, and another one (lost; traces in one lesser manuscript) is dated to the same year and located to Oxford. In fact, the significant part of the manuscript tradition is English. All taken together, the treatise must have been intended for use at a place where the Toledan Tables, and possibly Profatius' *Almanach* (1300), with their parameters, were the only ones current. Thus, since the title quoted above does not in fact refer to Peter of St.Omer as the author, the attribution should be left in doubt[51]. However, in passages our text does appear to be a revision of the *Quadrans 1* rather than of either of Profatius' treatises.

(12b) The treatise *"Cuilibet planetarum assignatur triplex locus",* following the *Semissa* in one manuscript, was casually attributed to our author by Thorndike[52]. Its explicit, as reported by Thorndike, looks like that of the *Theorica Planetarum.* I have not examined the text further.

49: Noted: by Renan 1877,612-3. Doubt expressed already by Zinner (1936,326).
50: Poulle 1964,195; for the *terminus ante* of 1316 mentioned below, *ibid.*p. 95,109.
51: Poulle 1964,209 n.63.
52: Thorndike 1960, from Basel F.III.25,17r-26r. I have seen 17r, which is in a different hand from the *Semissa* preceding. (Upper mg.:) Incipit quoddam praeambulum de theorica planetarum. (Txt:) Cuilibet. .(=T&K 275, with

§13. *Two suggested identifications.*

Two persons by the name of Petrus de S.Audomaro are known from the period. One *mag. Petrus de S.Audemaro* is given as the author of a *liber de coloribus faciendis,* in one 15th-century manuscript. The text has been dated to the 13th or 14th century from its contents. Nothing further is known of the author[53].

The other *mag. Petrus de S.Audomaro* is well attested from external sources as a master of theology at the University of Paris, between 1289 and 1308. Since the biographical evidence may not be readily accessible[54], I recapitulate it here; the references are mainly from Glorieux.

"Mag. Petrus de sancto Audemaro" is a master of theology in *1289,* taxing houses in Paris together with some other masters of theology and of arts[55]. From about *1290-1,* some *quodlibeta* by "p. de sancto odomaro" occur in the collection of Nicolas de Bar, examined by Glorieux. Thus he was *actu regens* then and in 1297-9[56]. On June 17, *1296,* a bull of Boniface VIII to "magistro (Petro) de sancto Adomaro cancellario Parisiensi", also "canonico Parisiensi", appoints him to the post as Chancellor at the Notre-Dame[57]. In that capacity,

three further mss.; anonymous)...(*explicit,*Thorndike) vincti lumine ipsi planete et non corporaliter (cf., *e.g.,* ms. København K.B., Add.447,2º, 56rb).

53: Cited in this connexion, and identification rejected, by Meyer 1898,575. Edition by L.van Acker, =*Corpus Christianorum,Cont.Med.*XXV; esp. p.145-6, 165-6. – J.M. de Smet (=Miscellanea historica in hon. L.van der Essen I(1947), 240 f., as cited by van Acker 165) separates this author both from Petrus Pictor, Canon of St.Omer (*fl.*c.1110) and from the Paris theologian below.

54: Some data by Hauréau, *H.L.F.*XXV(1869)319; and by Meyer 1898,574-5, whence Zinner 1936,320. Most detailed by Glorieux 1928,223-5 (biographical sources, *quodlibeta* with datings); *id.*1935,222-3 (recap. of biography, list of *quodlibeta*); *id.*1966,246.294.324 (donations to the Sorbonne; cf.Note 65).

55: Denifle/Chatelain, *Chartularium Universitatis Parisiensis* II,1 (1891) (=*C.U.P.*) no.556 p.30 (citing also Jourdain, *Index* no.293). One of the masters of theology, Jo. de Murro, did not yet have that title by Dec.31,1288 (*C.U.P.* p.32 n.38); thus the date here given, "1288", must mean 1289 before Easter, on our reckoning (*ibid.*). Glorieux supposes that Peter had obtained his title recently, apparently on the analogy with Jo. de Murro (1928,223).

56: Glorieux 1928,202;208-9;223-5,with the dating; *id.*1935,222-3. The manuscript is Par.lat.15850.

57: *C.U.P.* no.595 p.69-71.

at Aug.30, *1296,* "magister Petrus de sancto Audomaro, cancellarius Parisi-
ensis" receives some theological books on behalf of the Chapter of Notre-
Dame, to be lent to theological students at the University[58]; and in Sep.*1297,*
"praedictus magister Petrus cancellarius" arranges a similar matter[59]. About
1297-8 and *1298-9,* two sets of *quodlibeta* are again attested, by "domino petro
cancellario de audomaro" and "magistro p. de s. au. can."[60]. The appeal to
the Pope, of Oct.12, *1300,* by Arnaldus of Villanova, concerned a case against
the University which was "actum--coram--cancellario ecclesiae Parisiensis"
(no name)[61]. On Dec.5, *1301,* a Papal letter addressed, *i.a.,* to "·· cancellario
ecclesiae Parisiensis" (name blank), accompanies another contemporaneous
letter summoning the French doctors of theology and masters of Canon and
Civil Law, "tam actu regentes Parisius quam non regentes", to the Pope
before next November. The former letter enjoins upon the Chancellor and
two others to see to it that enough teachers remain in Paris at any time; and
the Chancellor himself is summoned[62]. On July 30 and Aug.10, *1302,* a
donation to the Chapter of Paris is recorded "a...magistro Petro de Sancto
Audomaro, archidiacono Brie in ecclesia Parisiensi"; he is no longer men-
tioned as Chancellor[63]. Finally, in *1308,* Mar.25, the seal of "magistri P(etri)
de s.Audomaro" was among those affixed to the answer to Philip IV on the
measures against the Templars, given by a college of masters of theology "tam
actu regentes quam non regentes"[64]. Four books were bequested to the Small
Library of the Sorbonne "ex legato magistri Petri de sancto Odomaro", and
catalogued between 1310 and 1338[65].

58: Delisle III(1881) p.3 no.3, *cf.id.* I(1868) p.427 n.1. From Guérard, *Cartulaire
    de l'Eglise Notre-Dame de Paris* (1850), III p.349. Cf. *C.U.P.* no.598 p.72.
    Source: the *Livre Noir,* cf. Guérard, *op.cit.* I p.III-IV.
59: Delisle, *op.cit.* p.4 no.4. From Guérard, *op.cit.* III,350.
60: See Note 56. Same source, dating by Glorieux.
61: *C.U.P.* no.616 p.89-90.
62: *C.U.P.* no.622 p.93-4, cf. no.621 p.93.
63: Guérard (Note 58 above) II,524 (July 30; from the *Magnum Pastorale,* cf.
    Guérard I p.II-III; the print includes a summary and a short extract of the
    text). Guérard, *op.cit.* IV,129 (Aug.10; from the obituary of the Notre-
    Dame; contains the title quoted). Both concern the same donation. Cf.
    C.U.P. no.595 not., p.70-1, also for the fact that at July 8,1303, someone
    else was Chancellor at the Notre-Dame.
64: *C.U.P.,* no.664 not., p.127. Faint inscription on a seal-band, read by
    Denifle/Chatelain with the aid of other testimonies.
65: Delisle III(1881) p.28-9 (=Catalogue of 1338, XXIII,98-100;104). Three
    volumes remain as Par.lat.15764,15774,15792 (Delisle, *ibid.,* and II(1874)
    p.169) with parts of St.Thomas' Sentences commentary. They do not seem
    to show notes indicative of specialized scientific interests in any possessor,
    nor could this be expected. For the time of cataloguing see Rouse,
    =*Scriptorium* XX(1967)243, in preference to Glorieux 1966.

These references (with the possible exception of the anonymous ones from 1300-1) constitute quite a coherent picture of one person. There is no sign of any scientific activity of his, nor is he given any surname; thus his connection with the astronomical treatises is not specifically confirmed nor refuted[66].

§14. *Attempts at identification with Petrus Philomena.*

Zinner[67] radically conjectured that the name *Petrus (?Danus) de S.Audomaro,* author of the *Quadrans 1* and the *Semissa,* was an alias of Peter Philomena. If so, this alias only appears to have been preserved in connexion with the texts mentioned and with the *Quadrans 2,* not in the sources cited in §13 nor in any other independent ones. It may also be noted that the works in §3 and §11 do not show overlapping ascriptions[68]. Zinner's argument seems to be the following: (a) the two Peters of St.Omer known from elsewhere (§13) can be discounted as authors of astronomical works, on the token of their known activity[69]; (b) Petrus Danus de S.Audomaro must be a Dane because of the surname; (c) he was active in Paris in 1293(/4), together with Peter Philomena, whose Calendar would be from about 1292. In fact, (a) has numerous counter-examples; (b) in the works accepted as authentic, Peter Philomena is never called "Danus", but the synonymous "Dacus" is used; further, the name in question is most safely attested as the ablative "Dane", which may be either an ethnic or, at least later in the 14th century, a Northern French surname[70]. (c) is mainly true.

If the hypothesis of identity is assumed, one gets this chronology:

66: Identification accepted (even if concerning the *Quadrans 2*) by Renan 1877,613; also by Glorieux (1928 p.224, and later). Doubted, on account of his activity as a theologian, by Meyer 1898,575, cf. Note 69.

67: 1936 p.320.

68: One exception, see §20 and §11a. Names distinct in one and the same manuscript: Thorndike 1959,p.37-8.

69: Zinner, *ibid.,* following Meyer 1898,575.

70: Ethnic: Martinus Danes (†1304, in the Notre-Dame obituary from 1529: Jørgensen 1914,342). Surname: Guido Danes, diocese of Thérouanne (arr. St.-Omer), in the Picardian nation at the University of Paris in 1362-79 (*Chart. Univ. Paris.* III(1894) p.86,130,261). But generally these forms are uninflected.

Exp.Alg.	P.de Dacia dictus Philomena	1292	?
Calendar	P.Philomena de Dacia (*ca.*)	*c.*1292	Paris?
Quadrans 1	P."Dane" de S.Audomaro	1293/4	Paris
Semissa	P.de S.Audomaro	1293/4	Paris
Eclipsorium	P.de Dacia/P.Dacus	*c.*1300?	Paris (ref.to
Tab.port.	P.Philomena de Dacia		Roskilde)
(Papal letter)	P.Philomena can.Rosk.	1303	Roskilde

Comments: Since the *Calendar* does not use William of St.Cloud, it must be earlier than the *Quadrans 1*. Then possibly William chose to ignore the *Calendar* in 1296 (§8) whereas Peter knew William's work by then. The *tabula portionis* in the *Eclipsorium* is later than the *Semissa,* or it would surely have been mentioned on numerous occasions in the eclipse section of the latter work. (Conversely, Peter's own table of the equation of time, in the *Semissa,* is unknown or ignored by the *Eclipsorium.*) The source of the name used in the Papal letter may, of course, be as old as Peter's canonicate.

Such an alternation of aliases may not be impossible, but can be acknowledged only if its cause is demonstrated. No documentation of such a cause has yet been offered[71].

The hypothesis might still be tenable if the texts in question showed significant similarities about doctrines which were in any case controversial[72]. The two texts which can be compared in this respect seem to be the eclipse sections of the *Semissa* and the *Eclipsorium,* and more particularly, the sections on parallax computation. It is at least true that discrepancies occur, as follows[73]: (a) The *Eclipsorium,* like the *canones Azarchelis,* treats the parallax table as if it supposes the moon to be at mean distance; whereas the *Semissa,* like e.g. Albattani, takes the moon to be at its apogee for that purpose[74]. At two further points the manuscripts of the *Semissa* itself are divided: (b) In correcting the parallax for the moon's position on the epicycle, the *Eclipsorium* uses a wrong table for the interpolation function. Part of the *Semissa* manuscripts are at least not explicit as to which table to use, whereas the rest of them expressly identify the correct table, apparently in an added passage[75]. (c)

71: O.Pedersen 1974,541. O.Pedersen (1963,7) supposed that Peter might have had a prebend in St.Omer while staying at Paris. It may yet be possible to verify this.
72: The preambles of the *Semissa* and *Eclipsorium,* compared by O.Pedersen (1976,49), both appear to consist of commonplaces: cf. *Eclipsorium, Pref.*§7.
73: F.S.Pedersen 1978,82-4; 1979,103-5.
74: *Ecl.*§§73,109,122; *Sem.*10,19;10,22.
75: *Ecl.*§§54,73,114; *Sem.*10,22.

The *Eclipsorium,* and the first set of *Semissa* manuscripts just mentioned, suppose that the sign of the parallax in longitude changes when the moon is in the meridian; whereas the remaining *Semissa* manuscripts have the correct doctrine that the sign changes at 90° from the ascendent[76].

Some *ad-hoc* explanations may be found, *e.g.* an assumption that the *Semissa* has undergone a revision, at a date later than the edition of the *Eclipsorium,* or by someone else. Again, as the matter stands, this cannot be verified. On the assumption of identical authors, one may also wonder why the author did not use his own earlier wording in the instructions for parallax computation, since some passages of the *Semissa* show that he was not averse to *verbatim* transcriptions from other authors.

Thus, when taking into account the *Eclipsorium,* which was unknown to Zinner, so much can be said against his hypothesis that one is by now obliged to exact some kind of significant positive evidence from those who would uphold that identification. Until then, one may content oneself with accepting the theologian Peter of St.Omer (§13) as the author of the *Quadrans 1* and the *Semissa.*

76: *Ecl.* §§ 79,110; *Sem.* 10,24;10,26-7;10,30.

APPENDICES.

§15. (a) *Acta nationis Germanicae universitatis Bononiensis,* ed. Friedländer/Malagola, 1887, p.40a, *l.*19-20. Jørgensen 1910,255. Lehmann 1936,54. Sällström 1957,151; 193-200 (with full discussion of the possible identifications, cf.§10e above). O.Pedersen 1963,5-6;1968,5; 1974,540;1976,7.

Two adjacent entries in the register of the German Nation at the University, in a series of entries under the date of January 13, 1292; the present entries were made by a successor to one of the *procuratores* elected at that date, and before February 13, 1293.

Item dominus Petrus de Dacia XII solidos.
Item dominus Petrus de Dacia VI solidos.

(15b) Bologna, Archivio di Stato, Memoriali del comune Bolognese vol.86, 370v. From Sällström 1957,163,187; cf. 126-7 (source identification), 193-4,200 (identification of persons).

At March 30, 1294, one "dominus petrus dictus albus de gumbergiis de dalcia (="dascia", surely) scolaris bononie" receives a sum from three Pistoia bankers; through a partner of theirs, the sum had been paid in "a magistro johanne de dalcia parisius". Among the witnesses are the Danes "domino petro de skelfiscor et domino johanne de borlem de dalcia".

Sällström suggests that the two Peters here found, and those from the register entries §15a, are the same, and/or identical to Peter Philomena or Petrus Alexandri (§10e), in some combination. At least, Bolognese sources from the period show no Danish Peters except the four here recorded and one "Petrus Abii de Dacia" in the register from 1296.

§16. *Letter of Hermann v.Minden.*
Berlin, Staatsbibl. preussischer Kulturbesitz, theol.lat.oct.109, 43r(=2r, old fol.). From the collection at Berlin, Kgl.Bibl. (now Deutsche Staatsbibl.). Vellum, ff.202, *ca.*14 × *ca.*10. Late 13th c. Contains copies of letters from Dominicans written between 1264 and the 1290's (Finke (below) p.7,9), in different hands, mainly in chronological order, and meant to serve as formular letters.

Rose II,2(1903) p.801 no.773. Finke 1891,6-8, 26 (description of ms.; sample of text). Schück I,1896,80-1=*id*. I³,1926,343. Jørgensen 1914,345 n.2. Lehmann 1936,53-4 (sample of text, with discussion). Jørgensen/Heegaard 1940,291. Sällström 1957,196. O.Pedersen 1963,5;1968,5;1974,540;1976,8.

A description, and some readings used below, were kindly furnished by Dr. Gerard Achten, Berlin. I have had the benefit of using an independent transcription by Dr. Jørgen Raasted, Copenhagen, who has also helped me with single readings and Scripture quotations.

Hermann v.Minden was Dominican vice-Provincial "super Rhenum" *ca.*1278; in Paris 1286; Provincial of the German Province 1286-90; Vicar of the Provincial until 1294 where he disappears from the sources (Finke 27-8,42). The present letter is undated. Finke (6-7) dated it before 1286, since it occurs together with another letter by Hermann from 1277-81, and possibly since the recipient was thought to be Peter the Dominican (§10a above; Finke p.26 n.2), an assumption shared by Schück. From the mathematical and computistical allusions Jørgensen and Lehmann proposed Peter Philomena as addressee, Lehmann adding that there is no other evidence to show that Peter the Dominican had been to Italy. The formula "amicus amico", adduced by Lehmann as an unlikely way for Hermann to address an inferior Dominican, might in fact be an addition by the compiler of the letter-collection (Achten); still, "amico" occurs in the text as well. Thus, on Finke's dating, this may be our earliest evidence of Peter Philomena; or the letter could be dated as late as 1294.

In the text below, the punctuation is mine; orthography is respected except for u/v, ci/ti, and capital letters. The identifiable Scripture allusions are italicized and furnished with references.

(upper right, partly cut away:) H(er)man(us).
(Text-hand:)
Amicus amico. A deo dato Petro Daco, is cuius interpretatio nominis boni est prelibatio ominis, anathema meroris, quicquid est honoris. Cum vester Thobias sine lumine gaudii residerem (*cf. Tob.5,12*), tempusque recurrentis baiuli, quod pater in sua potestate posuit, sollicitis articulis computarem, tandem apparuit bonus de Bononia nuntius, munera deferens, et de amico salvo salutes referens (*cf.Tob.10,1.8.9.*), muneribus gratiores. Accepi primum speram insperatam, que dignam sibi cito laudem preripuit, quia opus

materiam superavit; sed cum ad rem miram sim Bernardus ad lyram, «et» nesciam[1] distinguere cum Thalete tempora, [[cum]] investigare cum Athlante sidera, cum Crisippo[2] extrahere numeros, cum Euclide connicere modulos, ipsa ad usum largientis provide conservata *descendi ad areolam aromatum* (*Cant.6,1*) quam misistis. *Omnem* ibi *pretiosam substantiam repperi* (*Prov.1,13*), sed continuit olfactus, abstinu⟨i⟩t gustus, solum argute lustrabat oculus, donec nudaretur loculus, de quo radiaret titulus, qui latentem energiam proderet, de abditis littera cum prodiret. Porro †inuente† prologus miseriarum videbatur epilogus, quas in *statera* mentis qui *appenderet, arena maris* vix *gravior appareret* (*Iob 6,2-3*): *angustatus* animo, *afflictus* corpore, spe *distentus, redemptionem non suscipiens, circuire in melotis et caprinis pellibus* (*Hebr.11,35.37*), quam hiis *subesse sentibus* (*Iob 30,7*), potius elegisset. Quis digne pensare dignetur, cum egritudine cronica langueret dominus, [[et]] «. .*ut*» *videret finem a longe sequeretur Petrus* (*Mt.26,58*), quomodo «de» illius fine factus est *funis,* levans in eculeis, qui ante vobis *ceciderat in preclaris* (*Ps.15,6*): remoto namque cardinali *paxillo de loco fidelium, vas craterarum pendens in ipso* (*Isai.22,24-5*) factum est Italico more *in contumeliam* quod prius fuerat *in honore* (*Rom.9,21*+). Iam *sedit Petrus foris in atrio* (*Mt.26,69*), *mittens gladium in vaginam* (*Ioh.18,11*), *ad prunas* aliorum cum se *calefaceret* parum (*Ioh.18,18*); quod Galileus «transmigrans»[3] fieret, vigebant filii prophetarum. [[Sed divertere non valebat, qui vinctus nostre provincie cathenis iacebat, et tamen ut «*Sathan* ipsum» *cribraret sicut triticum expetebat* (*Luc. 22,31*).]] *Esurientis* quoque *et sitientis defecit anima* (*Ps.106,5*), et nemo illi dabat, nec quisquam *vas per ter submittebat,* Macta, inquiens, *et manduca* (*Act.10,11.13. 16*). Huc accessit *penetrabilior omni gladio ancipiti* (*Hebr.4,12*) erga me violenta suspicio, que dira fuit Petro[4] crucifixio: cur in mediis fluctibus *mergi incipientem extensa manu* non *apprehenderem* (*Mt.14,30-1*), aut *dormitantis pre tedio* (*Ps.118,28*) *latus* non *percuterem* (*Act.12,7*), ac ut *post me veniret relictis retibus* non mandarem (*Mt.4,19-20*)? Sed recepta nuper de hiis purgatione canonica, in nos ipsum hanc forsitan sententiam protulistis; *Modice fidei quare dubitasti* (*Mt.14,31*)? et *Si omnes* in eo *scandalizati fuerint sed non ego* (*Mc.14,29*+); *recordetur* necesse est *Petrus verbi* quod coram cardinali *dixeram* (*Mt.26,75*+), super quo totius gratie fundavi *ecclesiam* (*Mt.16,18*): *Cantet gallus, ploret amare* (*Mt.26,75*). Hermannus ab hoc reatu *pedes manus et capud* cum innocentibus *lavit* (*Ioh.13,9, cf.Mt.27,24*), et si Petro *caro et sanguis* aliud *revelavit* (*Mt.16,17*). Iam iam *succingat* Petrus *tunicas* (*Ioh.21,7*), partes petat Teuthonicas, non detineat ultro aperiendum ostium Lumbardorum, quem transmisit *prima et «secunda» custodia Romanorum* (*Act.12,10*).

> *Bonum est ibi nos esse: fiant tabernacula* (*Mt.17,4*+),
> ubi cum mori sit necesse, vivamus per secula.
> Amen.

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1 et nesciam: nec sciam *a.c.*   *2* Crisippo: -pi   *3* transmigrans (*lec.dub.*): *supra* Galileus   *4* Petro: *fortasse* Petrus

§17. *Magister Romanus, de xvi impedimentis in astronomia.*

Manuscripts: Basel, Univ. Bibl., F II 15, 97r-107v, 15th c.; Erfurt, Wiss.Allg.Bibl., 4° 368, 63r-70v, 14th c.; München, Bayer.Staatsbibl., Clm 25005, 50v-68r, 15th c. (all in Zinner 1925, no.9035-7, and in T&K 1410, where London, Brit.Libr., add.23770, 41va is cited as an apparent extract). Cited by Jørgensen 1910,255; 1914,345 n.2; 1933,194 n.4; Bjørnbo 1912,94 n.4; Zinner 1936,320; O.Pedersen 1963,5;1968,5;1974,540;1976,7-8, as evidence for Peter Philomena's connection with Roskilde (§7). Thorndike (Magic III, 1934, p.647-9) prints the incipit and gives a summary of the rest of the treatise.

I have seen the Erfurt and München manuscripts (E and M in the following), the texts of which do not seem to yield any explicit clues to the dating. Thorndike (op.cit.p.648), after having discussed the possible identifications and datings of Peter with inclusion also of Peter the Dominican (§10a), arrives at a composition date about 1300. The only relevant part of the treatise seems to be the incipit, which is here printed from E; variants from M are given in parentheses. Orthography and punctuation are mine.

Iste (est *ins.*M) liber quem ad instantiam mei magistri Petri Philomena(!) canonici Roskendensis (Rolk-EM) composuit magister Romanus, civis Romanus et urbis medicus, in magisteriis iudiciorum astrorum expertus. Scito quod omne quod stellae significant, scilicet an res fiant et perficiantur, vel quid prohibet ut res (u.r.: quod M) non fiant nec perficiantur (-iuntur M), et quae sint causae destruentes postquam sint perfectae, hoc (*om.*M) fit 16 modis, qui dicuntur: Profectus, deterioratio,. . .(rest astrological).

§18. *Liber daticus Roskildensis.*

The obituary/anniversary of the Chapter of Roskilde was in use since 1274 (dating from §18b below, cf. Otto 1933,28-9) and until the Reformation, ca. A.D.1536. The book was destroyed in the fire of Copenhagen in 1728. The two astronomical fragments known from it (§18a-b below) are extracts made by Thomas Bartholin about 1680 (Otto p.23). Fragment (18a) was first printed by Otto 1933,32; I know of no discussion of it except some brief unpublished notes by O.Pedersen. Fragment (18b) was printed by Langebek (III,1774,267-8) and again by Otto p.32-3. It was tentatively connected with Peter Philomena by Bjørnbo (1911/2 p.116; 1912,93-6), Zinner (1931,358;

1936,327), and Otto (1933,29 n.25), whereas Jørgensen (1933,195 n.1, on Zinner 1931), Jørgensen/Heegaard (1940,292) and O.Pedersen (1963,6;1968,6-7;1974,541;1976,9; *in* Lindberg 1978,322) take no stand in the matter. For the suggestion, by Zinner and O.Pedersen, that Peter took the idea with him to Paris to be used by William of St.Cloud, see §9.

The texts are printed from Otto 1933, keeping Bartholin's orthography; one or two corrections have been introduced from a re-check of the manuscripts.

(18a) København, Kgl.Bibl., e don.var.1,2°, Tom.Barth.11, p.395. Earlier at København, Univ.Bibl. Excerpt from the beginning of the *Liber Daticus*: geographical position of Roskilde.

In the summary below, the figures from the source are in italics; those supplied or calculated by me, in Roman type, include the coordinates of Rome and Jerusalem current in the Toledan Tables (Toomer 1968,134-5). The value for the latitude of Roskilde thus obtained also occurs in a 14/15th-century note in a manuscript formerly in Roskilde, now Stockholm Kgl.Bibl., X 767, p.131 (Jørgensen 1910,257 with misprints; Beckman/Kålund 1914,XLI; cf. *Algorism, Pref.*§1). Assuming, with ms.F of the *Eclipsorium,* that Roskilde lies 25^m, or 6°;15, to the East of Paris, one arrives at the longitude of 23°;45 E for Paris. This value also occurs in the *Quadrans 2,* §16 (see Part 2 of this volume), and in the Toledan Tables bearing the label "sedes regis Francorum". The distances in miles may have been calculated by mechanically using the equation 1°=66 2/3 miles (as against e.g. the value of 56 2/3 from Alfargani ch.9 and elsewhere). In other words, the distances in longitude are reckoned on the equator. This pretty well explains the mileages in longitude and latitude; the direct distances, as re-calculated with modern values of the trigonometric functions, fit badly, but there seems to be no easy way to correct the text.

	Latitude	Longitude	Direct
Distances:			
Roskilde-Rome	(lost)	$5^o;25$ *W* (*ca.* $0^h;22$)	$13^o;50$
		~*358 mil.*(361.1)	*933 mil.*(922.2)
Roskilde-Jerusalem	$23^o;12,16$ N	26° *W* ($1^h;44$)	$29^o;31.6$
	~*1544 mil.*(1547.0)	~*ca.1733 mil.3 st.* (1733.3)	*1800 mil.*(1968.4)
Positions:			
Rome	$41^o;50$ N	$35^o;25$ E	
Jerusalem	32° N	56° E	
Roskilde	$55^o;12,16$ N	30° E.	

(Hdg.:) Liber Daticus Roskildensis in prooemio. (Txt:). . . . . .tudinis autem differentia est qvinqve graduum et viginti qvinqve minutorum. Qvod spacium terre est, tricentorum qvinqvaginta octo miliariorum. Spacium vero temporis fere viginti duum minutorum hore unius, id est trientis et fere tricesime hore unius. Tanto enim Roskildis est occidentalior Roma. Directa igitur distantia inter has civitates est, Nongenta triginta tria miliaria. Differentia latitudinis inter Roskildis et Iherusalem viginti trium graduum, duodecim minutorum, et sedecim secundorum. Qvod spacium terre est mille qvingentorum qvadra-ginta qvatuor miliariorum: tanto enim est Roskildis septentrionalior. Longitu-dinis vero differentia est viginti sex graduum. Qvod spacium terre est, mille septingentorum triginta trium miliariorum et fere trium stadiorum. Spacium vero temporis hora una et qvadraginta qvatuor minuta unius, hoc est bisse et qvintedecime unius: tanto enim est Roskildis occidentalior Iherusalem. Di-recta igitur distantia inter has civitates est mille octingentorum miliariorum.

(18b) København, Kgl.Bibl., e don.var.1,2°, Barth.F V, p.117-8. Earlier at København, Univ.Bibl. Excerpt from the beginning of the *Liber Daticus*, mentioning a calendar, now lost, with auxiliary day-by-day tables of solar longitude and meridian altitude, and describing a table of day-length ($6^h;56$-$17^h;4$) for Roskilde, made in the year 1274 after the Incarnation. This is said to be symmetrical about the solstices June 15 and Dec.15, and may have been separate from the Calendar. The values of all the tables are said to fall one day earlier after 288 years (this number in Sacrobosco's Computus, and com-mon elsewhere).

This fragment poses a long-standing problem of what kind of observations can have been made in Roskilde, and of how to inter-pret the "astrolabium et gardagas sinuum" said to have been used for making the day-length table. Since the discussion has mostly been conducted without knowledge of the fragment §18a, the answers have

been indeterminate. Bjørnbo (1912,94) pointed out the relevance of the *canones Azarchelis* (on the Toledan Tables), which tell how to use observed meridian altitudes of the sun for calculating both geographical latitude and day-length, and also contain the *kardaga*-table (listing the sine-values 39,75,106,130,145,150(=unity) for the arguments 15°,...,90°). Zinner and O.Pedersen (§18 above) assume that at least some solar altitudes were observed, and used directly for calculating day-lengths. In fact, if fragment §18a is taken to show that a value for the geographical latitude was current, and if the Toledan Tables were utilized, it suffices to assume just one observation of a solar altitude. For instance, if an observed altitude of round 57° were corrected with a declination value from the Toledan Tables, e.g. +22°;12,16 for a time when the solar longitude is 71° or 109°, this would yield the geographical latitude implied by §18a, with its over-precision inexplicable on the basis of pure observation. At the next stage, all day-lengths may be calculated by means of declination values taken from the tables; this assumption, however, does not too well fit the preserved maximal day-length value. Indeed, for computing the day-length h at the geographical latitude b from the solar declination d, the *canones Azarchelis* prescribe a procedure equivalent to 15 $h=180+2(180/\pi)$ arc sin (tg d tg b); and with $d=+23°;33,30$ (at solstice), $b=55°;12,16$, and modern values for the trigonometric functions, this would yield $h=17^h;11$ against the $17^h;4$ of our source. One would rather suppose that the *kardaga*-table was used with some rounded values of the parameters, or that the "astrolabium" was for this purpose used as a computing device; but this appears to defy verification.

(Hdg.:) In proemio huius libri ubi uariæ tabulæ Astronomicæ et Chronologicæ: (Txt:) Cum igitur secundum maiorem remotionem ab eqvinoctiali circulo maior dierum artificialium causetur ineqvalitas, et tanta sit remotio huius civitatis ab eqvatore, qvanta nunc demonstrata est. Prolixior itaqve dies Roskildis est decem et septem horarum et quatuor minutorum hore unius. Brevissima vero dies in ea est sex horarum et qvinquaginta sex minutorum, sicut in tabula diversitatis dierum artificialium ad eandem civitatem subscripta reperitur. In qva dies et menses eqve distantes a solstitialibus diebus, id est a qvinto decimo die Junii vel Decembris coniunguntur, qvoniam oppositorum dierum et eqve distantium a solsticiis accedendo vel recedendo eqvalis est longitudo. Invento itaqve numero diei cuiuslibet mensis, in eadem linea dextrorsum invenies qvantitatem eius Roskildis, et in aliis locis omnibus eandem habentibus latitudinem. Qvanta igitur est hec dies, tanta erit nox diei ab altero solstitio utrobiqve eqve distantis. Ut igitur elevatio solis, et locus eius

in celo, necnon et qvantitas horarum diei cuiuslibet et noctis Roskildis et in tabula et in martyrologio inferius annotata, infallibiliter sicut et nunc in perpetuum habeantur, qvibuslibet ducentis octoginta octo annis transactis a constitutione huius tabulæ, anticipanda sunt omnia predicta per unum diem. Perfecta est autem hec tabula per Astrolabium et Gardagas sinuum Roskildis anno dominice incarnationis millesimo ducentesimo septuagesimo qvarto.

§19. *Letters of Boniface VIII and Benedict XI.*

(19a) Archivio segreto Vaticano, Reg.Vat.50, 335v, ep.131. Printed in G.Digard & all., Les Registres de Boniface VIII, vol.III, 1921, c.775 no.5249; A.Krarup, Bullarium Danicum, 1932, p.834-5 no.947; Diplomatarium Danicum 2.Rk.5 (Fr.Blatt & C.A.Christensen), 1943, p.247-8 no.261. Used as evidence for Peter Philomena's connexion with Roskilde, and his position in the Church, by Jørgensen 1933,194 (from Krarup), Lehmann 1936,53 (from Digard), Jørgensen/Heegaard 1940,291; Sällström 1957,196-7; O.Pedersen 1963,5;1968,5;1974,540; 1976,8-9.

Letter of July 4,1303, from Boniface VIII to the bishop (Kristian; name blank) of Ribe, the prior (Peter) at the church of Skt.Knud, Odense, and Peter Philomena, canon of Roskilde, enjoining upon them to take care that the *praepositus* of the church of Gamtofte (Funen) may enjoy his emoluments while studying at Rome. I print the letter in its entirety, though the subject is probably irrelevant for the biography of Peter Philomena. The text of the Diplomatarium Danicum has been followed, with a couple of restitutions of the wording based on an inspection of the manuscript.

(Hdg.:) Uenerabili fratri ·· episcopo Ripensi, et dilectis filiis ·· priori sancti Kanuti Othoniensis, ac Petro Philomene canonico Roskildensi. (Txt:) Dilectus filius Henricus prepositus ecclesie Toftensis, Othoniensis diocesis, in nostra proposuit presentia constitutus quod ipse studio diuini iuris theologice uidelicet facultatis, quod de mandato nostro apud sedem apostolicam regitur, immoratur. – Cum autem felicis recordationis Honorius papa tertius prede-cessor noster duxerit statuendum, ut studentes in facultate predicta, per annos quinque percipiant de licentia dicte sedis, prouentus beneficiorum suorum non obstante aliqua consuetudine uel statuto et postmodum pie memorie Innocentius papa quartus predecessor noster statuerit, ut ⟨in⟩ dicta facultate studentes penes sedem eandem, talibus omnino priuilegiis, libertatibus et immunitatibus gaudeant, quibus gaudent studentes in scolis, ubi generale regitur studium, ac percipiant integre prouentus suos ecclesiasticos sicut illi, nos uolentes ut constitutiones predicte, circa eundem prepositum, obseruen-tur, ut sit ei mora quam occasione dicti studii apud eandem sedem contrahit fructuosa, discretioni uestre per apostolica scripta mandamus quatenus, uos,

uel duo aut unus uestrum, per uos, uel alium seu alios, eidem preposito, apud sedem predictam huiusmodi studio insistenti faciatis fructus redditus et prouentus prepositure sue ipsius ecclesie iuxta predictarum constitutionum tenores per idem quinquennium integre ministrari. Prouiso ne in fraudem constitutionum ipsarum aliquid attemptetur, et quod dictus prepositus interim, eidem ecclesie, in prepositure officio, per ydoneum uicarium faciat deseruiri, contra(dictores) per cen(suram) et c. usque compescendo. – Datum Anagnie iiii nonas iulii anno nono.

(19b) Archivio segreto Vaticano, Reg.Vat.51, 10v, ep.32. Printed in Ch.Grandjean, Le Registre de Benoît XI, 1905, c.41 no.32; A.Krarup, *ed.cit.* p.841 no.956 (incipit and explicit); Diplomatarium Danicum, *vol.cit.* p.260 no.276. Cf. Sällström 1957, 196 with n.15.

Letter of Nov.22,1303, from Benedict XI. Same subject as above, but the two last addressees are now the Dean of Würzburg and Petrus de sancto Benedicto, cantor at Bourges. Text constituted as above.

(Hdg.:) Uenerabili fratri ·· episcopo Ripensi, et dilectis filiis ·· decano Herbicensis, ac magistro Petro de sancto Benedicto cantori Bituricensis ecclesiarum. (Txt, as §19a above, except for insignificant variants:) Dilectus filius Henricus...faciat deseruiri. Contra(dictores) per cen(suram...). – Datum Laterani x kalendas decembris anno primo.

§20. *Note ascribing Quadrant to Petrus de Dacia.*
Paris, Bibl.Nat., lat.7195, 91vb. Vellum,29 × 20,ff.146, 14th c. Reference and readings from Poulle 1964,208 n.62. The manuscript belonged to the monastery of St.Lazarius at Blois, which lent it out once in 1419 (note at 146v; Delisle II,1874,341). In 1522 it was borrowed by Orontius Finaeus from the clock-smith Iulianus Couldranus (?=the ". ......Couldroy" at Blois in 1533, Delisle I,1868, 177-8), who had it from the monastery (second note at 146v, hand uncertain). The present note is dated to the end of the 14th century *p.20* by Poulle; I suppose it might be as late as the 15th/16th century, possibly coeval with Orontius Finaeus himself (cf. *Mss. Datés* II, Plate CLXXX, and *Calendar, Pref.*§2b, ms.Pe). It stands at the end of a *Saphea Azarchelis* (T&K 403), and the manuscript continues with Grosseteste's Compotus; a few corrections to both these texts are in a similar hand, but our note seems unconnected with either of them.

Petrus de Dacia	1302	converterunt astrolabium
Profatius Iudeus	1331	in quadrantem.

§21. *Comparison of the times of some mean conjunctions in the Calendar, the Eclipsorium, and various other tables.*

The manuscript tables were utilized according to their canons, without intermediate calculation of their parameters: the latter is a feature of a forthcoming treatise by R.P.Mercier, which should eventually be checked for the results here tentatively given. The calculated values can be found in the conspectus at the end of this paragraph. The readings used are those of a majority of manuscripts; some readings have been emended by interpolation in the tables. For reasons of space, detailed textual notes could not be given. The duration of a mean lunation is $29^d 12^h;44,3,20$ everywhere except in the Alfonsine Tables.

Calendar of Peter Philomena. Begins at midnight before 1293 Jan.1. Shows the current day, current hour (h: numbered 1-24 from midnight), and current quarter of an hour (q: numbered 1-4) of the conjunction. If the quarter-value is not indicated (noted as q "-"), a time within the last minute of the hour is meant. For details of the notation see *Calendar, Pref.*§3.

The conjunctions have been numbered chronologically (cf. Lindhagen 1916,7-8, for Grosseteste's calendar), and re-calculated using the time 1293 Jan.9 current, $2^h;52,50$ after midnight, for conjunction no.1. The list below gives the times most closely approaching to a boundary between two quarter-hours or around the last minute of an hour.

No.	Re-calculated as date	hour	Shown by Calendar, at same dates h	q
851	1361 Sep 30,	3; 0, 3,20	4	1
327	1319 May 20,	2;14,56,40	3	1
184	1307 Oct 27,	5;15	6	1
41	1296 Apr 4,	8;15, 3,20	9	2
597	1341 Mar 18,	8;29,56,40	9	2
454	1329 Aug 25,	11;30	12	3
311	1318 Feb 1,	14;30, 3,20	15	3
867	1363 Jan 15,	14;44,56,40	15	3
724	1351 Jun 24,	17;45	18	4
581	1339 Dec 1,	20;45, 3,20	21	4
471	1331 Jan 9,	11;58,56,40	12	4
328	1319 Jun 18,	14;59	15	-
185	1307 Nov 25,	17;59, 3,20	18	-
57	1297 Jul 20,	19;59,56,40	20	-

There seems to be some vacillation in rounding at the very boundaries (cf. no.184 compared to 328, 454, and 724), but apparently there are no disturbing errors elsewhere: for some variants cf. *Calendar, Pref.* §4. Especially, no.328=§4a, **169,2**; no.581=§4d,**335,3**; no.724=§4c,**175,4**; no.867=§4e, **15,4**. Thus the times re-calculated are probably the exact ones used, or at least within some 3 seconds of them.

Eclipsorium. Tables: §41,§43-4 of the treatise as printed in this edition, with canon §32-39.

Toledan Tables of conjunctions (Toomer 1968,no.52-55). Sources: Princeton, U.L., Garrett 99, 69v-71r (G); Paris, Ste.Geneviève, 1043, 162r-163v (P); Paris, Bibl.Nat., lat.16658, 132r-133v (B; second half of 13th c.); Erfurt, W.A.B., 4°369, 195r-v. Ms. B has a set of times for Paris, partly erased, which appear to be 58^m greater than the Toledan times, or corresponding to a difference of 14°;30 in geographical longitude. I have not seen this value elsewhere.

Toledan Tables of mean motions of sun and moon (Toomer 1968, no.28-9). Sources, with symbols as above: G, 36v-39r; P, 129r-132r; B, 115r-116v. Ms. B has a set of values for Paris, partly erased, in which the sun's longitude has been decreased by 1';24 and the moon's by 18';41. This would increase the conjunction time by 34^m;2 corresponding to a difference of about 8°;30 in geographical longitude. A note in B mentions the latter value, and a secondary note corrects it to 12°;18.

Toulouse Tables of conjunctions. Source: B (above), 79v-81v. The calculated conjunction times before 1297 appear to fall one day beside those found from elsewhere; I have, however, adopted the hour-values in the conspectus.

Toulouse Tables of mean motions of sun and moon. Sources, with symbols as for the Toledan conjunction tables: B, 70r-71v; G, 83v-85r; and Firenze, B.N., II.iii.24, 228r-229r (F). The values of B were followed except for a few places where the photo of B is deficient. The values in FG for the motion of the moon are such as to make all results 1' less (and thus all conjunction times 1^m;58 greater) than those obtained from B.

William of St.Cloud, Almanach. Covers the period from March 1292-Feb.1311 ("1310" in William, since the year is taken to start in March). Sources: Paris, B.N., lat.16210 (lacks 1292); Vat.lat.4572 (lacks 1305-8 and "1310"). Time of conjunction and opposition given for each month, as days elapsed+time in hours and minutes. From the canons it appears that the values would be 40^m less than those obtained from the Toulouse Tables (corresponding to about +22' in the mean motion of the moon, cf. the canon in Paris B.N., n.a.l. 1242,42ra). The conspectus shows the values as given.

William of St.Cloud, Kalendarium reginae. Covers the period Jan.1292-Dec.1310. Sources: edition by Harper (1966), supplemented by Erlangen U.B. 434, 2ra-7v and (second foliation) 1ra-7rb. Said to be made "per tabulas astronomiae, per quas inveniuntur eclipses solares et lunares, quae multotiens sunt expertae et inveniuntur cum veritate motuum concordare", thus apparently a set of mean conjunction tables (Harper p.112). Records each conjunction at the day

following, by means of the hour within which it falls; the hours are noted in the sequence "·11 - ·0","1· - 12·" equivalent to hours no.1-12,13-24 after midnight (my conversion).

If conjunction No.1 is set at 1292, Jan.20, 18^h;25,25 after midnight, then the conjunction times most closely approaching to an hour-boundary are

No.	Re-calculated as		Registered as		
	current day, hours after midnight				
202	1308 Apr.21,	10; 0,35, 0	Apr.22,	hour no.11	(".1")
123	1301 Dec.1,	12; 0,11,40	Dec.2,	hour no.13	("1·")
44	1295 Jul.13,	13;59,48,20	Jul.14,	hour no.14	("2·")
187	1307 Feb.3,	10;59,45, 0	Feb.4,	hour no.11	

Thus the times re-calculated are precise within some 12 seconds.

Novara tables of conjunctions. Accompanied by a canon ascribed to Campanus. Sources: Erfurt W.A.B., 4°369, 213v-215v, aided by Vat.lat.3118, 53v-55v.

The *Novara tables of mean motions,* in the two manuscripts mentioned, give the same times and longitudes within a few seconds.

The canon (version of Vat.lat.3118,54rb) says that the conjunction time at Paris can be obtained by subtracting 25^m from the time for Novara.

Alfonsine Tables of mean motions. Source: Oxford, Bodl.L., Bodl.491, 41r ff. Only three selected values have been calculated. The mean motion parameters do not appear to be comparable to the rest of those considered. The *tables of mean conjunctions for Paris,* in Par.lat.7286C,48r+ (cf. *Calendar, Pref.*§2b, ms.Pc), occurring together with Jo. de Lineriis' canons from 1322, yield the same longitude values as the Alfonsine Tables, whereas the times are exactly 48^m greater: this difference corresponds to the most commonly accepted value of 12° for the difference in longitude between Paris and Toledo (cf. J.K.Wright, in *Isis* 13(1923)93).

Times: No.	Current day	Toledan (conj.)	Toledan (motions)	Calendar (Peter)	Eclips. (Peter)	Alman. (-- Will. --)	Cal.	Toul. (conj.)	Toul. (motions)	Novara (conj.)	Alfons. (motions)
1	1293 Jan 9	14^h;52	14;52, 5	14;52,50	15; 3,19	15; 4	15;14	15;38,58	15;40,16	16; 8,40	14;28,28
41	1296 Apr 4	20;14	20;14,17	20;15, 3	20;25,33	20;26	20;36	21; 1,12	21; 2,28	21;30,53	
57	1297 Jul 21	7;58	7;59, 9	7;59,57	8;10,26	8;11	8;21	8;46, 6	8;47,24	9;15,47	
185	1307 Nov 26	5;57	5;58,14	5;59, 3	6; 9,33	6;10	6;20	6;45,12	6;46,31	7;14,53	5;33,49
597	1341 Mar 18	20;28	20;29, 3	20;29,57	20;40,26			21;16, 3	21;17,20	21;45,47	
867	1363 Jan 16	2;44	2;44, 6	2;44,57	2;55,26			3;31, 2	3;32,22	4; 0,47	
(941)	1369 Jan 9	9; 3	9; 4,10		9;15,33			9;51, 9	9;52,27	10;20,53	8;36,15
Longitudes:											
1		9^{s}15°;55,7	;55, 9		;53,57	;55		;55, 6	;55, 8	;55, 9	26°;19,19
41		0 10; 8,33	; 8,36		; 7,25	; 9		; 8,33	; 8,36	; 8,37	
57		3 25;49,57	;50, 0		;48,47	;50		;49,57	;49,59	;50, 0	
185		8 1;21, 0	;21, 4		;19,52	;21		;21, 2	;21, 4	;21, 4	11;57,30
597		11 22;51,43	;51,44		;50,34			;51,42	;51,45	;51,45	
867		9 21;22,28	;22,37		;21,26			;22,34	;22,36	;22,38	
(941)		9 15;11,23	;11,30		;10,20			;11,28	;11,29	;11,33	26;38,21

Conspectus of times of seven conjunctions, numbered as for the Calendar of Peter Philomena. All times have been counted so that 24^h of a day equals noon of that day. For the calendars I show the times as re-calculated from the parameters found above. For the tables of mean motions I have given second-values irrespective of the precision of the tabular values, interpolating if necessary; some false precision may have ensued from this. I have not checked whether the equation of time is supposed to be applied with the same sign everywhere.

The time values of the *Eclipsorium* and William's *Almanach* appear analogous and can be obtained from the Novara values by subtracting 65^m, *i.e.* the longitude correction of 25^m plus William's correction of 40^m. The *Calendar* of Peter Philomena can profitably be compared to the *Toledan* mean motion tables only. Neither set of *Toulouse* values would yield the values of William's *Almanach* by the use of his correction, even if the Toulouse mean motion values were raised by about 2^m as remarked *ad loc.* This may be due to errors in my sources. I cannot explain the time values of William's calendar, nor the longitude values of the *Eclipsorium*; the rest of the longitude values seem to be all analogous.

EDITORIAL CONVENTIONS.

The individual prefaces should be consulted for exceptions and special features. In collating, short dittographies where the versions did not vary notably have been ignored; running corrections by the text-hand have been tacitly accepted; and missing initials have been supplied. Parentheses may be everywhere used for enclosing comments or supplements by the editor.

Descriptions of manuscripts.

Since most of my photos and microfilms only cover the texts in question, I have generally ignored the wider context in the manuscripts including any index entries. Measurements, where obtainable, are given as height × width, to the nearest half-centimetre. They have mostly been taken from the catalogues; those measured from originals or microfilms express the page dimensions.

References include only catalogue entries, citations in standard works, reproductions, and treatments which may claim priority in matters of identification.

In the *textual excerpts* I have tried to include any statements concerning authorship and dating. Within each text the citations are separated by dots. "(Txt:)" signals the main hand(s) of the manuscript. "(Hdg.:)" and "(Subscr.:)" denote headings and subscriptions which are in some way distinguished from the main text, e.g. by rubrication, whether in the same hand as the main text or not. Occasionally, prefixed colons are used for making clear that descriptions continue: thus, "(:Hdg.:)" signals a heading to a text already cited. Comments and identifications by me are in parentheses, as well as information on texts or tables not otherwise excerpted.

In the descriptions of *tables,* "(Hdg.:)" means the title, wherever it is placed. A *list* is a table the extent of which is arbitrary.

One-dimensional tables are characterized by the number of columns (or rows), two-dimensional tables by the figures for (number of rows × number of columns) in the body of the table. Extra rows or columns coupled to a table, whether used for entering it or for

reading results, are called "entr(ances)". Instead of some of the numbers mentioned above, the first and last reading of an entrance column (or row, respectively) may be given. Mostly, however, lesser tables coupled to a main table have been ignored in the descriptions.

Rotae may be taken as tables bent into circular discs, such that the sectors and zones of a rota correspond to the rows and columns of some table. The descriptions only mention the number of sectors. If several numbers are given for one rota, it is composed of concentric rotae with varying numbers of sectors. Rotae with 28, 19, and 15 sectors are as a rule computistical, and concern the solar, lunar, and indictional cycles.

In the descriptions of *calendars,* the term "cycle" is here used for a column with entries showing times of conjunctions or oppositions during 19 years, placed against their proper dates. In an entry such as "*10* 9^h;8", the number "*10*" identifies the year for which the entry is valid, and is called the "cycle number". A letter may be used instead, as in the calendars of Grosseteste and Peter of Dacia.

Text, and textual excerpts in descriptions and apparatus.

According to the convention of this series, a near-Classical ortho-graphy is used for words not specifically mediaeval. Abbreviations have been expanded tacitly except where some textual problem was recognized. Paragraphing, punctuation, and use of upper-case letters, are on the editor's discretion, as is the notation of numbers: they are generally written in figures if denoting magnitudes, in letters if not, but consistency has not been aimed at.˙ In fractional numbers, decimals are signalled by periods, and sexagesimals by semicolons or commas: thus, $1.5 = 1;30$, and $1.51 = 1;30.6 = 1;30,36$. Other sym-bols:

(manuscript symbols:) : manuscripts which contain the passage following, if fewer than those listed in the preamble to the text.

( )   comments etc.; occasionally, enclosing numbers which are in fact spelt out or written in Roman figures.

⟨ ⟩ :   insertion by editor against all witnesses considered

⟨**⟩ :   insertion believed to be necessary

⌊⌋ :   passage occurring only in some witnesses, as specified in apparatus

[ ] :   passage, in some or all witnesses, deleted by editor

†† :   passage which needs emendation.

Apparatus.

In addition to the entries included on the basis of the principles laid down for each text, extra entries are given where the reading adopted appears to need corroboration.

For those texts where some of the manuscripts used are incomplete, the *headings* of pages list the witnesses adduced for the current passage. Witnesses listed in parentheses are used only in the entries which mention them expressly.

The *entries* in the apparatus are generally negative. Thus, if the manuscripts WXY(Z) are listed as currently used, then the entry "et: *def.*Y" means that WX read "et" whereas Y omits some longer passage containing it. Positive entries have the form "et: WX; *def.*Y", equivalent to the above, or e.g. "et: Z; ut Y" or "et: Z; ut Y; *varie cett.*", both informing only about ZY. Entries within entries are in "( )", modifying the word or, if expressly stated, the words immediately preceding. Thus the entry "et (*om.*X) sic (s.e. W; sit X): hoc Z" should be expanded to "et sic: Y; sic et W; sit X; hoc Z". Abbreviated variant readings always echo their counterparts in the lemma: thus, in the example "et sic: Y; sit X; s. et W", manuscript W reads "sic et", not "sit et".

Examples illustrating common symbols in the apparatus:

a(>X)	:	all manuscripts in Class a, except ms.X
inv.; inv-do	:	cites a preceding word like "inveniendo"
ab_2	:	cites the second occurrence of "ab" in the line currently referred to
ab--hoc	:	cites the phrase from "ab" up to and including the "hoc" occurring next
ab. . .hoc=ab,hoc	:	cites "ab" and "hoc" irrespective of words intervening
X*a.c.*; X*p.c.*	:	manuscript X before and after secondary correction(s)
ab *add.* X	:	extra text in X
om. X	:	text missing in X
ab *ins.* X	:	extra text, secondarily inserted in X
del. X	:	text cancelled in X (by strokes, dots, or otherwise)
gem. X	:	text repeated in X
inv. X	:	two words interchanged by X
def. X	:	text plus some context missing in X
alia X	:	different phrasing in X, not cited nor compared
n.l. X	:	X illegible, mostly because of damage
vel *vel* et X	:	the reading of X may be either "vel" or "et"
mg.	:	written in margin
s.l.	:	written above the line
ras.	:	erasure
vacat	:	empty space
⟨ab⟩	:	"ab" left out or, if stated, illegible or lost mechanically
«ab»	:	"ab" inserted secondarily
[[ab]]	:	"ab" cancelled
a(ut)	:	abbreviation expanded by editor (noted only occasionally)
ab *ante* hoc	:	"ab" placed before the nearest preceding occurrence of "hoc"
ab *post* hoc	:	"ab" placed after the nearest following occurrence of "hoc".

Expositio
super Algorismum

§1. The authorship of this text was first noted by Eneström (1885,3)20-1. Printed by Max.Curtze (Copenhagen 1897, with the collaboration of M.Cl.Gertz), from ms.S(below), aided by ms.C (Curtze p.VI-X). The present edition rests on mss.CEVS, cf.§2d. See also *Introduction* §3a.

Manuscripts:

A Erfurt, Wissenschaftliche Allgemeinbibl., 4°369. Vellum,ff.242, middle of first half of 14th c. (Schum).

Schum pp.617-21.   Curtze 1897,IV. OP 1.2. T&K 681.

152ra-163ra Omnia quae a primaeva: in hoc tractatu determinatur de arte numerandi . . . maximus cubicus in toto numero proposito. (Subscr.:) Johannes librum scripsit cum pedibus istum.

B Oxford, Bodleian Libr., Bodl.491. Vellum, 23½×18, ff.v+170, late 14th c. English.

Summary Catalogue 2083.   Eneström (1885,3) 20 no.3. OP 1.8.

116v-142r (upper mg.:) Incipit expositio magistri Petri de Dacia super tractatum Algorismi. (Txt:) Omnia quae a primaeva rerum etc.: in hoc tractatu determinatur de arte numerandi . . . Inventum et completum anno domini 1°2°9°2° ultima die Iulii, scilicet in festo beati Petri ad vincula, per magistrum Petrum de Dacia dictum Philomenam.

C München, Bayerische Staatsbibl., Clm 14401. Vellum, 26×19, ff.182, 14th c. From monastery of S.Emmeram (Benedictines).

Cat.cod.lat.bibl.reg.Mon. II,2 p.167.   Eneström (1885,3) 21 no.4; (1885,8) 65. Curtze 1897,IX (used as auxiliary ms. in Curtze's edition). Jørgensen 1910, 253; 254 n.2. OP 1.7. T&K 681.

169ra-179vb Omnia quae a primaeva etc.: in hoc tractatu determinat de arte numerandi . . . Inventum et completum anno domini 12901 (!) ultima die Iulii, scilicet in festo beati Petri ad vincula, per magistrum Petrum de Dacia dictum Philomenam. Amen.

D Oxford, Bodleian Libr., Digby 166. Vellum, small 2°, ff.110, 14th c. English. Contains excerpts only. Not consistently collated.

Quarto Catalogue IX (Macray) c.166-71.   Eneström (1885,3) 20 no.2. OP 1.9. T&K 681. Also mentioned by Thorndike, The Sphere of Sacrobosco, 1949, p.59.

13r-20v (upper mg., not text-hand but contemporary) Incipit expositio magistri Petri de Dacia super algorismum prosaicum. (Txt:) Omnia quae a primaeva etc.: in hoc tractatu determinatur de arte numerandi . . . addatur illud residuum et redibunt eaedem figurae quae ante erant si recte fecisti (section on cube-roots, *l.*1926).

E Erfurt, Wissenschaftliche Allgemeinbibl., 4° 234. Vellum, ff.148, first half of 14th c.

Schum p.492-3.   Curtze 1897, IV. OP 1.1. T&K 681.

p.10   **123ra-137ra** Omnia quae a primaeva etc.: in hoc tractatu determinatur de arte numerandi . . . Inventum et completum anno domini m° cc° lxxxxii° ultima die Iulii, scilicet in profesto sancti Petri ad vincula, per magistrum Petrum de Dacia dictum Philomenam.

H London, British Libr., Harley 1. Vellum, 29½×20½, ff.160, 14th c. English.

Catalogue (Nares & *all.,*1808) p.1.   Eneström (1885,3) 20 no.1. Jørgensen 1910,253. OP 1.5.

47ra-55vb (53ra-61vb, old foliation) (upper mg., later hand:) Liber Iohannis de Londoniis cum rosa. (upper mg., contemporary, faint:) Scripta super algorismum. (Txt:) Omnia quae a primaeva rerum etc.: in hoc tractatu determinatur de arte numerandi . . . Inventum et completum anno domini 1°2°9°2° ultima die Iulii, scilicet in festo beati Petri ad vincula, per magistrum Petrum de Dacia dictum Philomenam. (Subscr.:) Iste liber est scriptus, qui scripsit (id est qui perfecit *s.l.*) sit benedictus.

M München, Bayerische Staatsbibl., Clm 14476. Vellum, 4°, ff.61, 14th c. From monastery of S.Emmeram (Benedictines). Contains only the beginning of the treatise.

Cat.cod.lat.bibl.reg.Mon. II,2 p. 179. Reference from Dr. Mary Sirridge.

15va-16vb Omnia quae a primaeva etc.: in hoc tractatu determinatur de arte numerandi . . . et abiecto semper 9° videas residuum et invenies nihil (*l.*528: end of leaf).

S München, Bayerische Staatsbibl., Clm 11067. Paper, 2°, ff.209, A.D. 1448. Earlier at Passau; written at Grönenberg, see below.

Cat.cod.lat.bibl.reg.Mon. II,2 p.6-7.   Eneström (1885,3) 21 no.5; (1885,8) 66. Curtze 1897, VIff. (with full description; this ms. was the basis of Curtze's edition). Jørgensen 1910,255; 1914,346; 1933,194 n.5. Zinner 1936,319 no.40. OP 1.6. T&K 681.

142va-159ra (Hdg.:) Incipit commentum magistri Petri de Dacia, bono compotista (!) in villa Parisiensi, super textum algorismi etc. (Txt:) Omnia quae a primaeva rerum origine processerunt: in hoc tractatu determinatur de arte numerandi . . . maximus cubicus in toto numero proposito etc. (Subscr.:) Explicit scriptum super algorismum, editum a magistro Petro Daco, bono compotista in villa Parisiensi, et conscriptum per me fratrem Theo(dori)cum Ruffi ordinis fratrum minorum in Gronenberch, ibidem l(e)c(t)or (!) conventus, anno domini millesimo cccc° xlviii, decima nona die mensis Februarii etc.

T Erfurt, Wissenschaftliche Allgemeinbibl., 2° 394. Vellum, ff.167, early 14th c. Probably written at Erfurt (cf. to *l.* 195). End of text missing.

Schum p.278.   Curtze 1897,IV. OP 1.3.

148rb-154vb Omnia quae a primaeva rerum origine processerunt etc.: in hoc tractatu determinatur de arte numerandi . . . quam si induxeris cubice adhuc erit 0, videas igitur (*l.* 1931; end of leaf).

V Biblioteca Apostolica Vaticana, Ottob.lat.1430. Vellum, 30 × 22,ff. viii + 120, 14th c.

Daly, Manuscripta 8(1964)12-3.

31ra-36rb (Upper mg.: inscription cut away or illegible. Then in a modern hand:) De arte numerandi. (Txt:) Omnia quae a primaeva etc.: in hoc tractatu determinatur de arte numerandi . . . Inventum et completum anno domini 1292 ultima die Iulii, scilicet in festo beati Petri ad vincula, per magistrum Petrum de Dacia dictum Filomenam, amen.

W Wien, Oesterreichische Nationalbibl., 3816. Paper, 4°, ff.200, 15th c. Text most similar to HBM (see §2b below), with many private variants. Generally disregarded.

Tabulae codicum III,93-4.   Zinner 1925, no.12145. T&K 680.

109vb-127vb Omnia quae a primaeva rerum (corrected from "sl. . ."?) origine processerunt: in hoc tractatu auctor determinat de arte numerandi . . . maximus cubicus in toto numero proposito. Et sic est finis huius commenti super algorismo etc.

Two further manuscripts which have been cited in this connexion are: Leipzig, Univ.Bibl., 1470, 433r-444v (Curtze 1897,IV; OP 1.4), and Salzburg, Bibl. der Erzabtei St.Peter, b IX 14, 74r-82v (=93r-101v, older foliation. Curtze, *ibid.*; OP 1.10). They contain the

Algorism of Sacrobosco with glosses, part of which may be paraphrased from our text. I have not discovered any ascriptions to Peter of Dacia. Some similar cases are mentioned in the Preface to the *Algorism*, §4.

Since the present text occurs in manuscripts of mixed, mainly astronomical, content, no stable context can be expected. Considering only the works immediately preceding and following our treatise, it is twice found to be appended to the Algorism (in A and S). In four rather more important manuscripts (HBED), all of them probably English, it is followed by Robertus Anglicus' commentary on Sacrobosco's Sphere, "Una scientia nobilior" (ed. Thorndike 1949, 143 ff.). No other works have been found more than once in close proximity to Peter's.

§2. *The manuscript tradition.*
The tradition appears to be thoroughly contaminated, and only some general features are noted here. The manuscripts D and W have been ignored wherever they are not expressly cited.

§2a. Manuscript E, together with either C or D, contains a few passages which are necessary for the sense and may be original. They are:

49-51	et secundo--numerum: ED; *om.cett.*
158-60	idem supponunt--dicit quod: EC; *om.cett.*(remains in D)
997-9	et in omnes--habentes ED + et facit--multiplicandi ETD: *om.* VS; *def.cett.*
1399	linearis--cum dicit: EC; *om.cett.*
1816-7	unde quia--constat: ED; *om.cett.*

This may serve to set each of E,C,D apart from the rest of the tradition. But at least E is also connected to STA, cf. §2b; further, E,C,D, and possibly T, do seem weakly connected, as is shown by the following:

221	(numbers, in various notations) 11-20-21-30: 11-12-12-13(same) ECD
525	proba: probatio (probo T) ECDT
1260	operandum: E; operandum scilicet anteriorandum D; anteriorandum *cett.*

Finally, E alone contains two passages which seem to be secondary, namely, 72-77, obviously a gloss, and 1672-3, which might be an attempt to remedy an obscure passage.

§2b. ESTA, with sub-groups STA and ST, are characterized by numerous and generally short glosses in the text, and by other kinds of explications which are sometimes either superfluous or wrong. Since these additions vary to some extent in location and wording, they may have originated in a copy with interlinear glosses. Glosses from (E)STA:

26	sic: sequitur conclusio *add.* STA
420	debet poni: scilicet ipso *add.* EST + quaternario deleto *add.* ESTA
499-502	addita--figuris: ESTA; *om.cett.*
547	haec est divisio (definitio A): ESTA; *om.cett.*
1167	99: tunc 9 de 6 dividere non potest *add.* ESTA(slight variations); et ma(i)or de mi(no)ri sumi non potest *ins.* H (emendation?)

Other explications, some of them plausible:

278	competenter potest poni: ESTA (with Sacrobosco); ponatur D, *cett.*
437-8	addi debet ad figuram: et si est--ad illam STA (redundant)
492-3	addas primam ad primam: VCHBM; addas tunc--suprapositam ESTA
1204-5	et alias--superioribus: ut aliae--subtrahi (*supra*) SA; *def.* T

Errors:

184-5	et quid--limites: *om.* SA; 9--1 E (inserting the text in lower margin)
289	novies: nongentesies ESTA; novies vel nongentesies W
292	novies: nongentesies EST; *om.* W; *def.* C,A
1337	123456: iste numerus scilicet 123456 S, *similia* T,A
1110	sit etiam 3: sicut est 3 S,T *fere*; sicut est 3 A (with a longish improvised insertion due to loss of context)

Compare also the (?re-)statements of the chapter incipits at 786-7, 859-60, and 1123-4.

The introductory phrases "deinde cum dicit (lemma)" or "tunc sequitur illa pars (lemma) in qua" generally occur in STA only, with the exceptions

250	(*lemma*): deinde cum dicit (*lemma*) HBST; (*lemma*) hic CEA
467	et tunc cum dicit: e.t.d. T; e.t. C; *om.* A
813	(*lemma*): tunc sequitur alia (*om.* TA) pars ibi (*om.* TA) (*lemma*) in qua ESTA
904	(*lemma*): et cum dicit (*lemma*) EST; *def.* C
1634	et (*om.* V) tunc cum dicit: deinde ibi A
1638	et tunc cum dicit: deinde c.d. ST; *om.* A

Curtze's edition reports these phrases as concerns S(T): there they are applied with few exceptions in about the first three quarters of the

treatise, after which they almost disappear. In A they are often abbreviated or left out. A different set, mainly of the form "sequitur textus (lemma)", is found in W, generally introducing larger-written section-headings.

Except for STA, it is hard to isolate sub-groups within ESTA. ET have some extra glosses against SA and the rest, such as

538   praecedenti: specie scilicet (de) additione *add.* ET
654   dictum est: scilicet ad dextram *add.* ET,

one apparent conflation:

743   faciendum: VHBD; operandum CSA; operandum. . .sive faciendum ET,

and at least one error,

811   a laeva: aliena ET; *def.* A

On the other hand, A sometimes, and SA at least once, leave out phrases which may have been glosses. The case in SA is

612   id est mutuo accipiatur: *om.* SA

The pattern above is in some respects illustrated by the passage 323-5, which is, by and large, given correctly by C as "Sed quanto aliqua figura est *posterior*[1], [2]*tanto est sinisterior*[3] per secundam suppositionem; ([4]) ergo pronuntiando incipiemus a *sinistris*[5]". The phrase ([2,3]) occurs in CED; it is missing in TA,VS,HB; and MW show a modification which may be secondary, see below.

T and A try to compensate for the loss in slightly different ways: A fills out ([2,3]) with "tanto minorem numerum repraesentat", whereas T (in company with E) adds "tanto maiorem numerum significat" at the point ([4]). It may be guessed that these two phrases are variants of one and the same interlinear addition, ignored by VS, which have nothing corresponding. E, on the other hand, has both ([2,3]) and T's addition at ([4]), which may mean that E has used some text like T as a secondary source.

HB, which lack ([2,3]) and any substitutes, change ([5]) to "posteriori" and leave it at that. MW, further, show "sinisterior" at ([1]) and "posterior" at ([3]), which may just mean that the change at ([5]) has worked backwards. D has mainly the same text as C, but corresponds with HBMW at ([5]).

§2c. The remaining manuscripts VHBMW (with D) share one addition against C,ESTA, namely,

> 307   vidi--scribere: VMW; iudaei--docent HB; vidi--iudaeos D; *om.cett.*

One minor common error seems to be

> 970   in consequenter se habentes: in cons. (c.in BW) sequentes (*del.* V) VHBW; *def.*M

HBMW form a sub-group as indicated by

> 138-9   de dicto in scriptum: de s. in d. HBMW; *om.*T; *def.*C
> 140   de scripto in dictum: *del. &* de d. in s. *ins.*M; de d. in s. W; *def.*C (correction caused by 138-9)
> 192   quia rotunda (docenda HB) est: *post* figura theta *habent* HBMW

This can be further divided into the sub-groups HB;MW. A few examples of MW:

> 184   novem limites: n.digitos MW
> 230   pronuntiando: scribendo M; scribendo pronuntiando W
> 337   et Graeci: V; Lombardi et Graeci MW; *varie cett.*
> 344-5   scilicet Teut. sive: id est non communicantes linguae Latinae, ut sunt MW; *def.*C; *varie cett.*

W, at least, seems to be influenced by STA: cf. the example from 289 under §2b above.

HB share very many errors and additions. A few of them are:

> 581   eundem: ei H (damaged); enim B; *om.*A
> 582   facto: fa H (damaged); fac B
> 680   subtrahere ideo. . .relinquas 90: subtrahas igitur. . .reliquas 90 HB
> 1190   supraposita: (poterit)--denotandum *ins.*H,*add.*B
> 1230-1   4 sunt 32--126 et: *om.*H; *def.*A; *habent* B,*cett.*
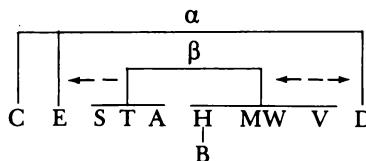
As exemplified, variants in B very often correspond to secondary corrections in H, and on the whole H must be considered as a main source of B. It is, however, not the only one, as seen from the last example.   As a whole, HB are chiefly connected to MW, as seen above, but also elsewhere, e.g.

> 261   loco. . .dextram posita: l.pos. . .d. HBAD; l.pos. . .d.pos.MW
> 399   addendo numerum: additio numeri AH; ex additione numeri A*p.c.*,H*p.c.*,B
> 857   post peractam duplationem: VCSW; post dupl. factam (f.d. A) ETA; per dupl. factam est post peractam dupl. HB

§2d. An approximation to a summary of the results above might be as follows:

```
                        α
    ┌────┬─────────────β──────────────────┐
    │    │   ◄─ ─ ┌────────────┐   ◄─ ─ ►│
    │    │        │            │          │
    C    E    S  T  A    H    MW    V    D
                        │
                        B
```

For the constitution of the text I have chosen C,E,V, and S as the best all-round representatives of the tradition. As for the others, T,D, and M are incomplete in different ways; and A,HB, and W are comparatively faulty and on occasion innovative. Thus I generally prefer the majority reading among CESV, with a hesitation where C goes against the rest. Where these manuscripts are evenly divided, I generally prefer EV to CS, on account of the generally high quality of E and V; and VC to ES, because of the supposed contamination of E, although in minor matters I have adopted not a few of ESTA's readings as good conjectures. Between CE and VS I have chosen freely. In short, the present text is an eclectic one, resting most heavily on E and V.

§3. *The edition.*
See §2d for the utilization of the manuscripts CEVS and the principles for selecting variants. On notation in general, cf. *Editorial conventions*.

In the text the chapter divisions follow the manuscripts and the sense of the text. Chapter rubrics, which only occur in BS (and occasionally in H as additions), have been disregarded. The division into sub-sections is by the editor. Numbers such as (*117*) within the text refer to paragraphs in the *Algorism*.

In the apparatus an entry occurs wherever the text rests on two or less of the manuscripts CEVS, except for the types of variants mentioned below.

In the following cases, if the text rests on the majority of CEVS or just on VE, no entry is generally found in the apparatus: variants in word-order which do not affect the sense; iste/ille; ergo/igitur; cum/ tamen; quod/quot; notation of numbers when named ("XV est maior denario"); notation of number-symbols when named ("binarium

ponas supra 3"); "etc." in lemmas; "cum dicit"/"((et incipit) secunda (pars)) ibi" as introducing lemmas referred to.

In the following cases no variants are registered in the apparatus: notation of numbers used for counting; of numerical adverbs and ordinal numbers ("duo facit, primo enim. . .; secunda ibi. . ."); and of numbers in calculations ("subtrahantur 5 et remanet 2", where "5" would mean "quinque", and "2", "binarius"); however, for the words "cifra", "unitas", the rule above is followed. The examples of calculation can almost always be re-constructed from the context, and generally no variants are given.

Some selected readings from Curtze's edition have been cited in the apparatus with the marking "*Cu*". I have tried to include the interesting conjectures against SC, and to exclude obvious errors, but have not striven for consistency in either respect.

§4. *Title and date of work.*
Only the manuscripts HBSDW carry a title connected with the text, and only BSW in the text-hand. A conflation of B and D would yield "Expositio magistri Petri de Dacia super algorismum", but the evidence is slight.   The subscription *l.*2043-7 is in VCHBE and thus probably original: it gives July 31st, 1292, as the date of completion of the treatise, with the variant "12901" = 1291 in C. Since C is elsewhere quite faulty in its number notation, 1292 should be taken as safely attested. The "per magistrum Petrum de Dacia dictum Philomenam" of the subscription leaves no doubt about the author.

The place where the work was composed can only be guessed at from a wider context (cf. *Introduction*, §7). It may have been the outcome of a course introductory to astronomical studies, cf. the commonplaces "ipsa astronomia" *l.*37 and "more astronomorum", *l.*719. No contemporary authors are cited.

Sigla testium.

A   Erfurt, W.A.B. 4°369, s.xiv[1], 152ra-163ra
B   Oxford, Bodl.L. Bodl.491, s.xiv[2], 116v-142r
C   München, BSb. Clm 14401, s.xiv, 169ra-179vb
Cu   lectiones codicum CS aut coniecturae, ex editione Curtzii selectae
D   Oxford, Bodl.L. Digby 166, s.xiv, 13r-20v
E   Erfurt, W.A.B. 4°234, s.xiv[1], 123ra-137ra
H   London, B.L. Harley 1, s.xiv, 47ra-55vb
M   München, BSb. Clm 14476, s.xiv, 15va-16vb
S   München, BSb. Clm 11067, a.1448, 142va-159ra
T   Erfurt, W.A.B. 2°394, s.xiv[1], 148rb-154rb
V   Bibl.Apost.Vat., Ottob.lat.1430, s.xiv, 31ra-36rb
W   Wien, Oe.N.B. 3816, s.xv, 109vb-127vb, quo usus non sum, v.praef.

Omnia quae a primaeva etc. (*1*): in hoc tractatu determinatur de arte numerandi sive de numero practico, in quo auctor sic procedit: primo enim in praemittendo prooemium aperit intentionem suam respectu dicendorum in hoc tractatu, et secundo (*12*) de intento
5 exsequitur, ibi *Est autem numeratio.* – In prooemio (*1-11*) quattuor causae huius operis tanguntur per ordinem: primo (*1*) finalis, secundo (*2*) efficiens, tertio (*3*) materialis, quarto (*10*) formalis. Et est iste ordo congruus: finis enim movet efficientem, efficiens disponit materiam ad introductionem formae. Causam finalem tangit, cum
10 dicit *Omnia quae a primaeva* (*1*); efficientem, cum dicit *Hanc igitur scientiam* (*2*); causam materialem, cum dicit *Numerus quidem dupliciter* (*3*); et causam formalem, cum dicit *Huius autem artis* (*10*).

Causa finalis (*1*) huius artis est perfectior cognitio omnium, quia, sicut probat auctor, *ars numerandi est cooperativa in universa rerum*
15 *cognitione,* quo ostenso satis erit evidens de fine huius artis. – Ad probandum autem istud accipit quandam propositionem a Boethio in Arismetica sua. Dicit igitur: *Omnia quae a primaeva rerum origine processerunt formata sunt ratione numerorum*; vult dicere quod omnia processerunt in esse sub aliquo numero, quia unum sub ratione
20 unitatis, duo sub ratione binarii seu dualitatis, et sic de aliis. Et tunc subdit aliam propositionem acceptam ab Aristotele secundo Metaphysicae, dicens quod sicut res sunt, *sic cognosci habent*; ex quibus infert conclusionem, dicens *unde ars numerandi est cooperativa in universa*

Inscriptiones quas praebent HBSD *in praefatione quaeras.*
5 exsequitur: prosequitur CHBSTA   **8** congruus (conveniens V): vel (et T) communis *add.* ST; *alia* C   **10** primaeva: etc. *add.* VHBS   efficientem: e. causam tangit V; causam e. tangit S; e. tangit M   **11** cum dicit: cum (*om.* C) subdit VC; ibi A   dupliciter: duplex (est *add.* HB) CHB; d. notificatur S; *om.* T; *def.* A   **13** causa: autem *add.* VS   perfectior (perfectio et V): perfecta HBSA   **16** istud: illud CMTAD; id V   accipit: -imus ED; -iamus C   *Inst. Ar.* I,2   **21** *cf. Hamesse, Les Auctoritates Aristotelis 6,159 (ex de an. 3.7, 431a1-2) et ibid. 1,42 (ex Met. α 1, 993b30-31)*   **22** dicens: dicente E   **23** unde: una C;

rerum cognitione. – Quasi sic argueret: omnia, sicut sunt, sic cognosci
25 habent; sed omnia sunt sub aliquo numero; ergo omnia cognosci
habent sub aliquo numero; si sic, ergo ars numerandi valet ad
cognitionem omnium. Huius rationis primo ponit minorem, et
secundo maiorem, cum dicit *Et quemadmodum sunt,* et tertio conclu-
sionem, ibi *unde in universa.* – Propositio prima, sicut dixi, scribitur in
30 Arismetica Boethii, et sub his verbis: "Omnia quaecumque a pri-
maeva rerum natura .constructa sunt, numerorum videntur esse
ratione formata"; et subdit ibi Boethius: "Hoc enim fuit principale in
anima conditoris exemplar. Hinc enim quattuor elementorum mul-
titudo mutuata est, hinc temporum vices, hinc motus astrorum
35 caelique conversio". Cognitio igitur omnium finis est huius artis
secundum auctorem, sed ego credo quod finis immediatior eius est
ipsa astronomia: est enim practica huius artis, sicut instrumentum
inquirendi quantitates motuum caelestium.

Hanc igitur scientiam (*2*): tangit causam efficientem huius artis,
40 et patet. Sed notandum est quod aliud est dicere causam efficientem
huius artis, et aliud est dicere causam efficientem huius tractatus. Qui
enim artem hanc numerandi practicam tradidit, erat Algus philoso-
phus Arabicus, ex principiis et conclusionibus arismeticae eam
eliciens; qui autem hunc tractatum edidit, erat Latinus aliquis, et ut
45 dicitur Iohannes de Sacrobosco, artem hanc diffusius ab Algo tradi-
tam succincte in numerum brevem capitulorum redigens et compi-
lans.

Numerus quidem (*3*): tangit causam materialem huius artis, quae
est numerus, et facit duo: primo enim describit numerum, |et secundo

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ut M; *def.* V   **24** rerum cognitione: c.r. EC; *def.* V   **28** secundo: ponit *add.*
VS   sunt: *om.* ECA   conclusionem (-oni T; -o est A): ultimam c. HBST;
concludit c. E; concludit ultimam c. C   **30** *cf. ad l.16*   **33** anima: animo
CD; *def.* M   quattuor: 4ᵒʳ CS; 4 EV; *varie cett.*   **34** mutuata: mutata CS;
inusitata T; numerata A, *Cu*   **37** ipsa: *om.* STA   **39** scientiam (sententiam E,
om. M): etc. *add.* VC; numerandi *add.* S   **40-41** et patet--artis: *om.* VCM
40 notandum est: e.n. ST; n. HBA; *def.* VCM   **41** efficientem: effectivam
HBMET   tractatus: artis V   **42** artem hanc: h.a. HBMEAD   Algus
philosophus: quidam ph.a. nomine (n.a.A) STA   **45** Sacrobosco (sacro bosco
CMD): VCMD; sancto bosco HB; sacrobusco (sacro busco SA; sacrob(us) eo T)
ESTA   **48** quae: et CHBE   **49** primo enim: p. S; nam p. V; *om.* T   **49-
51** et secundo--numerum: E; secundo dividit ibi numerorum alius primo 2 facit

50 (5) eum dividit, ibi *Numerorum alius.* Auctor circa primum (*3*) duo facit: primo enim describit numerum,| et secundo (*4*), quia in descriptione numeri usus est unitate, ideo notificat quid sit unitas, cum dicit *Unitas vero est.* – Dat igitur (*3*) duas descriptiones numeri, unam acceptam a materia et aliam a forma. Dicit igitur *Numerus*

55 *quidem etc.,* et patet. Sed notandum quod, cum dicitur *numerus est unitates collectae,* sola materia numeri tangitur, sicut si describatur sive definiatur domus sic: "Domus est cooperimentum ex lapidibus lateribus et lignis"; sed cum dicitur quod *numerus est multitudo etc.,* tangitur forma numeri: multitudo enim resultat ex aggregatione

60 unitatum, sed, sicut vult Avicenna in sua Metaphysica, in his quae per aggregationem fiunt, compositio sive aggregatio est forma. – **Unitas vero** (*4*): quia describendo numerum usus est unitate, ideo notificat quid sit unitas, et patet.

Numerorum alius etc. (*5*): dividit numerum, et duo facit: primo

65 enim praemittit divisionem numeri, et secundo (*6*) membra divisionis declarat, cum dicit *Digitus.* Divisio numeri hic data (*5*) est trimembris, et patet. – **Digitus etc.** (*6*): declarat membra dividentia numerum, et facit tria: primo enim declarat quis numerus sit digitus; secundo (*7*), quis articulus; et tertio (*8*), quis mixtus sive compositus; et patent

70 partes. – Dicit ergo primo (*6*) quod *digitus est omnis numerus minor denario,* id est minor quam X, ut unitas, large accipiendo numerum, et binarius et ternarius etc. [Et nota quod unitas solum dicitur numerus accipiendo numerum large, sicut nominativus casus non dicitur casus, quod ipse cadat ab aliis, sed quod alii casus cadant ab

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scilicet quod dictum est D; *om. cett.*

53 numeri unam: videlicet u. C; u. videlicet E   **55** et patet: et patet in littera ST; *om.* EC   **57** *cf. Hamesse (ad l.21) 6,12 (ex de an.* A1, 403b3-7)   lap. (et *add.* A) lat. et lig.: lat. lap. et lig. CHBD; lig. et lat. prohibens corruptiones a ventis imbribus et caumatibus ex primo de anima S   **58** etc.: tunc E; ibi C; ex unitatibus profusa ST; *om.* AD   **60** *locum non inveni: cf.* Avic. *Met. 6,4 (p. 321 l. 42-6 Van Riet)*   **62** vero: etc. *add.* CST   **63** sit: est CHB; *def.* V   **64** alius: vero ST; *om.* M   etc.: digitus HB; *om.* V   duo facit: f.d. CHBSTA   **65** et: *om.* VCMTA   divisionis: dividentia M; *om.* EC   **66** digitus: quidem est etc. (*om.* T) *add.* ST; vero *add.* V   hic: ibi ST; *post* trimembris *habet* C; *alia* M, A   **69** et₁: *om.* & *ins.* E; *om.* MSTA   mixtus (sit *add.* V) sive compositus: sit (*om.* A) numerus (*om.* T) c. sive m. STA   **71** x: CE; decem S; 10 V   **72** et ternarius: t. EV; *om.* A ·   **72-77** et nota--alter: E; *om.* D, *cett.*   **77** vero (est ST;

75 ipso; sic unitas potest dici numerus, quia est principium numeri, et
ponendo ipsam super numerum quemcumque accrescit semper nu-
merus alter et alter.] – **Articulus vero** (*7*): notificat quid sit articulus,
dicens quod *articulus est omnis numerus qui dividi potest in X partes aequa-*
les praecise, ut X, XX, XXX, centum, mille etc. Decem enim dividi
80 potest in X partes aequales quarum quaelibet est unitas, et XX in X
partes aequales quarum quaelibet est binarius, et XXX in X partes
aequales quarum quaelibet est ternarius, et centum in X partes
aequales quarum quaelibet est denarius sive decem, et mille in X par-
tes aequales quarum quaelibet est centum. Omnis igitur ille numerus,
85 qui ex puris denariis componitur sive in X praecise resolvitur, est
articulus. – **Compositus sive mixtus** (*8*): notificat quid sit numerus
compositus sive mixtus, et duo facit: primo enim facit quod dictum
est, secundo (*9*) dat regulam et modum cognoscendi universaliter
omnem numerum compositum sive mixtum, cum dicit *Et sciendum.* –
90 Dicit primo (*8*) quod numerus *compositus sive mixtus est qui constat ex*
digito et articulo, ut XI, XII etc., XXI, XXII etc., XXXI, XXXII etc.,
centum unum, centum duo etc. – **Et sciendum est** (*9*): dat regulam
et modum cognoscendi omnem numerum compositum sive mixtum;
et est ille qui est *inter duos articulos proximos.* Et hic nota quod articuli
95 proximi sunt quorum unus excedit alium tantum in denario, ut X et
XX, vel XX et XXX, vel C et CX, vel CX et CXX etc. Item nota quod
ille numerus dicitur esse inter duos numeros, qui maior est uno
illorum et minor altero; et hoc modo 4 sunt inter tria et 5. Cum
igitur X et XX sic se habent quod uterque est articulus et alter excedit

om. MA): etc. *add.* CS   quid: quis CA; quis numerus T   **78** x: CE; decem S;
10 V   **79** praecise: *om.* CE   x,xx,xxx: CES; 10,20,30 V   centum: ES; c C;
100 V   mille: CS; 1000 V; *om.* E   decem: x T   **80** x: CE; decem S; 10 V
xx: CES; 20 V x_2: CE; decem S; 10 V   **81** xxx: CES; 30 V   x: E; decem
CS; 10 V   **82** centum: ES; c C; 100 V   x: CE; decem S; 10 V   **83** decem:
ES; x C; 10 V   x: CE; decem S; 10 V   **85** x: CE; decem S; 10 V   **88**
secundo: et s. ES   universaliter: uniformiter AD   **90** dicit primo: p.d. C; d.
ergo p. T; d. ergo sic V; d. igitur E   **91** xi: ES; 11 V; *om.* C   xii,. . .,xxxii:
CES; 12 etc. V   **92** centum unum--etc.: C; ci cii etc. S; *om.* E; *def.* V   **94** hic
(*om.* M) nota: hic (est ST; *om.* A) notandum CSTA   **95-6** x,. . .,cxx: CES; 10,. . .,
120 V   **98** 4 (VES; 4^or C): *ras. add.* E; est *et ras. add.* V; est vel *add.* M; est *add.* T;
def. A   tria: CE; 3 S; 5 V   5: CS; quinque E; 3 V   **99** x: CE; decem S; 10
V   xx: CES; 20 V   uterque: utrumque CE   **100** tantum: *om.* CE   x:
CE; decem S; 10 V

100 alterum tantum in X, illi sunt articuli proximi. Omnes igitur numeri,
     qui sunt inter istos duos articulos, erunt compositi, quia semper
     quilibet eorum maior erit quam X et minor quam XX; ratione enim,
     qua XV excedunt X, continent X et sic articulum, et ratione qua
     exceduntur a XX, continent digitum.

105 **Huius autem artis** (*10*): tangit causam formalem huius artis et
     tractatus. Et nota quod duplex est forma artis sive tractatus: quaedam
     enim est forma artis sive tractatus in se, et haec consistit in divisione
     artis sive tractatus in capitula et capitulorum in suas partes; alia
     autem est forma artis sive tractatus quae est modus quidam quo ars
110 est tradita, et modus iste aliquando est divisivus, aliquando definiti-
     vus, aliquando exemplorum positivus, aliquando etiam probativus et
     improbativus. Cum igitur dicitur quod in hac parte ultima prooemii
     tangitur causa formalis huius artis sive tractatus, intellegendum est de
     forma primo modo, quia dividit artem istam in novem species et cum
115 hoc dat modum et ordinem procedendi. Et ideo potest pars ista in
     duas partes dividi: primo enim (*10*) dividit hanc artem, et secundo
     (*11*) tangit modum et ordinem procedendi, cum dicit *Inter quas primo*.
     Et comprehendit radicum extractionem sub una specie (*10*), quod
     forte facit quia idem numerus potest esse quadrati et cubici radix,
120 sicut apparebit infra {*145*}.

Est autem numeratio etc. (*12*): hic incipit pars executiva, et habet
novem partes iuxta numerum novem specierum huius artis, et patent
partes. – Primo igitur agit de numeratione, quae quasi instrumentum
est in omnibus speciebus sequentibus, et facit auctor quattuor in hac

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102 x: CS; decem E; 10 V   xx: CES; 20 V   **103** xv: ES; xx C; 15
V   excedunt: -dit A x_1: CES; 10 V   continent: -tinet A x_2: ES; 10 V;
om. C   **104** exceduntur: -dunt C; -ditur VSTA   xx: CES; 20 V   conti-
nent: -tinet VCESTA   **105** et: sive HBM   **106** quod: quia *add.*
HBES   sive (seu C): vel A; et H; scilicet et S; *def.* M   **108** sive (seu C) trac-
tatus: *om.* VA; *def.* M   in suas partes: in p.s. CHB; in p. V; p. in s. A   **109**
autem: quae V; *om.* CM   artis sive tractatus: artis A; tractatus CM   quo: in
quo C; quomodo SA; quomodo talis T   **113** sive (seu C) tractatus: *om.* M
116 artem (partem V): sive (seu C) tractatum *add.* CEM; a *add.* T; *def.* A   **120**

125 specie: primo enim (*12*) describit numerationem, et secundo (*15*)
assignat numerum figurarum, per quas fit numeratio et universaliter
omnis alia species huius artis, et tertio (*19*) dat regulas in numera-
tione observandas, et quarto (*23*) subdit duo notabilia. Et incipit
secunda pars, cum dicit *Sciendum igitur* (*15*); tertia ibi *Notandum igitur*
130 (*19*); quarta ibi *Et sciendum (23)*. Circa primum (*12*) duo facit, quia
primo describit numerationem, et secundo (*13*), quia in descriptione
numerationis utebatur "figura", quam in sequentibus confundit cum
differentia, loco et limite, ideo convenientiam istorum quattuor et
eorum differentiam dat secundo, cum dicit *Figura vero*. – Dicit ergo
135 primo (*12*) quod *numeratio est artificialis repraesentatio cuiuslibet numeri per*
figuras competentes sibi. Dicas sic exponendo hanc descriptionem
numerationis, quod numeratio est *repraesentatio numeri* dupliciter,
scilicet de dicto in scriptum et de scripto in dictum: de dicto in
scriptum, cum, sicut pronuntiamus numerum ipsum, ita scribimus;
140 de scripto in dictum, cum, sicut scriptus est, pronuntiamus; et ob hoc
dicitur quod numeratio est repraesentatio numeri. Et est repraesen-
tatio numeri *artificialis,* ad differentiam usualis, qua antiquitus numeri
repraesentabantur: antiqui enim, volentes repraesentare unum vel
duo vel tria, unum tractum vel duos vel tres scripserunt, sic: I, II, III.
145 Item dicitur quod numeratio est repraesentatio artificialis numeri *per*
figuras competentes sibi: non enim omnis numerus per quascumque
figuras indifferenter repraesentatur, sed determinatus per determina-
tas, ut quattuor non per 5 nec quinque per 4, sed quattuor per 4 et

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apparebit infra: patebit i. etc. S; i. patebit T; postea patebit MA   **127** omnis
alia: omnes alias VESA; omnes T   **129** igitur₁: ergo HBM; ergo etc. V; quod
iuxta 9 limites et *add.* S   **129-30** igitur₂--sciendum *om.* C   **129** igitur₂ (ergo
V): et *add.* VHB; quod quilibet digitus *add.* S; *def.* C   **130** et sciendum (*def.* C):
sc. igitur T; quod supra *add.* CE; quod supra quamlibet figuram *add.* S   **131**
descriptione numerationis (*om.* A): describendo numerationem CE   **134**
secundo cum dicit: secunda (ibi *add.* ST) c.d. VST; ibi A; *om.* C   **136** com-
petentes sibi: s.c. ESA; s. specifices T   ergo primo: e. VHB; p.e. E   **138**
dicto₁, dictum: digito digitum V, *Sa.c.*   dicto₂: digito V; *def.* C, T   **139** cum
sicut: sicut cum prout V; sicut cum sic STA; sic cum sicut HBM; *def.* C
140 dictum: digitum V; *def.* C   scriptus: scriptum CETD   **141-2** et--nu-
meri₁: *om.* ESA   **142** numeri artificialis: a.n. V   usualis: naturalis *Cu*
143 unum: VCE; 5 S   **144** duo: CE; 2 VS   tria: C; tres vel tria E; 3
VS   sic: ut C; scilicet STA; *om.* E   **145** repraesentatio art. num.: r.n.a. CE;
a.r.n. A   **146** competentes sibi: s.c. MSTD   **147** indifferenter: *omnes;*

quinque per 5. Et per hoc quod auctor dicit quod numeratio est
150 repraesentatio *cuiuslibet* numeri, notat sufficientiam artis in hac specie
traditam, quia se extendit ad omnem numerum.

Figura vero *(13)*: quia in descriptione numerationis posuit "figu-
ram", et quia inferius confundit haec quattuor nomina, unum
accipiendo pro altero, scilicet figuram, differentiam, locum et limi-
155 tem, ideo hic assignat eorum adinvicem convenientiam et adinvicem
differentiam, et primo convenientiam, secundo *(14)* differentiam, cum
dicit *sed a diversis*. – Dicit igitur *(13)* quod *figura, differentia, locus et limes*
|*idem supponunt,* id est idem significant, scilicet in hoc tractatu. – **Sed
a diversis rationibus** *(14)*: dat eorum adinvicem differentiam, et
160 dicit quod| idem significant, hic tamen *a diversis rationibus imponuntur,*
quia alia est ratio quare vocatur figura, et alia quare differentia etc.;
quia, sicut dicit auctor, *figura dicitur quantum ad linearem protractionem,* id
est quia sic vel sic lineata vel figurata est; et illud idem vocatur
differentia, quia per eam ostenditur, qualiter figura sequens differt a praecedente,
165 quia aliud significat figura eadem in primo loco et aliud in secundo;
et illud idem *dicitur etiam locus, ratione spatii in quo scribitur*; vocatur
etiam *limes* illud idem, *quia* figura in genere sumpta *est via ordinata ad
repraesentationem cuiuslibet numeri.* – Nota igitur quod illud, pro quo
omnia haec quattuor supponunt, vel accipitur ut instrumentum
170 universale in numerando, et sic vocatur limes, quod idem est quod
via; vel accipitur ratione spatii in quo scribitur, et sic vocatur locus;

Indorum *Cu*   **148** quattuor₁: C; 4 VES   5, quinque, 4, quattuor, 4,
quinque, 5: 5,5,4,4,4,5,5 VCES; *varie cett.*   **150** notat: notificat HB; nota A
    152 vero: etc. *add.* VCD   **154** altero: alio C   **155** convenientiam: dif-
ferentiam CT   **155-6** et adinvicem--convenientiam: *om.* EHB   **155** et adinvi-
cem: et eorum a. T; et abinvicem MSA; *def.* EHB   **156** differentiam₁ : con-
venientiam CT; *def.* EHB   et primo conv.: *om.* C; *def.* EHB   **158-60** idem--
quod: CE; *om. cett.*   **158** idem₁: E; *om.* C   scilicet: E; *ins.* C   **159** et: quia
sicut CE; *def. cett.*   **160** quod: E; *om.* C   idem sign. hic: i. s. haec EHBM;
i.h.s. SA; h.i.s. T   a: ad C; *om.* V   **161** quare₁: qua V; cum E   quare₂:
qua VT; quando E; dicitur *add.* C; vocatur *add.* SA   **162** dicit auctor: auctor E;
dicit C *(in ras.)*; a.d. M; *def.* A   linearem: -arum HBM; *def.* A   **163** vel
figurata est: e. id est figurata V; e.v.f. HB; sive f.e. MS; *def.* A   **164** differt:
differet E; differat A   **165** aliud₂: *om.* VCMT   **166** illud: istud CHME   di-
citur etiam (et C; esse HB) locus: e.d.l. EA; etiam (et S) l.d. ST   **168** repr. cui. num.:
c.n.r. CD   illud: istud E; id V   **169** omnia haec: h.o. C; o. et E; o. illa M; o. ista
HBT; ista D   supponunt vel accipitur: CED; supponuntur (-nunt MS) vel (et HB)
accipiuntur est VHBMST; accipiuntur est A   **171** via: quia sicut per viam deveni-

vel ratione talis lineationis, et sic vocatur figura; vel in quantum scripta hic differt a se vel ab alia scripta alibi, et sic vocatur differentia.

175   **Sciendum igitur** (*15*): assignat numerum figurarum, quae sunt per quas fit omnis numeratio et universaliter omnis alia species huius artis, et facit tria: primo enim ostendit quae et quot sunt figurae in universo significativae, et secundo (*16*) addit condiciones cuiusdam figurae non significativae, et tertio (*18*) probat sufficientiam figura-

180   rum. Secunda pars (*16*) incipit ibi *Decima vero,* tertia (*18*) ibi *Cum igitur per has.* – Dicit igitur primo (*15*) quod *secundum numerum novem limitum inveniuntur novem figurae significativae repraesentantes novem digitos, quae tales sunt: 9 8 7 6 5 4 3 2 1.* Quomodo autem novem digiti accipiuntur secundum novem limites, et quid sit limes in hoc loco, et quod limi-

185   tes non transcendunt numerum novenarium, dicetur in de radicum extractione {*150*}. – **Decima vero** (*16*): addit condiciones cuiusdam figurae non significativae, et primo facit hoc, secundo (*17*) removet dubium, cum dicit *Ipsa tamen locum.* – Dicit primo (*16*) quod decima figura habet quattuor nomina, quia *dicitur theta vel circulus vel cifra vel*

190   *figura nihili*; et subdit quare vocatur figura nihili, *quia nihil significat,* sed quare aliis nominibus vocetur, non dicit auctor, quia omnia alia nomina habet ratione suae lineationis sive figurationis, quia rotunda est. Dicitur autem haec figura theta ad similitudinem thetae: theta enim est ferrum figurae rotundae, quod ignitum imprimi solet in

195   quibusdam regionibus fronti vel maxillae furis vel latronis. Haec

mus ad aliquem terminum sic per calculationem istarum figurarum devenimus in cognitionem omnium numerorum *add.* E   **173** scripta hic: ECD; s. figura V; s. figura hic HBM; figura s. STA   differt: differat HBESTA   **175** igitur: etc. *add.* VC; *def.* A   quae sunt: et quae sunt (sint D) ECD; *om.* AT   **176** universaliter: generaliter D; similiter *cett.*   omnis alia sp.: omnes alias sp. (s.a. T) ST; omnes aliae sp. A; omnis sp. D   **181** per has: per E; p. h. novem figuras S; p. h. ix T; ph(ilosophu)s *Aa.c.*   igitur: ergo ESTA; *om.* M   **183** 9--1: ED; 09--1 V; 9--10 C; 1--9 HBMSTA   **184-5** et quid--limites: 9--1 E (*hoc textu mg.inf. addito*); *om.* SA   **184** limes in hoc loco: in h.lo.li. C; li. D; *def.* SA   quod: quot CHB; *def.* SA   **185** in de (inde VHET): in capitulo de C; in BA; infra in D   **186** addit: hic a. VST   **189** theta (teta V; tethra HB; teca ST) vel circulus vel: v.c.v.t. V; t.v.c. HB; t.c. S   **190** sed quare: et q. C; q. A; quia autem S; sed tamen quia M   **192** quia rotunda est: *post* figura theta *infra habent* HBM   **193** autem: aut V; habet T; *om.* CS; *def.* A   theta$_1$: teta V; teca ST   thetae: tete V; thece C; tece S, T?; thete *vel* thece AH   theta$_2$: teta VT; theca CA; teca S   **194** enim est: est C, V?   **195** vel$_2$: seu ES

etiam figura dicitur circulus, quia est figurae circularis; vocatur etiam cifra quasi circumferia vel circumferentia, quod idem est quod circulus non habito respectu ad centrum. - **Ipsa tamen locum** (*17*): removet dubium: quia dixit quod haec decima vocatur propter hoc

200 *figura nihili, quia nihil significat,* dubitaret forte aliquis quare inter figuras huius artis annumeretur; ideo removet hoc dubium, dicens quod, licet ipsa per se sumpta nihil significet, *ipsa tamen locum tenens,* id est occupans locum, *dat aliis significare. Nam,* sicut dicit auctor, *articulus purus non potest scribi sine cifra vel sine cifris*: sine cifra enim non

205 scribitur aliquis articulus minor quam centum, et nullus alius articulus scribitur quin ibi sint duae cifrae vel ad minus una, sicut dicetur infra in hoc eodem capitulo; patet igitur quod, licet cifra per se nihil significet, *ipsa tamen dat aliis significare.* Decem igitur sunt figurae, novem significativae et decima non significativa. - **Cum**

210 **igitur per has** (*18*): probat sufficientiam figurarum, scilicet quod non est opus plures figuras esse significativas quam has. Dicit igitur quod *cum per has novem figuras significativas, adiunctas quandoque uni cifrae, quandoque cifris pluribus, contingat quemlibet numerum repraesentare, ideo non fuit necesse plures figuras significativas inveniri,* quasi auctor sic argueret:

215 tot figurae significativae sunt necessariae et non plures, quot, cifris additis, omnis numerus repraesentatur; sed omnis numerus per has novem figuras significativas repraesentatur, cifris additis; ergo tot figurae significativae et non plures sunt necessariae. - Nota quomodo Algus ad hoc devenire potuit, ut per has decem figuras omnis

220 numerus repraesentetur: vidit enim quod omnis numerus crescendo vadit per X, ut ab uno ad X, ab XI ad XX, a XXI ad XXX etc., ita quod semper addendo digitos eosdem ad articulum habitum procedi-

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latronis: ut in Erphordia saepius fit *add.* T   **196** figurae: figura VSTA   **197** circumferia (*i.e.* περιφέρεια): E; *varie abbreviant cett.*; circumfacta *Cu*   **198** locum: tenens *add.* ESD

201 an-(con- C; e- HB; *om.* T)numeretur: an-(in- M; *om.* D)numeraretur MED removet: removens HBM   dicens: dicit HBMA; *om.* EC   **202** quod: quia VCES tamen locum: tamen TA; *om.* VCMS   **203** locum: *om.* HB   **204** vel sine: vel STAD; *om.* C   **209** et: sed A; *om.* ET; *def.* S   **212** uni cifrae: c.u. CE   **215** et non plures: *om.* CE   quot: quod ESM   **217** tot: sunt *add.* CHB   **218** et non plures sunt (s.p. C) nec.: sunt (*om.* HB) nec. et non plures VHBM   **221** x,x: CE; decem, decem S; 10,10 V   xi: CES; 11 VD   xx,xxi,xxx: S; xii, xii,xiii CE; 12,13 D; 20,21,30 V   **222** habitum: additum STA; aditu V   **223-6** Ar. *Phys. 3.6, 206b 27*-

tur ad articulum superiorem. Et ad hoc forte advertens Plato species numerorum dixit solum esse decem: "facit enim numerum usque ad
225 decem", sicut dicit Philosophus tertio Physicorum, capitulo de infinito.

Notandum igitur etc. (*19*): dat regulas hanc speciem rectificantes et nos in hac specie dirigentes, et facit duo: primo enim dat tres regulas dirigentes nos in scribendo quemlibet numerum, et secundo (*22*)
230 dat unam regulam dirigentem nos in legendo et pronuntiando quemlibet numerum scriptum; secunda pars est ibi *Notandum est etiam.* – Prima pars (*19*) habet tres partes iuxta numerum trium regularum: secunda (*20*) ibi *Omnis vero numerus,* tertia (*21*) ibi *Omnis quidem numerus.* Prima regula (*19*) sumitur per respectum ad figuras in
235 se, secunda (*20*) per respectum ad ordinem et situm figurarum, et tertia (*21*) per respectum ad numerum figurarum. – Dicit ergo primo (*19*) quod *omnis digitus habet scribi per unam solam figuram sibi appropriatam; omnis vero articulus habet scribi per cifram primo loco positam et per digitum a quo denominatur ille articulus:* omnis enim articulus ab aliquo
240 digito denominatur, ut denarius denominatur ab unitate, vigenarius a binario, etc. Nota hic quod, cum auctor dicit quod *omnis articulus habet scribi per cifram,* hoc intellegendum est de articulis principalibus, qui scilicet minores sunt quam centum: isti enim per unam cifram et digitum articuli habent scribi; sed omnis articulus a principalibus
245 articulis usque ad mille scribitur per duas cifras primo positas et per digitum articuli. Item nota quod, quanto aliquid in hac tota arte numerandi est dexterius, tanto est prius, et quanto aliquid est magis versus sinistram, tanto est posterius; et ideo, cum dicit auctor quod cifra *primo* debet poni, intellegendum est sic quod debet poni ad
250 dextram. – **Omnis vero numerus** (*20*): dat secundam regulam sumptam per respectum ad ordinem et situm figurarum, et patet; et

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33.   **223** Plato: philosophus S; *om.* M   **224** dixit (dicit HB; dicitur M) solum esse: s.d.e. CEAD; d.e.s. T   **230** dirigentem: -ntes V; *def.* C   **231** pars est: p. incipit CT; p. S; *om.* HBD; *def.* M, A   **235** ordinem et: ad *add.* CE   **236** numerum: *def.* HB   **239** enim: autem CD; *def.* V   aliquo: alio E; *def.* V   **245** primo: loco *add.* MA   **246** hac tota arte: t.a. C; h.a.t. VM; h.a. TD   **247** est magis: m. E; m.e. A; maius est S   **249** primo debet (debeat C) poni: d.po. C; pr.po.d. E; d.pr.po. BAD   quod: quia VHBES   **250** vero numerus: quidem (qualis E) CE; autem HB; *om.* VM; in eo quod digitus *add.* S; etc. *add.* T   dat: hic dat EA; hic ponit C

vocatur ibi articulus aliquis de principalibus. - **Omnis quidem numerus** (*21*): dat tertiam regulam sumptam per respectum ad ordinem figurarum inter se, et patet. Dicit autem *ut centenarius*

255 *excludatur,* quia ipse scribitur tribus figuris, sic 100; dicit etiam *ut millenarius excludatur*: ipse enim quattuor figuris scribitur, sic 1000. - **Notandum etiam quod quaelibet figura** (*22*): postquam auctor iam dedit tres regulas rectificantes nos in scribendo quemlibet numerum, dat consequenter unam regulam rectificantem nos in

260 legendo et pronuntiando quemlibet numerum scriptum; et vult dicere quod *quaelibet figura primo loco,* scilicet versus dextram, *posita* repraesentat *suum digitum,* id est illud ad quod significandum fuit primo imposita, et in *secundo* loco *decies* tantum etc. Et comprehendit totum hunc processum sub una regula tali: *quaelibet figura sequenti*

265 *loco posita decies tantum significat quantum in loco praecedenti.* Verbi gratia, 9999: ille novenarius, qui est primus versus dextram, tantum significat quantum fuit impositus ad significandum, scilicet novem unitates; secundus autem novenarius significat decies tantum, scilicet decies novem, quod est nonaginta; et tertius, decies nonaginta,

270 quod valet nongenta; et quartus, decies nongenta, quod valet novem milia.

Et sciendum quod supra (*23*): subdit duo notabilia; secundum (*24*) ibi *Sinistrorsum autem.* - Et est primum (*23*) quasi cautela quaedam, qua instruimur ad faciliter computandum sive pronuntian-

275 dum omnem numerum scriptum, et est quod, si proponatur nobis aliquis magnus numerus, computandae sunt figurae per millenarios, id est per quattuor, et *supra quamlibet figuram loco millenarii positam,* id est supra quamlibet in quarto loco positam, *competenter potest poni quidam punctus ad denotandum quod tot millenarios debet ultima figura*

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254 ordinem: numerum MSA, *Cu*   **257** auctor iam dedit: a.d. VMS; iam d.a. C; d.a. HB; a. posuit T; *def.* A   **259** consequenter: convenienter S; ex consequenti T; *om.* E; *def.* A   **262** repraesentat (-ntet T): significat V; *om.* C   illud: id V; aliquid C   fuit primo: p.f. VSTA; f. C   **264** hunc: *om.* E; *def.* C   **268** novenarius (9us V): novem S; 9 C; *om.* A   decies tantum: t.d. CE; *om.* A; *def.* T   **269** novem: ES; 9 VC   **270** quartus: novenarius (9 C) *add.* VC   decies: *om.* C   **271** milia: et sic de omnibus aliis digitis est intellegendum et usque in (*om.* A) infinitum procedendo *add.* STA   **272** secundum: subdit *add.* CE   **275** pro-(prae- CHBES; *om.* A) ponatur: -nitur VST   **277** supra: super CESTA   **278** supra: super E; *def.* C, A   competenter potest poni: ponatur VCHBMD   **280** supra: super VCTA

280 *repraesentare,* id est, totiens debet millenarius supra ultimam replicari,
quot fuerint puncta pertransita, id est, quot fuerint puncta supraposita.
Verbi gratia, sit numerus propositus iste 9876543210. Computa igitur
figuras incipiendo a dextris, et erit ternarius in quarto loco, supra
quem ponas punctum. Item idem ternarius respectu subsequentium
285 est in primo loco, et senarius in quarto loco erit; supra ipsum igitur
ponas punctum. Item idem senarius respectu subsequentium est in
primo loco et novenarius in quarto loco; ponas igitur etiam unum
punctum supra ipsum; et stabunt figurae isto modo 9̇876543̇210.
Supra novenarium igitur ter replicabitur millenarius, sic novies
290 millesies mille milia, et supra octonarium bis, sic octingentesies mille
milia, septuagesies mille milia, etc. Pronunties autem ipsum totum
sic: novies millesies mille milia, octingentesies septuagesies sexies
mille milia, quingentesies quadragesies tria milia et ducenta decem. –
Sinistrorsum autem (*24*): ponit aliud notabile, per quod removet
295 dubium, quia dixit superius (*21*) quod articulus scribitur per *cifram
primo loco positam* et per digitum illius articuli positum *versus sinistram,*
ubi innuitur quod locus primus est versus dextram; dubitaret igitur
aliquis quare ita scribimus in hac arte, cum tamen in aliis artibus
incipimus semper scribere a sinistra eundo versus dextram, ita quod,
300 quanto aliquid est sinisterius, tanto est prius, hic autem est e

281 fuerint: fuerunt VMSA; sunt D; *om.* HB   id est quot fuerint (fuerunt VS) puncta:
i.e. ETA; f.p. HB; *om.* M   supraposita: superp. CTA; supp. E   **282** sit (si CE; *om.*
A) numerus pro-(p()- S; *om.* CEA)positus iste (ille ED): s.n.i.p. CB; s.n.i. M; s.i.n.p.
primo E; s.i.n.p. D; i.s.n.p. T   **284** subsequentium: sequ. CS   **285** senarius:
novenarius E; *def.* C   in₂: *om.* VHMSTA; *def.* C   igitur: sex *add.* S; *alia* A; *def.* C
286 subsequentium: sequ. S; *def.* C   **287** in quarto loco: in quarto CHBST; l.q.
M   **288** 9̇876543̇210: 9̇876543̇210 V; *sine punctis* CMTD; *om.* A   **289**
novenarium: ES; 9 VC   ter replicabitur (-atur CHBD): cum r. C; etc. r. VHBM;
r. ESTD; triplicabitur A; ter *post* millenarius *Cu*   novies: nongentesies ESTA
290 octonarium: ES; 8ᵐ V; 8 C   **291** septuagesies m.m.: septingentesies (-gesies
ET) m.m. EST; *om.* VHBM; *def.* C, A   pronunties: pronuntiantes EST; *def.* C, A
ipsum totum sic: s.t.i. E; s.i.t. ST; i.t. HB; *def.* C, A   **292** novies: nongentesies
EST; *def.* C, A   **294** ponit: *om.* VCHB   aliud: secundum ET; quoddam S
295 dubium: est *add.* CHB   dixit: dixerat MESA; dicit HB   **296** illius: *om.*
CHBM; *def.* V   **297** innuitur: innuit HB; invenitur C; *alia* T; *def.* A   quod
locus primus est: l. p. esse EM; l. p. est VS; *alia* T; *def.* A   igitur: forte E; ig.
forte ST; ergo M; *om.* A   **298** ita: ista C; sic VHB   **299** incipimus: -iamus
CHBA

converso. Removendo igitur hoc dubium (24) facit duo, secundum
quod dat duas rationes. Et dicit auctor quod nos *in hac arte scribimus
sinistrorsum*, id est versus sinistram, incipiendo a dextra; hoc autem
facimus *more Arabum, qui hanc scientiam invenerunt*: prima ergo ratio
305 quare in hac arte sic scribendum sit, haec est, quia Arabes, apud quos
haec scientia inventa est, hoc modo scribunt, sicut etiam faciunt He-
braici |: vidi enim Iudaeum sic scribere]. Et tunc dat aliam rationem
ad idem, et dicit quod hoc modo scribimus in hac arte, vel propter id
quod iam dictum est, vel etiam hac ratione ut semper, pronuntiando
310 aliquem numerum, maiorem numerum praeponamus minori secun-
dum ordinem et modum consuetum in loquendo.

Ad intellectum igitur huius partis notandum quod nos Latini
consueti sumus in loquendo seu pronuntiando aliquem numerum
semper praemittere maiorem numerum minori, ut dicendo 24 vel 25
315 praeponimus 20 ad 4 vel ad 5, et similiter dicendo centum decem vel
centum triginta praemittimus centum ante decem vel triginta. – Item
secundo suppono quod, quanto aliqua figura est sinisterior, tanto est
posterior. – Item per praehabita sciendum quod, quanto aliqua
figura fuerit posterior, tanto maiorem numerum repraesentat. – Cum
320 igitur omnis numerus, quanto fuerit posterior, tanto est maior, per
ultimum, et nos pronuntiando a maiori incipimus, per primum, in
pronuntiando igitur incipiemus a posteriori. Ulterius, in pronun-
tiando incipiemus a posteriori, sicut probatum est; sed quanto aliqua
figura est posterior, tanto est sinisterior, per secundum suppositum;

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302 dat duas rationes: dat du. r. huius C; du. r. huius dat E; dat du. causas
A   et dicit auctor (*om.* D) quod (si *add.* C): et quod VHBT; et quia S; quare A
303 autem (ac C): ideo *add.* ES   **304** qui: quia hii EST   ergo: autem ESTA
305 scribendum sit: s. est VHBMS; scribamus A; scribimus D; *alia* C   haec est:
est CSD; sit ista A; *om.* VHB   **307** vidi--scribere: iudaei enim iudaeum sic
scribere docent HB; vidi autem ita arabes scribere et iudaeos D; *om.* CESTA
312 igitur: autem STA; *om. et* autem *ins.* E   notandum: n. est CM; est n. ST
313 seu: sive CM; se V; vel AD   **314** 24,25: 24,45 HB; 21,22 (xxi,xxii E) EA;
31,32 S; 21 T   **315** 20 (xx E): 30 S ad_1: ante AM   4,5: unum, duo ESA;
unum T   vel ad: vel 40 ad B; vel HM; et ante A; *def.* T   **316** $triginta_1$: EC;
30 V; 20 S   decem: CS; x E; 10 V $triginta_2$: C; xxx E; 30 V; 20 S   **318**
sciendum quod: quod A; *om.* VCHBM   **321** a maiori incipimus: i. a m. V; a
m. C   **322-3** ulterius--posteriori: *om.* ETAD, *Cu*   **323** a posteriori: *om.* V; *def.*
ETAD   **324** tanto est (*om.* D; *om. et ins.* E) sinisterior (posterior M): *om.* VHBST;
tanto minorem numerum repraesentat A   secundum suppositum: secundo sup.

325 ergo pronuntiando incipiemus a sinisteriori. Sic igitur incipiendo
consuetum ordinem servabimus in legendo, quia, praemittendo id
quod sinisterius est, praemittimus numerum maiorem, sicut consueti
sumus facere in pronuntiando aliquos numeros.

Ulterius nota hic diligenter quod Latini et universaliter omnes
330 communicantes linguae Latinae, sicut sunt Lumbardi et Gallici, et
similiter Graeci, semper praeponunt maiorem numerum minori,
cum pronuntiare debent aliquos numeros compositos ex digito et
articulo vel ex duobus articulis differentibus: dicit enim Latinus vi-
ginti duo vel centum viginti, praemittendo viginti ante duo et centum
335 ante viginti, et similiter Lumbardus, Gallicus et Graecus. – Sed haec
regula fallit in sex numeris primis compositis: dicimus enim et nos
Latini et Gallici et Graeci undecim, duodecim, tredecim, quattuor-
decim, quindecim, sedecim, semper praeponendo digitum, cum
tamen minor sit. Sed quare in his numeris sic oporteat minorem
340 maiori praeponere, et quare in tot et non in pluribus, causa est
rationabilis: et primo, quare in his numeris hoc oporteat fieri, causa
est quia, sicut dictum est, haec ars computandi inventa est apud
Arabes, qui in pronuntiando semper in omnibus numeris minorem
numerum praeponunt maiori, et universaliter omnes barbari, scilicet
345 Teutonici sive Alemanni, Anglici et omnes his in linguagio communi-
cantes. Quia igitur Arabes in pronuntiando minorem numerum
praeponunt maiori, ideo, cum ars numerandi primo ab eis sit nobis

VHBMS; secundum sumptum A; secundam suppositionem C, *Cu*; tanto maiorem
numerum significat (signa T) *add.* ET   **325** ergo: in *add.* A, M*p.c.*   **328** in: *om.*
ESTA   **329** nota hic (hoc HB; *om.* M) diligenter: VCHBMD; notandum ESTA
universaliter: *om.* VCHBMTD   **332** debent: dicunt V; habeant C; *alia* D   **333**
viginti duo: VC; xxii E; 22 S   **334** viginti$_2$: VC; xx E; 20 S   centum$_2$: EC;
100 VS   **335** viginti: VC; xx E; 20 S   haec regula: r.h. D; secunda r. ET;
tamen h.r. A; tamen hoc C   **336** dicimus: dicemus V; d(ice)ns C   **337** et
Gallici et Graeci: V; ga. lombardi et gr. M; et ga. etc. CHB; et alii concordes nobis
D; *om.* EST; *def.* A   undecim, duod., tred.: C; 11,12,13 VS; xi,xii,xiii
E   quattuordecim, quind., sed.: 14,15,16 VCS; xiiii,xv,xvi E; *varie cett.*
338 digitum (-tos D): articulo *add.* CMAD   **339** tamen: *om.* VCHB   **341**
causa est: haec c.e. A; *om.* VCHBMD   **343** in omnibus numeris: in o. CHBM;
om. V; *alia* D   **344** numerum: *om.* ESTA   scilicet: seu E; *def.* C; *alia* M
345 Teutonici sive: t. A: *om.* VHBD; *def.* C; *alia* M   his in linguagio (D; -ggio
Cu; lingwagio S; lygaio T): quae hiis lingwario M; hiis in lingua E; hiis in lingua vel
ydiomate A; in hoc ideomate V; *def.* C, HB   **346** igitur: *om.* E; *def.* C   **347**

tradita, in primis numeris eos sequimur, in quibus scilicet numeris maius et minus attenditur, sicut sunt numeri compositi primi. Sed
350 quare in sex tantum? Dico quod hoc est quia haec ars numerandi perfectionem primo sortita est ab Arabibus: ideo eos sequimur in numero primo perfecto, scilicet in senario. Si igitur, ut credo, quae dicta sunt veritatem habent, non bene pronuntiant qui dicunt decem et sex, vel qui dicunt septem decem, octo decem, sicut quosdam
355 audivi loqui; et hoc nota diligenter.

Additio est etc. (*25*): in hac secunda specie, quae est additio, facit auctor duo: primo enim declarat intentionem suam, et secundo (*37*) dat quoddam notabile hic et in omnibus aliis speciebus huius artis sequentibus observandum; secunda ibi *Notandum etiam*. Circa primum
360 (*25*) duo facit: primo enim definit auctor additionem, et secundo (*28*) docet qualiter in ea est operandum, ibi *Si velis igitur numerum*. Adhuc prima (*25*) in duas: primo facit quod dictum est, secundo (*26*) tangit, quae et qualiter se habentia ad additionem exiguntur, ibi *In additione*. – Primo igitur (*25*) definit additionem, et cum hoc exprimit finem et
365 utilitatem cui additio deservit. Dicit igitur quod *additio est aggregatio etc.* – haec est sua definitio seu descriptio – *ut videatur summa etc.*: per hoc tangit finem et utilitatem cui deservit. Si igitur aliquis habeat in aliquo loco 158 libras et in quodam alio loco 98 libras, et tunc scire

praeponunt: proponunt V; *def.* C   sit: fuit C; est VHBMD; *om.* S   **350** sex (VC; 6 ES; *varie cett.*): et in sex (6 S; 7 HB) *add.* CHBS   haec ars: ars S; ars s(ecundum) ET
352 perfecto: -ctio E; facto C   **353** dicta: praedicta ETA   decem et (vel E) sex: VE; x et vi C; 6 et 10 S   **354** septem decem (-cim C): CE; 7 decem V; 7·01·(!) S   octo decem: VE; 8·10· S: *def.* C   quosdam audivi loqui et hoc (haec B) nota diligenter: quidam solent dicere (q.d.s. A) ESTA   **357** declarat: ECM; exsequitur B, H*p.c.*; determinat *cett.*   **358** speciebus h. a. sequentibus (consequ. C): sp. sequ. (subsequ. T) ET; sp. sequ. h.a. S; sequ. sp. h.a. A; sp. h.a. M
359 secunda: *om.* VC   etiam: etc. *add.* VMST; *def.* A   **361** numerum: numerum etc. C; etc. S; *om.* EA   **362** prima (*om.* T) in duas (d() ETA; quia *add.* S): «duo» facit H; facit duo BM; *om.* VC   **363** ibi: secunda ibi EST   additione: duo (duos T) ordines *add.* ESTA   **368** in quodam: q. VCS   et tunc:

velit quantum illud est in universo, haec est utilitas additionis, et hoc
370 fit aggregando unum numerum ad alterum vel unam summam ad
alteram. – **In additione** *(26)*: tangit, quae et qualiter se habentia ad
additionem exiguntur. Et hoc innuebatur in descriptione additionis,
quia, cum dixit *(25)* quod *additio est aggregatio numeri ad numerum,*
innuebat quod exigitur unus numerus addendus et alius cui debet
375 addi; et ideo facit hic *(26)* duo: primo enim dicit quod *duo ordines*
figurarum, id est duo numeri, sunt in additione necessarii, scilicet numerus, cui
debet fieri additio, et numerus addendus, et in hoc tangit quae ad
additionem exiguntur; et secundo *(27)*, cum dicit **Numerus cui**
debet fieri additio, tangit, qualiter se habentia ad additionem
380 exiguntur, quia docet ibi, qualiter isti numeri ordinari debent; et
patet sententia in littera.

Si velis igitur *(28)*: docet qualiter in hac specie est operandum; et
primo disponit figuras, et secundo *(29)* ipsis dispositis exsequitur de
intento, cum dicit *Hoc autem facto.* – Dicit ergo *(28)*: *Si velis addere*
385 *numerum numero,* scilicet ut videatur summa totius, tunc *scribe numerum,*
cui debet fieri additio, in superiori ordine, id est superius, *per suas differentias,*
id est figuras, *etc., ita quod prima inferioris ordinis sit sub prima superioris*
ordinis etc. Esto igitur quod tu velis scire summam quae provenit ex
additione 98 ad 158; tunc ordinabis hoc modo figuras $\overset{158}{98}$. Sicut enim
390 dictum est superius, quanto aliqua figura est dexterior, tanto est
prior, et ideo 8 in utroque ordine est figura prima, et 9 in inferiori
ordine est secunda, et 5 in superiori ordine est secunda.

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tunc CM, H*a.c.*; sint V   **369** velit: voluerit HB; *om.* V; *def.* C, M   illud: istud
VHBMS   haec: *om.* VCHBM   hoc: haec EST   **370-1** ad alteram: alteri V;
ad aliam HBMSA   **371** additione: vero *add.* S; vero etc. *add.* V; etc. *add.*
HBM   habentia: sint quae *add.* A   **372** hoc innuebatur: h(aec) innuebantur
V; haec inveniebantur CT   **374** debet addi: a.d. HBSTA; additur C; d. fieri
additio V*a.c.*   **375** facit hic duo: h.d.f. E; d.f.h. C   **378** et secundo: et
secundum V; secunda ibi A; *def.* C   **379** debet fieri: f.d. ES; *def.* C; *alia*
A   additio: etc. V; a. etc. S; *def.* C, A   se habentia: haec s.h. HB; sint (sic hic
S) s.h. quae ES; se sint h. quae T; s.h. sint quae A; *def.* C   **382** in hac specie:
secundum hanc speciem VCHBM   **383** ipsis: istis ESA; illis T; ex hiis C; *def.* M
384 cum dicit: ibi cum dicit S; ibi ETAM   facto: etc. *add.* VSM   **386** id
est superius: id est sic $\overset{158}{98}$ V: *om.* HBMD   **387** id est: per suas *add.* EC   or-
dinis: *om.* VCM; *def.* A   **389** hoc modo figuras: f.h.m. CHBM; *alia*
V   **390** *cf. l.* 246-7   dexterior: deterior EM; exterior S   **394** quamlibet

Hoc autem facto (*29*): exsequitur de modo operandi, figuris dispositis. Et quia additio completur et perficitur addendo quamlibet
395 inferioris ordinis ad figuras superioris ordinis, ideo auctor duo facit:
primo enim (*29*) docet operari addendo primam inferioris ordinis ad
primam superioris ordinis, et secundo (*36*) innuit operationem
eandem et eundem modum operandi in aliis figuris, cum dicit *Hoc
facto secunda secundae.* Item, quia addendo numerum ad numerum
400 semper resultat numerus tertius diversus, ideo auctor circa primum
(*29*) duo facit: primo enim, addendo primam figuram numeri
inferioris ad primam numeri superioris, ostendit sive praemittit
quandam divisionem circa numerum excrescentem ex additione
primae ad primam; et secundo (*30*) docet, quomodo circa unum-
405 quodque membrorum dividentium sit agendum, cum dicit *Si digitus.*
– Dicit igitur primo: *Hoc facto,* id est, cum sic ordinaveris figuras,
*addatur prima figura inferioris ordinis primae figurae superioris ordinis. Ex tali
igitur additione aut excrescet digitus etc.* – **Si digitus** (*30*): exsequitur de
membris dividentibus, docens iuxta singulum operari, et facit tria
410 secundum tria membra datae divisionis: primo enim dat modum
operandi cum numerus excrescens fuerit digitus; et secundo (*31*), si
fuerit articulus; et tertio (*35*), si fuerit numerus compositus. Secunda
pars (*31*) statim post, cum dicit *Si articulus*; et tertia (*35*) ibi *Si excrescat
numerus compositus.* – Vult primo (*30*) dicere quod, si addendo primam
415 inferioris ordinis ad primam superioris proveniat digitus, tunc prima
superioris ordinis debet deleri, et loco eius ille digitus poni |qui
provenit ex tali additione|. Verbi gratia, si prima superioris ordinis
esset 4 et prima inferioris ordinis esset 3, tunc addendo 3 ad 4 excre-
scent 7, quae sunt quidam digitus, qui loco quaternarii debet poni

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(qualibet S): quemlibet C; figuram q. E; q. figuram T; *def.* A   **395** figuras: -am
T; -am ⟨suprascriptam⟩ *Cu*; *def.* A   **398** figuris: *om.* VCHBM; *def.* A   hoc:
autem *add.* HBS; *def.* A   **399** facto: addatur *add.* HBM; *def.* A

401 numeri inferioris: i.n. VS   **402** numeri superioris: s.n. V; *def.*
C   ostendit sive: s. B; *om.* A; ordinis *Cu*   **405** membrorum: membrum EA;
def. V   cum dicit: ibi ETAM; secunda ibi S   **408** igitur: *om.* C; *om.* & *ins.*
E   excrescet: excrescit EM; crescit S; *om.* T   si digitus: etc. *add.* VC   **412**
fuerit numerus: fuerit CHB; *om.* VM   **413** pars: incipit ibi *add.* HB; *alia*
AM   cum dicit: incipit ibi EST; *alia* AM   excrescat: -cit E; fuerit A; *om.*
V   **415** superioris: ordinis *add.* ES   **416-7** qui--additione: ESTA; *om.*
cett.   **418** esset 3 (3ᵘˢ T; tres tria E): essent 3 C; *om.* S; *def.* AM   excrescent:

420 |, scilicet ipso quaternario deleto|. - **Si articulus** (*31*): docet, qualiter
sit operandum, si excrescat articulus. Et hic notandum quod, quia
locus primus non est locus articuli, sicut dictum est in capitulo
praecedenti {*20*}, ideo oportet articulum versus sinistram ponere in
loco secundo. In loco igitur secundo aut est figura aliqua aut nulla;
425 item, si aliqua, aut significativa aut non; item, si significativa, aut est
9 aut alia figura a novenario. Hanc divisionem innuit auctor, docens
iuxta quodlibet membrum eius operari, et facit quattuor: primo enim
(*31*) docet, quid generaliter sit faciendum, si in loco secundo fuerit
figura; et secundo (*32*), quid sit faciendum, si non sit ibi figura aliqua;
430 et tertio (*33*) in speciali docet, si in eodem loco secundo sit cifra, quid
tunc sit agendum; et quarto (*34*), quid faciendum sit, si in secundo
loco fuerit novenarius. Secunda pars (*32*) incipit ibi *Sin autem*; tertia
(*33*) ibi *Si autem contingat*; et quarta (*34*) ibi *Si sit figura 9*. - Vult igitur
dicere primo (*31*) quod, si ex additione primae ad primam proveniat
435 articulus, ut si superior fuerit 7 et inferior 3, vel superior 8 et inferior
2, et sic de aliis, tunc superiori deleta loco eius scribi debet cifra; et
digitus, a quo denominatur articulus excrescens, addi debet ad
figuram sequentem versus sinistram, si aliqua figura sequatur. Nota
hic quod articulus proveniens ex additione alicuius figurae cuius-
440 cumque ad aliquam aliam quamcumque semper est denarius, et ideo
digitus addendus ad figuram sequentem semper est unitas; si igitur in
loco secundo fuerit ternarius, iam erit quaternarius, et si fuerit
quaternarius, iam erit quinarius, etc. - **Sin autem** (*32*): docet, quid
faciendum sit de articulo proveniente ex additione primae ad

excrescerat(!) E; -scet V; -scunt T   **420** scilicet--deleto: EST; quaternario deleto
A; *om. cett.*   **421** hic: est *add.* ECM   **423** praecedenti: proximo CA; proximo
ante HBM; proximo praec. S; *def.* V   **425** non: significativa *add.* ESTA   si$_2$:
si est E; si sit M; *om.* S; *def.* A   **426** novenario: E; 9° V; 9 CS   **430** in speciali
docet: d.i.s. C; i.s. VHBM   **432** novenarius: E; 9us S; 9 VC   sin: si
CHBMSA   **433** 9: novenarii MD; novenaria A; 9us T; *om.* E   **434** primae:
figurae *add.* ESTA   **435** fuerit: fuit V; sit HB; *om. & ins.* E   vel: sive
ESTA   **436** deleta: -to S; *om.* V; *def.* A   et digitus: et sinistrari (debet *add.* T)
digitus STA   **437-8** addi--figuram: et si est aliqua figura sequens addendus est
(ille *add.* A) digitus ad illam STA   **438** si--sequatur (sequitur S): *omnes*   **442**
fuerit ternarius: V; fuerit 3 CS; fuerint 3 E   erit quaternarius: erit 4us VS; erunt 4
EC; *varie cett.*   fuerit quaternarius: fuerit 4us VS; fuerit C; fuerint 4 E; *varie
cett.*   **443** erit quinarius: erit 5us VS; erit 5 E; erunt 5 C; *varie cett.*   sin:
si VHBSA   **444** primae: figurae *add.* ESTA   **445** secundo loco: l.s.

445 primam, si in secundo loco non sit figura aliqua; et continuetur sic: si
figura sit in loco secundo, addendus est sibi digitus articuli; *sin autem,*
id est, si nulla sequatur, *ponatur* ille digitus *in loco vacuo,* id est in
spatio vacante; et illud habet locum, quando in numero, cui debet
fieri additio, non est nisi una figura. – **Si autem contingat** (*33*):
450 docet, quid agendum sit, quando in secundo loco fuerit cifra, et
patet. – **Si sit figura novenarii** (*34*): docet, quid agendum sit, cum
in secundo loco fuerit 9, et patet; sed utaris hoc exemplo, quia esto
quod numerus sit iste 397, cui addere velis 3. Ex additione igitur 3 ad
7 proveniunt 10; unitatem igitur, a qua denominatur ille articulus,
455 addas ad figuram sequentem, scilicet ad 9. Quia igitur haec unitas
valet decem et ille novenarius valet nonaginta, provenient 100, quae
non capiuntur in loco secundo; et ideo debet 9 deleri et loco sui
poni cifra, et unitas addenda est ad figuram sequentem, et tunc
stabunt figurae sic 400. – **Si excrescat numerus compositus** (*35*):
460 docet operari, cum numerus excrescens fuerit compositus, et ex dictis
patet. Verbi gratia, sit numerus iste 349, cui addere oportet 7.
Addendo igitur 7 ad 9 resultant 16, quod est numerus compositus;
deleas igitur 9 et loco eius scribas 6, qui est altera pars illius numeri
compositi, scilicet digitus; et unitatem addas ad 4 pro illo digito
465 articuli, qui est altera pars illius numeri compositi; et facta additione
stabunt figurae sic 356. Et iam visi sunt omnes casus qui contingere
possunt in additione primae ad primam. – Et tunc, cum dicit **Hoc
facto** (*36*), innuit eundem modum operandi in additone secundae ad
secundam, et sic de aliis, quia nihil debet immutari; quia, si ex
470 additione secundae inferioris ordinis ad secundam superioris ordinis

CE   continuetur: continetur E; continues VM; contingat C; *alia* HB   **447**
ille: iste CME; ideo T   **449** una figura: f.u. ESTA   **450** agendum sit: s.a.
CET; a. est VM

451 novenarii: VC; no() E; 9 S   agendum sit: s.a. CET   **452** sed: si
CE   **453** numerus: n. ille CEST; ille n. A   sit iste: sit ille E; sit AT; *om.*
C   **454** 10: VC; x E; decem S   **456** decem: ES; x C; 10 V   valet
nonaginta (90 VMSA; 9ta T): valent n. S; n. CTA; n.v. E   **457** loco secundo: s.l.
CE; l. suo s. S   9: 9us MTA; novenarius HB   sui: suo MESA   **458** poni:
debet p. HBMSA; ponatur V   **461** sit: si EC; si sit S; sicut T; *def.* HB   iste:
ille VMA; *om.* C; *def.* HB   **462** resultant: -at E; -abunt A   quod: qui
BM   **463** 6: sex A   qui: quae E; quod A   **464-5** scilicet--compositi: *om.*
CA   **464** digito: *def.* CA; denario *cett.*; denario ⟨qui est digitus⟩ Cu   **465** qui:

provenit digitus, ponendus est loco superioris deletae; si articulus
resultat, tunc cifra ponenda est loco superioris deletae, et digitus
articuli addendus est ad figuram sequentem, si figura sequatur;
alioquin ponatur in spatio vacante, sicut supra satis dicebatur.

475   **Notandum etiam** (*37*): dat unum notabile sive documentum, in
hac specie et in omnibus aliis sequentibus observandum; et est quod
in hac specie *et in omnibus aliis sequentibus, quando una figura alteri directe*
supponitur, utendum est qualibet figura, ac si per se, id est in primo loco,
poneretur. – Verbi gratia, esto quod tu velis addere 98 ad 156. Posita
480   prima inferioris ordinis sub prima superioris ordinis, stabunt figurae
utriusque ordinis sic $\overset{156}{98}$. Sicut igitur, addendo primam ad primam,
scilicet 8 ad 6, sic dicis: octo ad sex, ita eodem modo, addendo
secundam ad secundam, debes dicere 9 ad 5, licet 9 valeat ibi 90 et 5
50. Et causa huius est, ne involvatur intellectus: si enim diceres 90 ad
485   50, iam involvereris de facili, nec scires quid esset quod facere
oporteret; item ex alia parte quia, utendo qualibet ac si per se
poneretur, id est in primo loco, idem proveniet quod proveniret, si
uterereris qualibet ut articulo.

Et ut invenias omnes casus circa hanc speciem emergentes, utaris
490   hoc exemplo. Sit numerus, cui velis addere alium, iste 98706, et
numerus addendus sit iste 12345; et locatis singulis sub singulis, sic
$\overset{98706}{12345}$, addas tunc primam ⌊inferioris ordinis versus dextram⌋ ad
primam ⌊superioris ordinis directe sibi suprapositam⌋, et resultat

quae E; *def.* CA   illius: *om.* V; *def.* CA   **471** provenit: -niat C; -niet VHB; *def.*
A   **474** dicebatur: fuit dictum HB; *def.* A; docebatur *Cu*   **475** documentum:
quod *add.* ESTA   **476** sequentibus: est *add.* ESTA; *om.* CM; *def.* HB   est:
illud tale *add.* ET; illud *add.* SA; *def.* HB   **477** omnibus aliis: a.o. E; o. V; *def.*
HB, A   alteri directe sup-(super- C; prae- A; supra- MSTD)ponitur: d.a.s. ET;
a.s.d. V; d.s.a. HB   **478** id est in: VET; ibi in S; id est *cett.*   **482** sic dicis:
sicut dicis E; sic dicit C; *def.* HBS, A   octo ad sex: V; 8 ad 6 EC; *def.* S   **483**
9 ad 5 (2 T; 5 *ex* 2 E): *omnes*   valeat: valet VC; veleant(!) A   **483-4** 90,50: VC;
90ª,50ª S; nonaginta, quinquaginta E   **484** diceres: diceret E; dices
C   **484-5** 90 ad 50 (190 S): *omnes*   **485** involvereris: -vens C; -veris HBM;
-veres S   quod: nec quod HB; quid ET; et quid SA   **487** id est: *om.* CHB; et
cett., Cu   proveniet: -niret CST; -nit M   **488** uterereris: uteris CE   **489** in-
venias: innuas VSTA   emergentes: contingentes HBM   **490** iste: ille VCA
492 12345 (*linea tabulae*): *om.* E; *om.* & *ins.* A (*v.i.*)   **492-3** addas--suprapositam:
addas primam ad (*om.* C) primam VCHBM; versus dex.--ordinis *om.* S   **492**
versus (ut A): 12345 (*ex tabula*) *add.* EA; *def.* S, VCHBM   **493** suprapositam: -ta

numerus compositus, scilicet 11; deleas igitur 6, et loco eius ponatur
495   unitas, quae est digitus illius compositi; et unitatem, quae est digitus
articuli, ponas loco cifrae; et stabunt figurae post additionem primae
ad primam isto modo $\frac{98711}{12340}$. Quo facto addas secundam ad secundam,
scilicet 4 ad 1, et resultat digitus, scilicet 5, qui ponatur loco unitatis,
et stabunt figurae sicut hic sunt $\frac{98751}{12300}$. [Addita autem secunda ad
500   secundam, loco figurae additae, sive quae est addenda, poni debet
cifra, ne figurae sequentes minus significent; et hoc intellegas de
omnibus aliis sequentibus figuris.] Deinde addas tertiam ad tertiam,
scilicet 3 ad 7, et excrescet articulus, scilicet denarius; loco igitur 7
deleti ponatur cifra, et unitas, quae est digitus articuli, addatur ad
505   figuram sequentem, scilicet ad 8, et stabunt figurae hoc modo $\frac{99051}{12000}$.
Hoc facto addas quartam ad quartam, scilicet 2 ad 9, et excrescent
11; unitatem igitur ponas loco 9, et unitatem, quae est digitus articuli,
addas ad 9 sequentem, et erunt 10; dele igitur 9 et loco eius ponas
cifram, et unitatem, quae est digitus articuli, ponas in spatio vacante
510   ad sinistram, hoc modo $\frac{101051}{10000}$. Deinde addas ultimam figuram ad sibi
suprapositam, scilicet unitatem ad 0, et erit 1; ergo unitatem ponas
loco cifrae. Et stabunt sic omnes figurae numeri aggregati ex
additione numeri addendi ad alium: 111051, qui continet in se
utrosque numeros primo propositos.

515   Quod si scire velis utrum bene addidisti, tunc haec diligenter notes:
accipe numeros primo propositos, scilicet 98706 et similiter 12345, et
utendo qualibet figura ac si per se poneretur, ⟨colligas omnes simul,⟩
abiciendo semper 9. Verbi gratia, numerus addendus erat talis 12345.
Colligas omnes figuras simul, et erunt 15; abicias ergo 9, et remanent

E; *def.* VCHBM   **499** sicut hic sunt: sicut hic (*om.* V) factum est VHBMA; sic S;
alia T   **499-502** addita--figuris: ESTA; *om. cett.*; *secutus sum* ES   **500** adden-
da: E; addita STA
    503 3: VC; tria E; 3ᵃ S   **504** addatur: addetur C; *om.* E   **506** excrescent:
-scet VCE; -scunt T; erunt A   **508** 10: 19 C; 14 E   ponas: pone VC   **509**
cifram: 0 VCMT   **510** figuram ad: a.f. C; f. VHBE; ad ST   **511** unitatem₁:
VS; 1 *cett.*   0: VCS; cifram E   1: unum EC   unitatem₂ (-te V) VC: unum E; 1
S   **515** haec: hanc CEHBM; hic SA; hoc T   notes: regulam *add.* B, H (*ins.*),
M (*ante* diligenter)   **516** propositos: positos CET; praepositos A   simili-
ter: istum (superiorum T) ordinem (*om.* SA) *add.* ESTA; *def.* C   **518** abiciendo
(obi- E; *ins.* M): et abicias A; abice Cu   **519** simul et erunt 15: V; simul C; simul
15 ES; similiter «et sunt» 15 H; simul et sunt (habebis M) 15 BM; sic 12345 in

520   6, quae reserves in tabula. Deinde assumas numerum cui addidisti, scilicet 98706, et similiter utendo qualibet ac si per se poneretur, colligas omnes simul, et abiecto semper 9 residuum serves, et est 3 in residuo, quae addas ad 6 prius reservata; et erunt 9 in universo, quibus etiam abiectis, quia 9 sunt, nihil remanebit; et dicas tunc
525   quod proba huius additionis est cifra: est enim proba in qualibet specie residuum numeri, abiecto quotiens potest 9. Hoc facto recolligas omnes figuras numeri aggregati, et abiectis semper 9 serva residuum; et invenies nihil residuum, scilicet de hoc numero 111051, quia praecise valent 9: abiectis igitur his cum nihil remanet, dices
530   quod proba numeri aggregati est 0. Et ideo, quia etiam erat proba prima 0, bene addidisti. Est igitur regula quod, si proba numeri aggregati est aequalis probae aggregantium, bene addidisti; et tenet in virtute huius principii: ab aequalibus demptis aequalibus, quae relinquuntur sunt aequalia.

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535   **Subtractio est etc.** (*38*): in hac tertia specie, quae est subtractio, facit auctor duo: primo enim facit quod intendit, secundo (*53*) subdit quandam cautelam et modum examinandi, si recte actum est necne in hac specie et in praecedenti, cum dicit *Si autem probare,* et posset illa pars dividi contra omnia determinata in hoc capitulo et in praece-
540   denti. Circa primam partem (*38*) facit duo: primo facit quod dictum est, secundo (*52*) removet dubium incidens circa praemissa, cum dicit *Sciendum est.* Prima (*38*) habet tres partes: primo enim definit subtractionem, et secundo (*40*) membra definientia et condiciones definientium manifestat, et tertio (*42*) se ordinat ad operandum; secunda pars

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tabula T; simul scilicet 12345 et erunt 15 A   **520** reserves: reservas ES; servabis C   **521** qualibet: figura *add.* ES   **522** abiecto: abicias ET; abicito S   est: erit T; *om.* C   3: tria A; 3us M   **523** quae: quem M   reservata: reserva C   **525** proba$_1$: probatio (probo T) CETD   **526** numeri: *om.* CE   quotiens: quotienscumque E; quos V   potest: potes VTAD; poterit M; *om.* C   9: VST, E (*ins.*); novenario CHB; 9° AM   **529** his: 9 *add.* VC   **533-4** Euclid. *Elem., Heiberg I p.10*   **534** relinquuntur: relinquentur T; reí` inent (*vel* -net VH) VHBA   **535** tertia specie: s.t. VST   **538** cum dicit: secunda pars (*om.* A) incipit (*om.* EA) ibi ESTA   **540** duo: quia *add.* EST   **541** cum

545 *(40)* incipit ibi *Minor autem de maiori,* tertia *(42)* ibi *In subtractione.*
Adhuc primo *(38)* facit duo, secundum quod dat duas definitiones
subtractionis; secuna *(39)* ibi *vel subtractio est.* [Haec est divisio.] –
Dicit primo *(38)* quod *subtractio est, propositis duobus numeris, inventio
excessus maioris numeri ad minorem.* Verbi gratia, si habeat aliquis 99
550 libras et teneatur creditori in 64, tunc ad hoc quod sciatur, deductis
his 64 quantum remanet de 99, valet haec species. Propositis igitur
talibus duobus numeris, subtractio est inventio cuiusdam numeri in
quo maior excedit minorem; inventio igitur illius excessus est utilitas
huius speciei, et hoc est quod secuna definitio *(39)* clarius dicit: **vel**
555 **subtractio est,** quod patet de se.

   Minor autem de maiori *(40)*: condiciones definientium manifestat,
et facit duo: primo enim facit quod dictum est, et ⟨secundo⟩ *(41)*,
quia locutus est de numero maiori et minori, dat artem cognoscendi,
quis numerorum propositorum est maior, cum dicit *Ille quidem.* – Et
560 quia pars prima *(40)* patet de se, vade ad sequentem *(41)*, ubi ex
incidenti dat artem cognoscendi, quis numerorum propositorum est
maior; et dicit quod *ille est maior, qui scribitur pluribus figuris, ultima
existente significativa.* Verbi gratia, licet 9 sit maxima figurarum et 1
minima, tamen 4 unitates maiorem numerum repraesentant quam 3
565 novenarii. *Si autem tot sunt figurae in uno quot sunt in reliquo, iudicandum
est per ultimas etc.,* quis eorum scilicet est maior vel minor: tot enim
figuris existentibus in uno quot sunt in altero, ille totus est maior
cuius ultima figura est maior; ut si sint isti duo numeri propositi 93

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dicit: secuna ibi ESTA   **544** pars incipit (*om.* C) ibi: ibi ETA; ibi cum dicit
HB   **547** haec est divisio (definitio A): *om.* VCHBD   **548** dicit primo: p.d.
HBS; d. ergo p. ET; d. igitur A   **549** habeat aliquis: a.h. CD; h. quis VB; h.
H   **550** quod: ut VST; *def.* A
   553 excedit: -dat EST   **554** hoc: haec ESTA   secuna definitio (de-
scriptio *omnes*): d.s. CHBST; d. eius secuno A   dicit: ibi cum dicit *add.* EST
557 et facit duo: et d.f. V; *om.* & *ins.* E   et secuno: *Cu; et omnes*   **559**
numerorum: numerus A   cum: *om.* S; *def.* CHB   quidem: etc. *add.* VT;
numerus *add.* A; *def.* CHB   **561** numerorum: numerus ESTA; *def.*
CHB   propositorum: pos. V   **563** sit: est CHBS; *def.* T   **565** novenarii
(9ⁿⁱ V): 999 STAD   quot (quod E) sunt in reliquo: quot in alio V; quot in altero
sunt figurae HB   **566** est₁: *om.* EC   per ultimas: per paenultimas (-mos E)
EVS; per [[. .]]ultimas H; p.u. et paenultimas A; per ⟨ultimas vel per⟩ paenultimas *Cu*
567 altero: alio A   **570** numero: *om.* CS   reliquo: altero VHB   **572-3**

et 89, ille est maior cuius ultima est 9. Item, si tot sunt in uno
570 numero quot sunt in reliquo, et tantum numerum repraesentat
ultima unius quantum ultima alterius, tunc cuius paenultima est
maior, totus est maior; ut si sint isti duo numeri propositi 983 et 973,
ille est maior cuius paenultima est 8.

In subtractione etc. (*42*): ordinat se ad operandum, et facit tria:
575 primo enim tangit, quot numeri sunt hic necessarii, et secundo (*43*)
eos disponit in ordine quo eis in operando est utendum, et tertio (*44*)
de operatione exsequitur; secunda pars (*43*) est ibi *Numerus a quo,*
tertia (*44*) ibi *Subtrahe igitur.* Et patent partes duae primae (*42-3*). – Ubi
auctor exsequitur de modo operandi (*44*), facit duo: primo enim dat
580 modum subtrahendi primam inferioris ordinis a prima superioris
ordinis, et secundo (*51*) innuit eundem modum in subtractione
aliarum de aliis, cum dicit *Hoc autem facto.* Primo (*44*) facit duo: primo
enim tangit diversas habitudines primae inferioris ad primam supe-
rioris, et secundo (*45*) iuxta quamlibet illarum habitudinum docet
585 operari, cum dicit *Si par etc.* Et patet prima pars (*44*).

Et illa pars **Si par** (*45*) dividitur in tres partes iuxta numerum trium
habitudinum primae ad primam, et incipit secunda pars (*46*) ibi *Si
maior,* tertia (*47*) ibi *Si minor.* – Exemplum primae partis (*45*): sit
numerus subtrahendus iste 248, numerus, a quo debet fieri sub-
590 tractio, iste 688. Ordinentur igitur sic $\frac{688}{248}$. Cum igitur prima inferioris
ordinis sit aequalis primae superioris, deleas superiorem et loco eius
scribas cifram, et tunc stabunt figurae post subtractionem hoc modo
$\frac{680}{248}$. Sed 0 ponitur loco superioris deletae, ne sequentes figurae eius-
dem ordinis minus significent: alioquin enim, ubi deberent esse
595 sexcenta octuaginta, non essent nisi sexaginta octo. – **Si maior** (*46*):

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et 973--est 8: *om.* & *ins.* E; *def.* A   **573** ille est maior: iste m.e. C; *def.* A   est
8 (maior B, H *in ras.*): etc. *add.* CE; *def.* A   **575** quot: quod EST,
Aa.c.   **576** in operando est utendum: e. u. in operando (operatione ST; ordine
E) ESTA   **577** pars est (incipit T; *om.* C) ibi: ibi HBEA   **578** patent
(-ebunt T) partes duae primae: VS; par. pat. pr. du. ET; *varie cett.*   **579** auctor:
autem auctor ET; autem C   **583** superioris: ordinis *add.* EST   **586** par: etc.
add. VS   **588** maior: etc. *add.* ES   sit numerus subt. iste (ille T): sit i.n. (n.i.
STA) su. ESTA; sit n. su. HB; su. C   **590** iste: ille C; sit ille VT; ista HB; *om.*
SA   sic: figurae *add.* EST; *alia add.* B   **591** ordinis: *om.* CB, A (*in supplemento*)
593 sequentes figurae: f.s. S; s. CA   **594** deberent: debebunt C; deberet S; *om.*
A   **595** essent: esset ibi S; existunt T; erunt VCHB; *def.* A   maior: etc. *add.*

Exemplum huius est: sit numerus subtrahendus 248, numerus, a quo debet fieri subtractio, 469, et stabunt figurae sic $\frac{469}{248}$. Cum igitur prima superioris ordinis sit maior quam prima inferioris ordinis, demas de superiori 8 unitates, et residuum, scilicet unitatem, ponas loco eius,
600 et stabunt figurae sic $\frac{461}{248}$.

Si minor (47): docet, qualiter sit negotiandum quando prima figura superioris ordinis fuerit minor quam prima inferioris; et quia maior de minori subtrahi non potest, ideo a sequenti loco mutuandum est quod deficit. Quia igitur figura secundo loco posita aliquando est
605 significativa, aliquando non significativa, ideo auctor hic duo facit, quia primo (47) docet operari, cum figura in secundo loco posita fuerit significativa, et secundo (49), cum non fuerit significativa, cum dicit Si autem figura. Circa primum (47) duo facit, quia primo docet operari, cum figura secundo loco posita fuerit aliqua alia ab unitate,
610 et secundo (48), cum fuerit unitas, ibi Si vero figura. – Dicit primo (47) quod si minor fuerit prima superioris ordinis quam prima inferioris ordinis, tunc, quia maior de minori subtrahi non potest, mutuetur, id est mutuo accipiatur, unitas a figura proxima sequente, quae scilicet unitas valet X respectu figurae praecedentis, scilicet primae, quia quaelibet unitas
615 in secundo loco posita valet X, ut dicebatur supra. Ab illo igitur denario in secundo loco sub forma unitatis accepto et a figura, a qua in principio debuit fieri subtractio, simul iunctis subtrahatur figura inferior, et residuum etc. Verbi gratia, sint numeri isti $\frac{463}{348}$. Cum prima superioris ordinis, scilicet 3, sit minor quam 8, quae est prima inferioris,
620 inferior de superiori subtrahi non potest: accipiatur ergo unitas de 6, quae est figura proxima sequens, et quia quaelibet unitas in hoc 6 valet 10, haec unitas valet 10; loco igitur 6 scribatur 5, et postea a

VC   596 sit: si C, A (ins.); om. ET   subtrahendus: si«t» add. A; sit iste (ille T) add. ET   597 subtractio: sit iste (ille H) HBET   598 ordinis₂: om. ESTA
601 minor: etc. add. HEST   602 inferioris: ordinis add. E   603 de: a VCHB   potest: poterit CHBET   mutuandum: -anda V; mutandum C
604 secundo loco: l.s. ES; s. V   606 in: om. C; def. A   607 cum dicit: secunda (om. EA) ibi ESTA   610 ibi: secunda ibi EST   figura: etc. add. VC
613 scilicet unitas (ueritas C): unitas ES; unum T; om. A   614 x: EV; 10 CS
615 x: E; 10 VC; decem S   igitur: om. ESTA   616-7 in principio (primo T) debuit fieri: d.i.p.f. E; f.d.i.p. ST; d.f. C   619 ordinis: ES; om. cett.   620 ergo: C; om. cett.; igitur Cu   unitas: VE; 1 CS   622 10₁: x E   unitas: om. C; def. VTA   10₂: x E; def. VTA   scribatur: -antur E; -as C   a: uno A; om. S; def.

denario accepto et a 3, a quo debes subtrahere, subtrahas 8, et remanent 5, quae ponas loco 3, sic $\overset{455}{348}$. – **Si vero figura** (*48*): docet,

625 qualiter operandum est, cum figura illa sit unitas, a qua mutuandum est, et patet. Verbi gratia, sint isti numeri $\overset{413}{348}$. Cum 8 non possint subtrahi de 3, deleas 1, quae est in secundo loco, et quia illa valet 10, subtrahas 8 de 13, et remanent 5, quae reponas loco 3, et propter figuram sequentem ponas 0 loco unitatis quam loco secundo mutu-

630 atus es, sic $\overset{405}{348}$. – **Si autem figura** (*49*): docet, qualiter operandum est, cum in secundo loco fuerit cifra, et facit duo: primo facit quod dictum est, secundo (*50*) dat causam operationis; et incipit secunda pars ibi *Ratio autem*. Et patet in littera. Verbi gratia, sint numeri isti $\overset{405}{348}$. Quia non poteris subtrahere 8 de 5, mutuo accipias de figura

635 sequente; cum igitur ipsa sit 0, de sequente, scilicet de 4, sumas unitatem, et residuum, scilicet 3, ponas loco 4, et redeundo ad primam, de qua volebas subtrahere, fac de 0 9, et hoc facto remanent solummodo 10 de illa unitate quam accepisti in loco tertio: ab illo igitur denario et a 5 subtrahas 8, et remanent 7, sic $\overset{397}{348}$. – **Ratio**

640 **autem** (*50*): dat causam operationis, scilicet quare de cifra fiat 9 in isto casu, et patet in littera de se.

Hoc autem facto (*51*): usque nunc docuit in omni casu subtrahere primam de prima; consequenter innuit idem esse faciendum in subtractione secundae a secunda, et universaliter in subtractione

645 cuiuslibet inferioris a figura sibi supraposita, nec in aliquo variabitur modus operandi.

Sciendum tamen (*52*): removet dubium incidens circa praemissa,

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C   **623** 3: VS; tribus E; *def.* C   debes subtrahere: deberes s. S; debet subtrahi V; *def.* C   **624** remanent: -et E; *def.* C; *alia* A   quae: qua E; quem CHBT; *alia* A   figura: f. etc. VCHB   **625** mutuandum: -da CSA   **626** possint: possit V; potest ET   **627** de: a ESTA   3: tribus VC   1: unitatem E; 1 scilicet 1 A   10: x E   **628** 3: ternarii ET   **629** unitatis: EV; 1 CS   mutuatus es: m. est S; mutuatur e(n)s C; *def.* A   **632** operationis: o. huius E; operis VHBD   et incipit secunda pars: e.i.s. V; *om.* ETA   **635** 0: VS; cifra CE   **638** 10: decem E   illo: isto CE   **639** sic: isto modo ESTA   ratio autem: tunc C; deinde SA; deinde ibi r.a. T; *om.* V   **640** operationis: huius o. ET; operis VHB   quare: quia CS   cifra: 0 CST   **642** usque: et quia u. ESTA   nunc: huc ST; non C; *alia* A   **643** consequenter: ideo ET; ideo cons. SA   **645** supraposita: suppo- VET   variabitur: -atur C; novabitur V   **647** tamen: est etc. C; tamen etc. S; etc. V; *om.* HBA   remo-

et posset ista pars fuisse divisa contra principium capituli praeceden-
tis. Et incidit illud dubium sic: quia dictum est in utraque istarum
650 specierum, scilicet additione et subtractione, quod incipere debemus
a prima figura versus dextram {29,44}, ideo forte dubitaret aliquis,
utrum possibile esset incipere operari a sinistra; hoc igitur auctor
removet, dicens quod *tam in additione quam in subtractione possumus*
operari incipientes a sinistra, sed commodius, id est facilius, *fiet sicut dictum*
655 *est.*

Si autem probare (*53*): posset etiam haec pars fuisse divisa contra
utraque capitula iam lecta immediate; in qua docet auctor verificare
et examinare, utrum bene operatus sis; et primo (*53*) docet examinare
sive probare, utrum bene subtraxeris, quantum ad capitulum iam
660 immediate lectum; secundo (*54*) docet examinare, utrum bene
addideris, quantum ad capitulum ante istud; et incipit secunda pars
ibi *Similiter in additione,* et patent partes. Sed alium modum exami-
nandi additionem habes supra; hic etiam alium dabo modum
examinandi si bene subtraxisti necne.

665 Sed primo ponam exemplum, in quo tanguntur omnes casus inci-
dentes in hac specie quae est subtractio: sit numerus, a quo debet
fieri subtractio, 10222, numerus vero subtrahendus iste 5432, quos
per praedicta in hoc capitulo (*43*) sic loces $^{10222}_{5432}$. Subtrahas igitur
primam de prima, scilicet 2 de 2, et nihil remanet; ergo loco
670 superioris deletae ponatur cifra. Deinde subtrahas secundam de
secunda, scilicet 3 de 2, et quia non potes, accipe unitatem de 2 in
proximo loco, et remanet unitas, quam in tertio loco ponas loco 2;
subtrahas igitur 3 de 12, quae habes aggregata ex 2, a quo debebas

vet: hic r. ESTA   **649** illud: istud VHB; *def.* A   istarum: illarum V; *om.* E
652 incipere operari a sinistra: o. a s. STA; a s.i.o. E; o.i. a s. V   hoc: hic
BS   **654** commodius: -dosius S   **656** probare: par EST; proba A   fuisse
divisa: d. (-ssa H) f. VHST; emissa f. B   **657** lecta: dicta CA; locata V   **658**
operatus sis: s.o. ETA; op. sit S; operandus sit C; operatum sit vel non D; *def.* HB
659 capitulum: causam C; *alia* A   iam immediate: imm. C; imm. iam
EHB; *alia* A   **660** lectum: dictam C; locatum V; *alia* A   **661** istud: illud
ECT   **663** habes: habebas E   dabo modum examinandi: V; m.e.d. C;
e.m.d. E; m.d.e. S; *varie cett.*   **666** sit: sit autem ET; sic(ut) igitur C   nume-
rus: ille *add.* E; iste *add.* STA   **667** iste: sit T; sit ille E; ille S; *om.* V   **669**
ergo loco: l.e. S; igitur 1. V; ergo E   **670** cifra: 0 CST   **671** accipe: accipere
E; *def.* C   unitatem: 1 ST; unum A; *om.* V; *def.* C   **672** unitas: 1 CST; unum
A   quam: quod SA   **673** debebas: debeas T, Aa.c.; debeat C; volebas V

subtrahere, et ab eo quod mutuatum est; et tunc remanent 9, quae
675 ponas loco secundo, scilicet loco binarii. Quo facto subtrahas tertiam
de tertia, scilicet 4 de 1; sed non potes, ergo, cum in loco proximo est
cifra, accipe unitatem de figura proxima post 0, et quia illa est unitas,
deleas illam; sed non oportet loco eius ponere cifram, quia nulla
figura sequitur. Quia igitur haec unitas valuit centum respectu figu-
680 rae, a qua debuisti subtrahere, ideo de illis centum relinquas 90,
faciendo 9 de cifra quae erat in via, et sic non remanet nisi denarius;
ab hoc igitur denario adiuncto unitati, a qua debuisti subtrahere,
subtrahas 4, et remanent 7, quae ponas loco unitatis. Deinde
subtrahas quartam de quarta, scilicet 5 de 9, et remanent 4, quae
685 ponas loco 9 deleti, et remanebunt hae figurae 4790.

Si igitur probare velis utrum bene subtraxisti (53), addas figuras
quas subtraxisti ad figuras hic residuas, et redibunt eaedem quae
primo proponebantur. – Vel sic hoc probes, quia, si proba numeri
residui et proba numeri, quem subtraxisti, fuerint aequales probae
690 numeri, a quo subtraxisti, bene fecisti; est autem proba, sicut dictum
est, residuum abiecto quotiens potest novenario; et erit proba
utrobique 7.

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Mediatio est etc. (55): exsequitur de quarta specie, quae est
mediatio, et facit tria, quia primo definit mediationem, et secundo
695 (57), quid requiritur tamquam obiectum operationis in hac specie,
manifestat, et tertio (58) exsequitur de modo operandi. Et incipit
secunda pars (57) ibi *In mediatione,* tertia (58) ibi *Si velis igitur.* –

676 sed: quia *add.* ESTA   loco: secundo *add.* ESTA   **677** cifra: VE; 0 S; 40
C   0: cifram EB; cifra H; *alia* A   unitas: 1 CS   **678** cifram: EV: 0 CS
680 relinquas (reliquas HB): -quis C; -quantur V   **681** cifra: 0 VCT; 9
S   erat: erant C; erit S; erunt T; est HB   **685** 9: novenarii (9^{rii} V) VHB; *om.* C
687 eaedem: figurae *add.* CSA   **689** residui: hic r. CE; r. hic D   fuerint
(fuerit V): fiunt BT, C (*ins.*), V (*in dittographia deleta*)   **691** abiecto: adiecto C;
abicito S; *def.* T   novenario: ES; 9 C; novem V   erit proba: est proba C;
erunt probae V   **693** exsequitur: hic e. EA; in parte ista e. S; in parte ista sive
nunc e. T; tunc sequitur C   **696** et incipit secunda pars ibi: s. ibi EA; et s. inc.
ibi V   **697** mediatione: autem *add.* STA; etc. *add.* V   **699** medietatem
(medie(n)te(m) E): me(taphysi)cam C

Definitio (55) patet; utilitatem autem huius speciei (56) subdit ibi **ut videatur.** Valet igitur haec species ad inveniendum medietatem
700 cuiuslibet numeri propositi. – **In mediatione** (57): haec pars etiam patet in littera.

Si velis igitur (58): hic exsequitur de modo quo hic est operandum, et facit duo: primo propositis figuris docet, ubi est incipiendum operari, et secundo (59) exsequitur de intento, cum dicit *Aut igitur.* –
705 Pars prima (58) patet; et dicit *si illa fuerit significativa,* quia non contingit mediare nihil, et propter hoc oportet quod figura medianda aliquid significet.

Aut igitur (59): hic exsequitur de modo operandi, et facit duo: primo enim docet mediare primam figuram, et secundo (63) alias, ibi
710 *Hoc quidem facto.* – Iuxta primam partem (59) notandum est quod omnis figura aut est significativa aut non significativa. Si sit non significativa, non contingit eam mediare, sicut dictum est; si sit significativa, aut est unitas aut alia ab unitate; si alia ab unitate, aut significat numerum parem aut imparem; in omnibus autem mediare
715 contingit aliis a 0, et ideo de 0 non facit mentionem. Circa significativas autem sic procedit, quia primo (59) docet mediare figuram primam, cum fuerit unitas, et secundo (60), cum fuerit alia ab unitate, cum dicit *Si autem prima figura.* – Pars prima (59) patet in littera, nisi ibi *vel resolvatur,* more astronomorum, qui prima divisione
720 semper dividunt integrum *in 60 minuta.* Illud totum dicit propter nihil aliud nisi ut medietas illius unitatis primae exterius reservetur, quia, sicut dicit, cum duplare volueris quod post mediationem remanserit, *medietas* unitatis primae, exterius reservata, etiam *duplata* et integra facta *in locum suum,* scilicet primum, *recipietur,* sicut in fine capituli
725 sequentis videbis in exemplo. – **Si autem prima figura** (60): docet mediare primam figuram, cum fuerit alia ab unitate, et facit duo, quia primo (60) praemittit quandam divisionem, et patet, secundo

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702 hic: *om.* CEA   **704** exsequitur (-quit V): ex ea C   **705** dicit: *verba* aut igitur (708) – figuram (709) *hic adhibet Cu, aliis quibusdam mutatis*   **709** primo enim: primo CA; nam primo V   **711-2** si sit--dictum est: *om.* CA   **712** non contingit: tunc non c. aliquid E; *def.* CA   **714** mediare (-atio HBW) contingit (competit W) aliis a (*om.* T) 0 (cifra BE): aliis m.c. aliis .7.0. C; aliis c.m. .7.0. D; aliis «quam» cifra c.m. A   **716** autem: ac C; actor HB; *om.* ET   quia: quod T, Cu   **723** etiam: et VS; quae C   et integra facta: etiam i.f. V; et etiam i.f. E; i.f. et B, H*p.c.*   **724-5** *cf. l.* 848-9   **728** de membris div.: membra div. T;

(61) de membris divisionis prosequitur, cum dicit **si par**, et primo *(61)* primum membrum, et patet, et secundo *(62)* secundum, cum
730 dicit **si impar**; ubi dicit quod, si prima figura significet numerum imparem, puta 7, *sume proximum parem contentum sub illo* impari, scilicet 6, *et medietatem eius,* scilicet 3, *pone loco eius,* scilicet 7; et quia mediasti 6, non 7, remanet adhuc unitas medianda, et ideo dicit *de unitate autem, quae remanet medianda, fac ut prius,* scilicet quando prima figura
735 erat unitas.

Hoc quidem facto *(63)*: docet mediare figuras alias a prima, et facit duo, quia primo docet mediare secundam, et secundo *(69)* innuit eundem modum habendum esse in mediando quascumque alias; et incipit secunda pars in fine capituli, cum dicit *Et sic operandum est.*
740 Circa primam partem *(63)* notandum est quod secunda figura aut est cifra aut alia; si alia, aut est par aut impar: hanc divisionem innuit auctor comprehendens unitatem sub numero impari. Facit igitur auctor duo, quia primo *(64)* docet, qualiter faciendum est si secunda fuerit 0, et patet, et secundo *(65)* docet, quid faciendum est si sit
745 figura significativa, cum dicit **Si sit significativa**; et facit duo: primo enim *(66)* docet, quid faciendum est cum secunda fuerit par, et patet, et secundo *(67)*, si impar, ibi **Si impar**; et haec in duas partes, quia primo *(67)* docet mediare secundam, quando ante eam in loco primo fuerit figura significativa, et secundo *(68)*, quando ante eam in loco
750 primo fuerit 0; secunda ibi *Si autem 0.* - Ad intellectum primae partis *(67)*, sit numerus mediandus iste 874. Mediabis secundam sic: accipe numerum parem proximum sub 7, scilicet 6, cuius 6 medietatem,

membra div. sive de membris div. ES   prosequitur: exseq. EA   **729** primum membrum: m.p. VS; ponit p.m. C; p. A; *alia* T   **731** parem *(om. & ins.* E)*:* numerum C   **733** unitas: CE; 1 VS   **734** autem: STD; aut C; auctor VHB; a(li)or(um) (et) E; *om.* A   **737** quia primo: primo enim C; primo ESTA   **741** hanc: autem *add.* EST   **742** auctor: auctor hic ET; *om.* CA   **743** qualiter: quid VD   faciendum est: sit f. D; operandum est CSA; operandum est sive f. E; sit operandum sive f. T   **744** quid: quomodo ET; qualiter HBSA   **745** figura significativa: s.f. VHB; s. CA; *alia* T   **747** et haec: adhuc S   duas partes: duo S; d() ETA   **749** secundo: docet mediare secundam *add.* ES; *alia* T   in loco primo fuerit (fuit H): l.p.f. C; f.l.p. EST; *alia* A   **750** primae partis: pa.pr. ESA
     751 mediandus iste (ille HESA): i.m. ET   **752** sub: isto *add.* C; illo *add.* VHB   scilicet 6: et est 6 C; et erit 6 SA; et 6 V; contentum et erunt 6 H;

scilicet 3, ponas loco 7; et quia quaelibet unitas in secundo loco valet
10, unitas quae remanet valet 10: pro medietate ergo eius addas 5 ad
755 figuram primam, scilicet ad 4, sic 839. – **Si autem 0** (*68*): docet,
qualiter medianda est secunda, cum ante eam loco primo fuerit 0,
quia pro medietate unitatis quae remanet ponendus est quinarius
loco 0 in primo loco. Ex iam dictis constat etiam, quid faciendum sit,
si unitas fuerit in secundo loco, quia ea deleta loco eius scribatur 0, et
760 5 addatur figurae primae eo modo quo dictum est. – **Et sic operan-
dum** (*69*): innuit idem esse faciendum in omnibus aliis figuris, sicut
modo factum est circa secundam, et patet.

In hac specie utaris hoc exemplo ad omnes casus. Sit iste numerus
mediandus 510321. Incipe igitur a prima, et quia illa est unitas, illa
765 deleta loco eius scribatur 0, et signum dimidii, tale scilicet ∂, ponatur
extra in tabula, et tunc erunt istae figurae 510320. Deinde media
secundam; quae igitur quia par est, loco eius deletae ponatur unitas,
sic 510310. Deinde media tertiam, quae est impar, scilicet 3:
medietatem igitur binarii, scilicet 1, loco eius ponas, et 5 addas ad
770 figuram praecedentem, sic 510160. Deinde vadas ad quartam; quia
igitur haec est cifra, praetermittatur intacta. Quo facto media paenul-
timam, et quia haec est unitas, loco eius cifram ponas, et 5 ponas
ante, loco 0 praecedentis, sic 505160. Deinde media ultimam, quae
quia est impar, scilicet 5, loco eius ponas medietatem de 4, scilicet 2,
775 et pro unitate quae remanet addas ad figuram ante, scilicet ubi 0 est,
5. Et erit residuum totius istud 255160 et unum ∂.

Quod si probare velis utrum bene mediasti, sumas probam residui,

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«contentum» sic accipe numerum B   cuius: scilicet *add.* CHBSTA   **754** 10₁:
x E   10₂: VCS; x E   ergo: igitur VSTA   **756** loco primo fuerit: et l.p.f. S;
in l.p.f. A; «f.» l.p. E; f.p.l. T; *def.* C   0: VS; cifra E; *def.* C   **757** quinarius:
AD; quin. sic 5 S; 5 VCHBT, E(*ins.*); et *add.* VEST   **759** loco₁: *om.*
VC   0: VC; cifra ES   **760** operandum: est etc. *add.* C; est hic *add.* A; in parte
ista *add.* EST   **762** factum: dictum EC   **766** in tabula--figurae: sic VHB; sic
∂ C   erunt istae: erunt illae S; sic stabunt illae T; *def.* VCHB   **510320**:
510310 V; 51030 ET; 510320 «∂» H; *def.* C   **767** unitas: V; 1 ES; *om.*
C   **768** 510310: [[∂]] 510310 C   **769** binarii: 2 V; *om.* EHBST; *def.*
A   1: unitatem VHB: unum T   **772** cifram ponas: 0 ponas VT; ponas 0 SA;
pone 0 C   **773** sic: isto (illo T) modo EST   quae quia: quae HBSA; et quia
haec C   **774** loco: et loco HBA   ponas: pone VC   **775** addas: addas 5
E; 5 addas T   **776** 5: *om.* ECB; *alia* T   istud: illud CA; id V   ∂: dimi-

et est 1 cum dimidio; quod si duplaveris, habebis 3, quae erant proba
numeri primo propositi. Sed nota quod, si aliquando proba residui
780 duplata excedat 9, abiectis 9 residuum erit proba numeri totalis
primo propositi. Attamen non semper erit proba residui medietas
probae totalis, licet residuum sit medietas totalis, ut in hoc numero
12345: proba enim numeri totalis est 6, proba autem residui facta
mediatione est 7 cum dimidio, quo duplato erunt 15, quorum proba
785 est 6.

Duplatio etc. (70): [postquam auctor expedivit se de quattuor
speciebus huius artis, in ista parte] determinat de duplatione, quae
est quinta species huius artis, et facit tria: primo enim definit eam,
secundo (71) subiungit ea quae in hac specie sunt necessaria, et tertio
790 (76) tradit modum operandi; et incipit secunda pars (71) statim post,
cum dicit *In duplatione,* tertia (76) ibi *Si velis igitur.* – Prima pars (70)
patet, nisi quod dicit *ad se ipsum,* propter differentiam huius speciei
ad additionem, ubi indifferenter quilibet cuilibet aggregatur: omnis
enim duplatio additio quaedam est, et non convertitur. Si igitur
795 aliquis habeat aliquam summam, puta 999 libras, et tantundem
accepturus est a debitore, ad sciendum summam totius valet haec
species.

    In duplatione etc. (71): subdit quae ad hanc speciem sunt neces-
saria, et facit duo: primo enim dicit quod *unus ordo figurarum est hic*
800 *necessarius,* et patet, et secundo (72) docet, ubi incipiendum est
operari, cum dicit **Et inchoandum est,** et facit duo: primo enim

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dium C; dd^m S   **778** 1: unum ET; *alia* A   dimidio: *∂* VHBA; x°
T   quae erant: quae erunt CD; quae est T; quod erat V   **779** proba: numeri
add. S, V(*ins.*)   **784** dimidio: *∂* VHBSA; *om.* T   **786** duplatio: est numeri
propositi *add.* EST   **786-7** postquam--parte: *om.* VCHB   **786** auctor: *om.* A;
def. VCHB   expedivit: -dit T; *def.* VCHB   **787** in ista parte: in p.i. T; hic A;
def. VCHB   determinat: auctor *add.* VCHB   **788** definit eam: definit dupla-
tionem A; definit (ostendit E) quid est (sit T) duplatio EST   **790-1** et incipit
--dicit: secunda ibi ETA; se. pa. inc. st. po. cum dicit C; et inc. se. pa. ibi cum dicit
HB   **793** aggregatur: -tus E, V?   **795** habeat: *om.* & *ins.* EH; *om.* VCSTAD,
Cu   libras: ibi sunt E (*ins.*); 1. ibi sunt S; 1. «a quocumque» ille sit A; 1. habet
TD, *Cu*

docet, ubi in hac specie et universaliter in omnibus sit incipiendum operari, et secundo (*74*) assignat causam specialiter, quare in hac specie incipiendum est a sinistra, id est ab ultima figura; et incipit
805 secunda pars, cum dicit *Et ratio huius est.* Adhuc primo (*72*) facit quod dictum est, secundo (*73*) ad faciliorem dictorum rememorationem subdit quosdam versus, ibi *Subtrahis etc.*; et patet prima pars (*72*). –
Subtrahis aut addis vel mediabis a dextris (*73*), id est, sive debeas addere numerum numero sive subtrahere numerum a nu-
810 mero sive mediare numerum propositum, hoc facies incipiendo a dextris; *sed dupla, divide, multiplica a laeva,* id est a sinistra, scilicet incipiendo; *extrahe radicem duplam,* id est tam in numeris quadratis quam cubicis, *sub sinistra parte,* scilicet incipiendo. – **Et ratio huius est** (*74*): assignat causam specialiter, quare ad sinistram est in ista
815 specie incipiendum, et facit duo: primo enim facit quod dictum est, secundo (*75*) innuit possibilitatem operandi incipiendo a figura prima versus dextram; et incipit secunda pars ibi *et licet aliquo modo.* Exemplum partis primae (*74*) non potest hic dari, antequam detur modus operandi; in fine igitur ostendam tibi quomodo, incipiendo a
820 prima figura, contingit aliquando idem bis duplare, et similiter quomodo possibile sit incipere a prima figura praeter hoc quod idem dupletur bis.

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801 cum dicit: ibi cum dicit ES; ibi AD   facit duo: haec (adhuc T) in d(uo) ESTA   primo enim: p. autem C; quia primo E; *alia* A   **802** omnibus: sequentibus *add.* E; *alia* A   **804** figura: *om.* EC; *def.* A   et incipit secunda pars: secunda (-do T) ET; *om.* A   **805** cum dicit: ibi CETA; ibi cum dicit S **806** dictum est: et *add.* VHBS   ad faciliorem--rememorationem: propter memoriam meliorem D   rememorationem: rementionem E; remotionem HB; retentionem SA, *Cu*; receptionem (*vel* rete⟨m⟩pt- = retent-) V; redditionem T; recordationem C   **807** etc.: aut ad E; aut T; aut addis a dextris vel mediabis etc. S; *om.* CA   **808-13** subtrahis--incipiendo: *om.* A   **808** subtrahis--a dextris (aderis T): subtra aut ad a dex vel me (!) E; subtrahis aut a dextris vel mediabis C; *alia* S; *def.* A   sive debeas: sive tu debes E; si debes T; *def.* A; *alia* S **809** a: *om.* & *ins.* CE; *def.* A   **812** quadratis quam (in *add.* HB) cubicis: cu. quam (in *add.* C) qua. CD; *def.* A   **813** et ratio: tunc sequitur alia (*om.* TA) pars ibi (*om.* TA) et ratio STA   **814** est₁: in qua *add.* ESTA   ad sinistram: a sinistra HBAD, *Cu*   **818** partis primae: pr. pa. ESTA   **819** ostendam tibi .(*nusquam, ut vid.*): ostendatur C; dicam tibi HB; ostendendum est ESTA   **820** contingit (-get H): convenit S; *def.* C   aliquando idem: i.a. V; aliquando *post* duplare HB; *def.* C   **821** possibile sit: s.p. V; p. est A; *def.* C   hoc: haec S;

Si velis igitur (*76*): tradit modum operandi, et facit duo: primo enim facit hoc, secundo (*80*) dat modum examinandi operationem, si
825 recte factum sit, cum dicit in fine *Probatio autem huius est.* Adhuc ⌊prima pars (*76*) dividitur in 3, quia⌋ primo docet duplare ultimam, secundo (*77*) paenultimam, et tertio (*79*) innuit idem esse faciendum in omnibus aliis; secunda (*77*) ibi *Hoc facto,* tertia (*79*) ibi *Eodem modo.* – Prima pars (*76*) patet quia, quidquid ex duplatione ultimae prove-
830 nit, per omnia faciendum est sicut in additione. – **Hoc facto** (*77*): docet duplare paenultimam, et facit duo: primo enim innuit quod eodem modo faciendum est cum paenultima sicut fit cum ultima, et hoc, cum paenultima fuerit significativa; et secundo (*78*) subdit, quid agendum est cum illa paenultima fuerit 0, cum dicit *Si vero fuerit cifra*;
835 partes patent. – **Eodem modo** (*79*): innuit idem esse faciendum in omnibus aliis, sicut modo factum est cum ultima et paenultima. – **Probatio autem huius** (*80*): dat modum examinandi operationem suam in hoc capitulo et in praecedenti proximo, et patet.

Esto igitur quod numerus duplandus sit ille 255160 et unum ∂.
840 Incipe igitur a sinistra, id est ab ultima figura, scilicet a 2, qua duplata proveniunt 4, quae ponas loco 2, sic 455160 et ∂. Deinde duples paenultimam, scilicet 5, et provenient 10; pone igitur 0 loco 5, et unitatem addas ad 4, sic 505160 ∂. Deinde dupla antepaenulti-mam, scilicet 5, et proveniet iterum 10; pone igitur 0 loco 5, et articu-
845 lum transferas, ponendo unitatem loco 0, sic 510160 ∂. Deinde dupla unitatem, et provenient 2, quae ponas loco unitatis. Deinde dupla 6,

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s(ecundum) T; *def.* C   **823** velis igitur: i.v. ET; v. CA   **825** sit: est VC; *def.* A autem: *om.* C; *om.* & *ins.* E   **825-6** adhuc prima pars (*om.* T) dividitur in (*om.* S) 3 (*om.* S) quia: prima in d(uo) A; adhuc VCHB   **826** primo docet: d.p. VHB   **827** innuit idem: hoc id.in. ET; in. hoc id. SA   **828** ibi$_1$: pars ibi CHB; pars incipit ibi S   hoc: autem *add.* ESA   modo: operandum (est *add.* S) *add.* CHBST   **832** fit: facit C; *om.* EHBTA   **833** subdit: subiungit ESTA **834** fuerit$_2$ cifra (0 ST; *om.* A): etc. VC; *om.* HB   **839** igitur quod: ergo quod E; igitur cum S; *om.* C   ille: iste CHBA   unum ∂: numerum dimidium (-dii C) CHB; unum cum ∂ A   **841** proveniunt: -ient VC   2: et E; 2^{orum} B, H*p.c.*; *om.* C   et ∂: et dimid(ium) C; et [[∂]] H; ∂ BSTA; *om.* E   **842** provenient: -iunt EHBTA   10: x E   **843** unitatem: utilitatem E; 1 VSTA ∂: et ∂ HB; et dimid(ium) C; *om.* E   **844** proveniet: -ient S; -iunt E   10: VCS; x E **845** unitatem: VC; 1 E; 5 S   **846** unitatem: VC; 1 ES   unitatis: 1 S; unius 1 H; unius B; *vacat* T; *def.* E, A   **847** unitatem: VC; 1 ES   sic: et erunt 3, et

et provenient 12; 2 igitur ponas loco 6, et unitatem addas ad 2, sic
510320 ∂. Deinde dupla ∂, quod habuisti ultra integra, et duplum
eius, scilicet 1 integrum, ponas loco 0 in primo loco; et stabunt
850 figurae sic 510321, et iste est numerus quem in praecedenti capitulo
mediasti.

Quod si probare velis te bene fecisse, absque eo quod tu probes
unam speciem per aliam, videas, si proba numeri iam duplati, id est
qui provenit post duplationem factam, fuerit dupla ad probam
855 numeri duplandi, quem scilicet primo proposuisti. Si sic, tunc bene
factum est, et patet in proposito quod proba numeri, qui provenit
post peractam duplationem, est 3, proba autem duplandi, scilicet
quem primo proposuisti, est 1 cum ∂, ergo bene.

Multiplicatio etc. (*81*): determinat de multiplicatione, quae est sexta
860 species huius artis; vel dicas quod hic determinat de multiplicatione
et divisione simul; et primo facit hoc, secundo (*123*) dat modum
examinandi operationem in utraque, et hoc facit in fine capituli
sequentis, cum dicit *Cum itaque.* Adhuc primo (*81*) determinat de
multiplicatione, secundo (*112*) de divisione, cum dicit in proximo
865 capitulo *Divisio est etc.* – In hoc capitulo primo (*81*) facit auctor
quinque: primo enim definit multiplicationem, secundo (*82*) mani-
festat, quot ordines figurarum sunt hic necessarii, et tertio (*86*) dat sex
regulas hanc speciem rectificantes, et quarto (*93*) docet operari, et
quinto (*111*) subdit quoddam notabile vel cautelam hic observan-
870 dam; et incipit secunda pars (*82*) ibi *In multiplicatione,* tertia (*86*) ibi

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erit iste numerus sequens S; *om.* V   **848** ∂_1: *om.* VCHBS ∂_2: dimid(ium) C;
post integra *infra habet* S   **849** scilicet: erit ET   integrum: integ(ra) quam ET;
om. V   ponas: pones V; *om.* C

   855 proposuisti: posuisti EV   **857** duplandi (duplicandi HB) scilicet quem
primo: numeri d.q.p.s. C; d. «id est» numeri q.p. E; d.s. numeri (numerum T) q.p.
STA   **858** 1: unitas E; unum CHB ∂: dimidio (-id() C) CHB   **859-60**
determinat--artis: in parte ista (illa T) determinat auctor (a.d. T) de sexta (vi^a E)
specie huius artis, scilicet de multiplicatione EST; hic determinat de multiplica-
tione A   **860** species huius artis: h.a.s. V; *alia* ESTA   dicas: poterit dici EST;
def. A   **861** primo facit hoc: h.f.p. VCHB   **863** itaque: etc. *add.* VC
865 est: *om.* EC   facit auctor: a.f. EST   **871** sex regulae: sex S; vid() T; *om.*

Sunt autem sex regulae, quarta *(93)* ibi *Si velis igitur,* quinta *(111)* ibi
Sciendum autem, in fine capituli.

Dicit igitur primo *(81)* quod *multiplicatio est, propositis duobus numeris,
inventio tertii numeri qui etc.* Vult dicere quod, si proponantur duo
875 numeri quorum unum velis multiplicare per alterum, tunc multi-
plicatio est inventio cuiusdam numeri tertii, *qui* numerus tertius
totiens, id est tot vicibus, *continet alterum illorum* propositorum, *quot
unitates sunt in reliquo.* Verbi gratia, si velis multiplicare 5 per 4,
provenient 20, qui, scilicet numerus vigenarius, tertius est a duobus
880 propositis; et iste totiens continet 5 quot unitates sunt in 4, et etiam
totiens continet 4 quot unitates sunt in 5: viginti enim quater continet
5 vel quinquies 4, quod idem est. Multiplicare igitur unum numerum
per alium est invenire quendam numerum tertium, qui totiens
continet alterum illorum, quot unitates sunt in reliquo. Est autem
885 haec species maxime utilis, quia esto quod rex aliquis † habeat in
deposito magnam summam pecuniae, puta 99999 librarum, quam
deputat aliquibus militibus, puta 666, quos mittat in expeditionem:
ad sciendum igitur, quantum quilibet de hac summa habebit †, valet
species hic tradita.

890 **In multiplicatione** *(82)*: manifestat, quot ordines figurarum in hac
specie sunt necessarii, et facit duo: primo enim facit quod dictum est,
et secundo *(85)* per modum notabilis dat quandam cautelam hic
observandam; et incipit secunda pars ibi *Notandum etiam.* Circa
primum *(82)* duo facit: primo enim manifestat, quot numeri in hac
895 specie sunt necessarii, et secundo *(84)* addit tertium quendam nume-

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E; *def.* A   **873** igitur: ergo CS; *om.* A; *alia* T   **874** qui: *om.* EV; *def.*
A   proponantur: praepon. ESA; pon. CT   **877** id est: et VHBST;
def. A   **879** provenient: -iunt STA; *alia* HB   **880** 5: E; quinque HBS; *def.*
V   quot: quod E, Ha.c.; *def.* V   **881** continet$_1$: *om.* HB; *def.* V   viginti:
VB; 20 H; xx E; 5 S; vigenarius T; *def.* A   quater (4us V, 4 S) continet: continent
quater E; *def.* A; *aliter disponit* T   **885-88** *hoc exemplum, quod ad divisionem spectat,
contra omnes testes ita retractat Curtze:* deputat aliquomodo cuilibet militum, puta 666,
quos mittat in expeditionem, magnam summam pecuniae, puta 999 librarum. Ad
sciendum igitur, quantam summam in universo militibus deputavit   **887** ali-
quibus: aliquot (-quod S) VS   mittat: mittet VHB   **888** hac: *om.*
ESTA   valet: haec *add.* ESTA   **889** hic: haec B; huiusmodi V; *om.* A
890 multiplicatione: etc. *add.* V; hic *add.* HB; etc. (*om.* T) in qua *add.* ST   **893**
pars: *om.* V; *def.* ETA   **900** est sciendum: sc. est T; scias VHB

rum, qui provenit ex duobus propositis, cum dicit *Potest etiam tertius numerus*. Adhuc circa primam partem *(82)* facit duo, quia primo facit quod dictum est, secundo *(83)* subiungit modum quo numeros istos denominabimus, ibi *Numerus multiplicandus.* - Circa primam partem
900 *(82)* est sciendum quod numerus multiplicandus est ille qui debet multiplicari, numerus multiplicans est per quem alius est multiplicandus. - **Numerus multiplicandus** *(83)*: subiungit modum quo numeros istos denominabimus, et patet. Verbi gratia, si velis multiplicare 6 per 4, dices in multiplicando sic: quater 6. - **Potest etiam**
905 *(84)*: addit quendam numerum tertium, qui resultat ex duobus quorum unus est multiplicans et alter multiplicandus, et patet. -
Notandum etiam *(85)*: per modum notabilis dat quandam cautelam hic observandam, et est quod, cum numerus aliquis debet per alium multiplicari, quocumque illorum velit poterit quis uti pro multipli-
910 cando, et similiter quocumque pro multiplicante, quia provenit idem ducendo 6 in 5 et 5 in 6.

Sunt autem sex regulae *(86)*: assignat sex regulas hanc speciem rectificantes, et iuxta hoc haec pars in sex partes dividitur, quia primo *(87)* dat regulam ducendi digitum in digitum, secundo *(88)* digitum in
915 articulum, tertio *(89)* digitum in numerum compositum, quarto *(90)* articulum in articulum, quinto *(91)* articulum in numerum composi-tum, sexto *(92)* numerum compositum in numerum compositum; nec pluribus modis est possibile numerum duci in numerum sive numerum multiplicari per numerum; et patent partes. Sed quia
920 semper qualibet figura utimur ac si per se poneretur, ideo sola prima regula *(87)* est de esse huius speciei; sed aliae sunt quasi correlaria quaedam ex prima regula sequentia, sicut videbitur, quapropter quinque regulas ultimas reservabo ad finem capituli. - Quia igitur tota vis capituli iacet in prima regula, notes eam diligenter. Dicit
925 igitur sic: **Quando digitus multiplicat digitum, subtrahendus est**

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903 numeros istos: i.n.T; n. isto V; numerum HB   velis: velimus HBSTA
904 dices: dicemus HBSTA   potest (post A): et cum dicit p. EST   **907**
quandam: *om.* VHB; *def.* A   **909** velit poterit quis: v.p. HB; velis poteris V; *def.*
A   **913** partes: *om.* VA   dividitur: potest dividi EA; habet dividi S; dividi
T   quia: ita quod EST; *def.* A   **914** ducendi: -ndo EST; *def.* A   **921** cor-
relaria (A; -rie S): correlativa B; *varie abbreviant cett.*   **922-3** *cf. l.* 1072   **924**
notes eam diligenter: ideo d. est notanda ESTA   dicit igitur: d. ergo VT; unde
d. HB   **925** sic: quod *add.* VHB   **926** velis: velit aliquis (a.v. A) ESTA

etc., id est, si velis multiplicare unum digitum per alium, quorum unus est maior alio, tunc videndum est, per quot unitates maior digitus distet a 10 inclusive; et totiens debet minor subtrahi ab illo articulo, qui ab ipso minori digito denominatur. Verbi gratia, si velis
930 multiplicare 8 per 4, vide per quot unitates 8 a 10 distet inclusive, et constat quod per duas unitates: ergo totiens, id est bis, subtrahas 4 de 40; cum igitur bis 4 sint 8, si 8 subtraxeris de 40, remanent 32, quod est intentum, quia quater 8 sunt 32. – Exponas litteram sic: *Quando digitus multiplicat digitum,* id est quando per digitum oportet multipli-
935 care digitum, altero – supple – maiore existente et altero minore, *subtrahendus est minor digitus ab articulo suae denominationis,* id est ab articulo qui denominatur ab illo digito, *per differentiam maioris digiti ad denarium,* id est totiens vel tot vicibus, per quot unitates maior digitus distat a denario, *denario simul computato,* id est inclusive, vel annume-
940 rando etiam denarium; et subdit idem exemplum quod iam induxi. – Notandum quod auctor non facit mentionem de multiplicatione digiti eiusdem in eundem, sed solum loquitur de talibus quorum unus est maior et alter minor. Esto igitur quod tu velis multiplicare eundem per se vel in se, quod idem est, verbi gratia 8 per 8; tunc,
945 quia idem est iudicium de utroque, per quot unitates 8 distat a 10 inclusive, totiens subtrahas 8 de 80; et patet, quid ulterius faciendum est, per ea quae prius dicta sunt. – Item nota virtutem et significatum illius quod dixit: *per differentiam maioris ad denarium.* Differentia duorum numerorum est id in quo maior excedit minorem: verbi
950 gratia, quia denarius excedit 8 in duobus, ideo dicimus duo esse differentiam 8 ad denarium. Et ideo credo vere quod non oportebit addere *denario simul computato,* immo credo quod haec sit glosa inserta textui ex pravo intellectu illius "differentiae" minoris numeri ad

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927 quot: quod ESA; quos T   **928** digitus: numerus A; *om.* VHB   distet: differet A; distat VHB   10: VHB; x E; decem S   **930** 8 a 10 (V; decem HBS; x E) distet: 8 distat a 10 V; distat 8 a decem HB; *def.* A   **932** sint: sit V; sunt S; *def.* A   subtraxeris: subtrahas HBS; *def.* A   **935** supple: supp() ET; sup() H; s(cilicet) B; s(em)p(er) S; *def.* A   **939** id est: vel S; *om.* C; *def.* A   **940** induxi: induxisti V; induxit S; dixi T; *def.* A   **941** auctor non facit: a.n.f. hic ET; hic a.n.f. S   **944** vel in se: *om.* C; vel ⟨ducere⟩ in se *Cu*   **945** 8: 4 HB   distat: distant ST; distent A   10: VC; x E; decem S   **948** quod dixit: q. dicit SA; q. dicit scilicet HB   **949** id: illud C; hic illud A; idem T

maiorem. – Item nota quod, licet haec regula sit generalis ad omnes
955 digitos, in parvis tamen digitis non est per eam laborandum, quia, si
debeas multiplicare 3 per 3 vel 3 per 4, quilibet rudis statim sciret
quantum provenit.

Et tunc, omissis quinque regulis sequentibus, vadas ad locum illum
Si velis igitur (*93*), in qua dat auctor modum operandi, et facit duo:
960 primo enim docet ordinare figuras numerorum, quorum unum
oportet in alium ducere, et secundo (*94*) exsequitur, cum dicit *quo
facto etc.*; patet autem pars prima (*93*) secundum litteram. Sed
exemplum accipiatur sic: esto quod numerum istum scilicet 987 velis
multiplicare per istum 654; tunc hoc ordine stabunt figurae 654^{987}. –
965 **Quo facto** (*94*): exsequitur; et quia omnes figurae numeri multipli-
cantis debent duci in quamlibet figuram numeri multiplicandi, ideo
docet primo ducere omnes figuras numeri multiplicantis in ulti-
mam numeri multiplicandi; et secundo (*101*) docet ducere omnes
easdem figuras numeri multiplicantis in paenultimam numeri multi-
970 plicandi et in consequenter se habentes, cum dicit *Hoc autem facto*;
tertio (*106*) subdit quasdam cautelas hic observandas in operando, ibi
Si autem contingat. Adhuc circa primam partem (*94*) duo facit, quia
primo docet ducere ultimam figuram numeri multiplicantis in
ultimam multiplicandi, et secundo (*98*) alias consequenter se
975 habentes numeri multiplicantis in eandem ultimam multiplicandi;
secunda ibi *Hoc facto*. Adhuc primo (*94*) facit duo: primo enim ponit
casus provenientes ex ductu ultimae in ultimam, et secundo (*95*)
iuxta quemlibet casum docet operari, cum dicit *Si digitus*; prima pars
(*94*) patet. **Si digitus** (*95*): docet, quid in unoquoque casuum sit

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955 digitos: numeros d. VE; numeros et (*om.* & *ins.* T) d. STA; d. numerales
HB   si debeas: si debes VA; debeas HBS; sebeas (!) C   **956** 3 per 3: tria per
tria ES   quilibet rudis statim: s.q. (etiam *add.* C) r. VCHB; q. per se s.
Ap.c.   sciret: sciet VA, *Cu*   **959** qua (*sc.* 'parte'): quo CS   **960** docet: d.
ordinem (o.d. T) figurarum sive EST   **961** alium: alterum VSA   **962** patet
autem pars (*om.* HB) prima: prima pars (*om.* A) patet ESTA   secundum (sed V)
litteram: in littera E; per litteram T; *om.* A   **963** exemplum accipiatur sic: a.e.s.
V; e.s.a. sicut E   **968** omnes easdem figuras: o.f. CT; e.o.f. E; o.f.e. (eiusdem B)
HB; o. alias A   **972** quia primo: primo VCA; primo enim HB   **973** docet
ducere: docet E; ducit VCHB   **974** ultimam: figuram numeri *add.* ES; numeri
add. HB   **978** casum: casuum ET   digitus: etc. *add.* VS   **978-9** prima

980 agendum, et haec pars habet tres partes iuxta numerum trium ca-
suum; secundum (96) ponit ibi **si articulus**, tertium (97) ibi **si
numerus compositus**; et patebunt partes, cum dedero exemplum
de modo operandi. – **Hoc facto** (98): docet ducere omnes alias a
prima figura numeri multiplicantis in eandem ultimam numeri
985 multiplicandi, et facit duo: primo enim dicit eundem modum esse in
ducendo omnes ab ultima numeri multiplicantis in eandem ultimam
multiplicandi usque ad primam numeri multiplicantis, et secundo
(99) docet, quomodo ducenda sit prima numeri multiplicantis in
eandem ultimam numeri multiplicandi; secunda pars ibi **quae
990 ducenda est**. Prima pars (98) patebit in exemplo. In secunda (99)
facit duo, quia primo ponit casus provenientes ex ductu primae
figurae numeri multiplicantis in ultimam multiplicandi, et patet, et
secundo (100) iuxta casus istos docet operari, cum dicit **Si digitus**; et
patebit exemplificando. – **Hoc autem facto** (101): postquam docuit
995 ducere omnes figuras numeri multiplicantis in ultimam numeri
multiplicandi, docet consequenter ducere omnes easdem numeri
multiplicantis in paenultimam numeri multiplicandi |et in omnes
alias consequenter se habentes, et facit duo: primo enim docet ducere
omnes figuras numeri multiplicantis in paenultimam numeri multi-
1000 plicandi,| et secundo (105) docet ducere omnes easdem numeri
multiplicantis in omnes alias ab ultima et paenultima numeri
multiplicandi; secunda ibi *Deinde ut prius*. Adhuc prima pars (101)
potest dividi in duas partes, quia primo docet ducere ultimam
numeri multiplicantis, et secundo (104) alias, in paenultimam multi-
1005 plicandi; secunda ibi *Similiter quaelibet figura*. Adhuc circa primum
(101) duo facit: primo (102) praemittit casus provenientes ex ductione
ultimae multiplicantis in paenultimam multiplicandi, et secundo

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--digitus: *om.* C, V (*qui similia inserit*)   **979** casuum: casu VS   **981** secundum
ponit ibi: s. ibi E; s-da ibi A   tertium ibi: t. HB; tertia ibi EA   **983** facto: etc.
add. VC   **984** ultimam: E, *Cu*; figuram C; *om. cett.*   **986** ultimam (-ma HB):
numeri *add.* VT; *def.* E, A   **989** pars: p. est S; *om.* ET; *def.* C, A   **994**
exemplificando: in ex. E; in exemplo HB; *def.* A   **997-1001** in paenultimam--
multiplicantis: *om.* CHB; *def.* A   **997-9.**et in omnes--multiplicandi: *om.* VS; *def.*
CHB, A   **997-8** et in omnes--habentes: ED; *om.* T; *def.* VS, CHB, A   **998**
enim: ED; *om.* T; *def. cett.*   **1000** easdem (eiusdem T; alias A): figuras *add.* S; *def.*
CHB

1003 duas partes: p.d. S; duas (d() ETA) CETA; [[tres]] p.d. D   **1008** exse-

(*103*) exsequitur modum operandi iuxta quemlibet illorum casuum, cum dicit **Si digitus**; et patent ambae partes. –**Similiter quaelibet**
1010 **figura** (*104*): docet ducere omnes alias ab ultima numeri multiplicantis in eandem paenultimam numeri multiplicandi, et patet in littera. – **Deinde ut prius** (*105*): docet, quid agendum est in ductione omnium figurarum numeri multiplicantis in omnes figuras alias ab ultima et paenultima numeri multiplicandi; et dicit quod eodem
1015 modo faciendum est, sicut modo factum est circa ultimam et paenultimam, quia *non est cessandum ab anterioratione* figurarum numeri multiplicantis, *nec cessandum est a ductu* omnium figurarum numeri multiplicantis in illam sub qua est prima multiplicantis, *donec quaelibet figura numeri multiplicantis ducatur in quamlibet figuram numeri multiplicandi.*
1020 – **Si autem contingat** (*106*): postquam docuit, qualiter est hic operandum, subdit consequenter quasdam cautelas hic observandas, et sunt quinque; secunda (*107*) ibi **Si autem occurrat cifra**, tertia (*108*) ibi **Sed si sit spatium**, quarta (*109*) ibi **Si autem cifra**, quinta (*110*) ibi **Ex praedictis etiam patet**; et cautelae omnes istae
1025 videbuntur in exemplificando. – **Sciendum est autem** (*111*): ponit quoddam notabile, quod spectat ad bene esse huius artis quantum ad hanc speciem et divisionem et radicum extractionem, et patebit in exemplo.

Utaris igitur hoc exemplo in operando iuxta quemlibet casuum
1030 incidentium in hac specie. Sit numerus, quem velis multiplicare, iste 45060, et numerus multiplicans, scilicet per quem velis illum alium multiplicare, sit iste 2030. Ordinabis igitur figuras, ut stent isto modo 2030^{45060}. Duc igitur ultimam in ultimam, scilicet 2 in 4, sic dicendo: bis 4, et resultat digitus, quem ponas supra caput ipsius 2 in ordine

quitur modum: prosequitur de modo HB   **1011** in littera: l. VCHBA
1017 cessandum est: est c. C;· *def.* V,T,A   numeri: *om.* C; *def.* V,T,A
1019 numeri$_1$ mult.: m.n. E; m. C; *def.* A   **1020** est hic: h.e. E; hinc e. C; *def.*
A   **1022** occurrat: occurrit E; *om.* V   cifra: 0 STA; *om.* C; *def.* V   **1023**
sit: *om.* VCHB   **1024** cautelae omnes istae (illae V) videbuntur: c.i.o.v. VHB;
o.i.c.v. S; o.c.v. A; patebunt o.i. C   **1025** in exemplificando: in exemplo HBS
1029 casuum: casum VD   **1030** iste: ille VSD; *post* numerus *supra habet* A
1031-2 et numerus--2030: *om.* & *ins.* E (=E$_2$)   **1031** scilicet: s. ille S; id est
numerus T; *om.* E$_2$; *def.* A, C   illum: *om.* E$_2$ T; *def.* A, C   **1032** iste: ille VS;
n.l. E$_2$ ut stent: et stent ST; [[ut in]] A; *om.* C   isto: illo EV; hoc C   **1033**
duc: ducas (-cat A*a.c.*) ESTA   **1034** supra: super ECS   2: 4 C; binarii E; 2^{ii}.

1035 numeri multiplicandi sicut hic: $^{8}_{2030}{}^{45060}$. Quo facto, quia non valet
ducere paenultimam in ultimam, cum ipsa paenultima sit 0, ideo
super caput eius pone 0 iuxta tertiam cautelam (*108*) sic $^{80\ 45060}_{2030}$.
Deinde ducas 3 in 4, et resultat numerus compositus, scilicet 12;
ponas igitur 2 supra 3, et articulum loco 0 versus sinistram, sic
1040 $^{81245060}_{2030}$. Deinde ducas primam numeri multiplicantis in ultimam
numeri multiplicandi, et quia illa prima est 0, deleas superiorem,
scilicet 4, et ponas ibi 0 iuxta primam cautelam (*106*), et stabunt
figurae sic $^{81205060}_{2030}$. Quo facto anteriorandae sunt figurae numeri
multiplicantis per locum unum, et stabunt post anteriorationem
1045 isto modo ordinatae $^{81205060}_{2030}$. Quo facto ducas iterum omnes figuras
numeri multiplicantis in illam figuram sub qua est prima numeri
multiplicantis, scilicet in 5, et quidquid excreverit addas ad figuras
suprapositas. Duc ergo ultimam numeri multiplicantis in illam sub
qua est prima numeri multiplicantis, scilicet 2 in 5, et provenit
1050 articulus, scilicet denarius; et quia figura significativa est supra duo,
non oportet ibi ponere 0, cum 0 non ponatur alicubi nisi ut locus
occupetur; ideo illum articulum addas ad 8 versus sinistram. Quo
facto, quia proxima figura numeri multiplicantis est 0, praetermit-
tatur intacta, sicut dixit cautela secunda (*107*); de residuis autem,
1055 scilicet de 3 et 0, numeri multiplicantis fac ut prius. Et stabunt
figurae istae hoc modo ordinatae et superius et inferius $^{91350060}_{2030}$. Hoc
facto iterum anteriorandae sunt figurae numeri multiplicantis per
unum locum; et quia figura proxima illi, sub qua est prima numeri
multiplicantis, est 0, non oportet sub eam anteriorare, et ideo anterio-
1060 randae sunt figurae numeri multiplicantis per duo loca, sicut dixit

Ap.c.   **1035** sicut hic: sic hic V; sic C   **1037** sic: isto (illo A) modo (sive
ordine *add.* ET) ESTA   **1039** supra: super SA; *om.* C   **1043** sic: sic ordi-
natae etc. S; hoc modo ordinatae VHB   **1045** isto modo ordinatae: ET; sic V;
sic etc. S; hoc modo B; *vacat* C; *om.* H; *def.* A   **1046** qua est: alia 2 C; *def.* V,
A   numeri₂: *om.* C; *def.* V, A   **1047** in: *om.* VC; *def.* A   **1048** numeri
multiplicantis: m.n. V; multiplicantem C; *def.* A   **1049** 2: 3 C; duo E; *om.* T; *def.*
A   **1050** denarius: E; 10 VS; x C   duo: VCE; 2 S

   1051 oportet ibi (*om.* ST) ponere: debet poni ibi V; *def.* A   0₁: VS; cifram E;
0ᵃᵐ C   **1052** addas: addat E; adde C; *def.* A   **1055** 0: 6 S; cifra EHB; *def.*
A   **1056** istae (et *add.* C) hoc modo ord.: illo m.o. E; o. isto m. S; isto ordine T;
def. A   et superius: s. CET; et inferius HB; *def.* A   hoc₂ (ho C): et hoc VET;
quo HBS; *def.* A   **1058** unum: novum C; unam differentiam vel V; *def.*

cautela quarta (*109*). Facta autem anterioratione stabunt figurae sic $\frac{91350060}{2030}$. Deinde ducas iterum omnes figuras numeri multiplicantis in 6, sub quo est prima numeri multiplicantis, et per omnia fac ut prius; et erunt figurae sic stantes post anteriorationem illam: $\frac{91471800}{2030}$. Hoc

1065 facto non oportet ulterius anteriorare, quia prima figura numeri multiplicandi est 0, sicut docuit cautela quinta et ultima (*110*). – Sed inter istos duos numeros, scilicet multiplicandum et multiplicantem, *posset relinqui spatium,* ut dixit notabile in fine capituli positum (*111*), *ut ibi poneretur illud quod provenit* ex ductu figurae in figuram: tunc enim

1070 non errabitur de facili, et ideo hoc notabile est de bene esse huius artis.

His expeditis resumas regulas prius dimissas, ibi **Quando vero articulus** (*88*). Et est regula prima inter has quinque quod *si digitus multiplicat articulum, ducendus est digitus ille in digitum articuli etc.* Verbi

1075 gratia, sit digitus 9 et articulus 60. Duc ergo 9 in 6, et proveniunt 54; et constat quod, ratione cifrae praecedentis senarium, quaelibet unitas in 4 valet 10 et quilibet denarius in 50 valet centum; novies enim 60 valent 540. – **Quando digitus** (*89*): secunda regula est haec: *Si digitus multiplicat numerum compositum, ducendus est digitus ille in*

1080 *utramque partem numeri compositi etc.* Verbi gratia, si multiplicare velis 99 per 9, tunc ducas primo digitum illum, 9 scilicet, in 9, qui est articulus numeri compositi, et proveniunt 81, et stabunt figurae sic *819.* Deinde ducas eundem digitum, scilicet 9, in digitum numeri compositi, et proveniunt etiam 81; addas igitur 8, scilicet articulum

1085 illum, ad unitatem quae erat digitus numeri qui primo provenit, et unitatem, quae est digitus iam proveniens, ponas loco 9; et stabunt

A   illi: illa CST; *def.* A   **1062** deinde ducas iterum: iterum ducas C; deinde ducat it. (*om.* T) ET; *alia* HB; *def.* A   **1064** stantes: ordinatae E; *alia* C; *def.* A   hoc facto: h. autem f. ST; et tunc f. A; quo f. CHB; quo(modo) V   **1065** prima figura (et H; *om.* B) numeri: f.p.n. E; p. CA   **1067** duos numeros: n.d. VHB; n. EA; duos mo(do)s C   m-dum et m-tem (-te H): m-tem et m-dum (-dos C) ECTA   **1072** quando: cum E; quomodo C   vero articulus: *omnes*; digitus *codd. algorismi,* Cu   **1075** proveniunt: -ient CA; -iet V   **1076** cifrae: VE; 0 CS   senarium: VE; 6 S; *om.* C   **1077** 4: 4ᵒʳ C; quaternario V   10: x ES   **1078** enim: *omnes*; ergo Cu   est haec: huius est (quod *add.* T) ESTA   **1081** ducas: duc(it) C; *def.* V   **1082** proveniunt: -ient HB; -iet V   **1083** scilicet: *om.* VCHB; *def.* T   digitum numeri: numerum digiti A; ut credo d.n. A(*mg.*); *def.* T   **1084** proveniunt: -ient VHSA; -iet B; *def.* T   **1085** unitatem quae: 1 quae CT; 1 qui HBSA   **1086** unitatem quae: unitas quae VCE; 1 quae ST; 1

figurae sic *891,* et totum illud patet per ea quae habita sunt in operatione. Sed nota quod, cum auctor dicit quod *digitus* ille debet *duci in utramque partem numeri compositi et producta* debent *coniungi,* hoc

1090 sic fiet, quia ultima figura numeri, qui provenit ex ductu digiti in digitum, debet addi ad primam figuram numeri, qui provenit ex ductu digiti in digitum articuli, sicut evidens est in exemplo. –

Quando articulus *(90):* tertia regula: verbi gratia, sint articuli 90 et 60. Duc ergo 9 in 6, figuris ordinatis sicut debent et dictum est

1095 supra, hoc modo $\overset{60}{90}$. Ex ductu igitur 9 in 6, vel e converso, proveniunt 54; ergo per ea, quae supra dicta sunt, 4 debent poni supra 9, et 5 sinistrari. Deinde debet deleri 6 et loco eius poni 0, sicut dictum est in cautela prima *(106),* et stabunt figurae sic $\overset{5400}{90}$. Constat igitur *(90) quamlibet unitatem valere centum et quemlibet denarium mille;*

1100 vides igitur totum istud correlarie sequi ex praedictis, quibus visis patent regulae sequentes *(91-2).*

Utrum autem bene operatus sis vel non, sic invenies: multiplices probam numeri multiplicantis in probam numeri multiplicandi; tunc, si proba numeri provenientis est aequalis probae primo producti,

1105 bene operatus es; sin autem, erratum est. Verbi gratia, numerus primo multiplicandus erat iste 45060, cuius proba est 6; numerus vero multiplicans erat iste 2030, cuius proba est 5; duc ergo 5 in 6, et provenient 30, cuius proba est 3. Videas igitur si proba numeri, qui provenit ex ductu numeri multiplicantis primo in numerum multipli-

1110 candum primo, sit etiam 3; et constat quod sic, quia erat iste

qui HBA   iam (secundo A) proveniens: iam provenientis C; ideo proventis ST; numeri provenientis *Cu*   ponas: *Cu;* addas *omnes*   **1087** illud: istud CHBS habita sunt: s.h. S; dicta sunt sive h. ET   **1088** ille: iste ST, E *(ins.)* **1089** producta: producto ES; pro·8· T   hoc: hoc *vel* hic EV; hic HB; *om.* C **1091** digitum: articuli *add. omnes*   **1091-2** debet--numeri--articuli: numeri--articuli *om.* C; *om.* TA; *om.* & *ins.* E   **1092** evidens est in: *Cu;* patet in CD; ev. est sine *cett.*   **1093** tertia regula: t.r. est ista (illa A) STA; r.t. est E; *alia* HB **1096** proveniunt: -ient EHB; *om.* V   debent: debet VHB   **1097** debet: debent EA, T?   **1098** *(tabula):* 5400 VCHB; $\overset{5400}{90}$ ES; *turbant* A, T   **1099** igitur: etiam STA; *om.* E   **1100** totum istud: t. illud ETA; aliud totum C   correlarie: CS; correlative HB; *varie cett.*

1104 probae: numeri *add.* CA   primo: primi VHB; primae ST; iam C **1105** bene operatus es (est C): b.e.o. C; e.b.o. V   sin autem: si autem ET; si non C   **1106** erat: erit V; est C   **1108** provenient: -iunt CST   **1110**

91471800; sic de illo. Unde illud est valde utile in aequationibus, cum oporteat aliquos numeros magnos in se ducere, quia, si probae concordent, non oportebit reiterationem facere, sicut est consuetum fieri cum aliquis diffidat sibi ipsi, timens se errasse. Et si dicas quod
1115 consequentia haec non tenet gratia formae, scilicet quod si probae concordent bene factum est, quia oppositum consequentis stat cum antecedente in casu ut si aliquis praecise, vel voluntarie vel oblivione, transeat 9 vel eum quocumque modo omittat, scilicet vel addendum non addit vel non addendum addit: tunc enim ad istud repellen-
1120 dum, ne etiam detur occasio posse errare, sumas probam per 9, sicut dictum est, et similiter per 8, et si in utraque concordaverit, non est possibile errasse.

Divisio est etc. (*112*): haec est species septima |huius artis, et dividitur ista pars in duas partes: primo enim auctor| definit
1125 divisionem, et secundo (*113*) de ea exsequitur, ibi *Notandum igitur.* Primo enim (*112*) vult dicere quod, si proponantur duo numeri, quorum unum oportet per alium dividere, tunc *divisio est distributio numeri maioris in tot partes, quot unitates sunt in minori.* Verbi gratia, si velis dividere 24 per 4, tunc in tot partes oportet dividere 24, quot
1130 unitates sunt in 4; et quia 4 unitates sunt in 4, ideo in qualibet parte de 24 erunt 6, quia 6 sunt 4 vicibus in 24. Et valet haec species quia.

sit etiam 3: sicut est (·3·T) 3 STA   iste: ille V; *om.* STA   **1111** sic de illo (isto CD): *om.* V; *exp.* A   **1112** aliquos: alios T; a(lio)s ECA   **1116** factum est: e.f. VSTA   oppositum: oppositio ESA   **1117** si: *om.* ESTA; *def.* V   **1118** eum: cum SA; causam T; *om.* E   omittat: omittit V; dimittat C   **1119** addit₁: addat ESA; *def.* T   addit₂: addat ESTA   istud: istum E; illud CTA   repellendum: refellendum D; replendum TA   **1120** sumas: -as *vel* -at C; -at ST   **1121** concordaverit: -rint HB   errasse: ⟨te⟩ e. *Cu*   **1123-4** huius--auctor: in qua auctor duo facit (a.f.d. C; f.a.d. HBD) primo enim VCHBD   **1123** et: *om.* T; *alia* VCHB   **1124** ista--auctor: in d(uas) primo A; *alia* VCHB   ista: illa T; *alia* VCHB, A   partes: *om.* S; *alia* VCHB, A   auctor: *om.* T; *alia* VCHB, A   **1125** ibi: secunda ibi ST; cum dicit VHB   **1126** enim: ergo C; igitur VHB; *alia* T   proponantur: p()pon- V; pon- C; praepon- S; proportionantur E; ponerentur A; *alia* T   **1127** oportet: oporteat VH; debeat C; *alia* T   alium: alterum VCA; *alia* T   dividere: dividi C; *alia* T   **1128** numeri: *om.* VCHB   **1129** oportet: oportebit VHB; *def.* C   24: [[duo]] 4 E; 4 Aa.c.; *def.* C   **1131**

si rex aliquis deputet 9876 libras Parisiensium 543 militibus ituris in expeditionem, ita quod haec summa aequaliter inter eos dividatur, quantum cuilibet de tanta summa contingat, scitur per speciem istam
1135 quae est divisio.

    Notandum igitur (*113*): exsequitur de divisione, et facit quattuor: primo enim praemittit, quot numeri sunt necessarii in divisione, secundo (*117*) exsequitur de modo operandi, et tertio (*122*) subdit finem et utilitatem huius speciei, et quarto (*123*) docet examinare si
1140 erratum est vel non; secunda (*117*) ibi *His itaque,* tertia (*122*) ibi *Si velis scire,* quarta (*123*) ibi *Cum itaque.* Circa primum (*113*) tria facit: primo enim proponit, quot numeri sunt hic necessarii, et secundo (*114*) condiciones eorum subiungit, et tertio (*115*) de ordine et situatione eorum determinat; secunda (*114*) ibi *Numerus autem,* tertia (*115*) ibi *Si*
1145 *velis igitur.* – Quantum ad primam partem (*113*) supponatur de dictis numeris, quid sit eorum officium, usque exemplificetur. – Circa secundam partem (*114*) est sciendum, sicut dicit auctor, quod *numerus dividendus semper debet esse maior numero divisore, vel saltem aequalis ei, si divisio debet fieri per integra:* hoc autem dicit quia, si 4 debeant dividi
1150 inter 8, tunc cuilibet de illis 8 continget unum dimidium de illis 4; si etiam tot sunt unitates in numero divisore, quot sunt in dividendo, planum est quod cuilibet contingit unum de illis tantum. – **Si velis igitur** (*115*): hic determinat de ordine et situatione numerorum, scilicet dividendi et divisoris, et facit duo: primo enim facit hoc, et
1155 secundo (*116*) subdit quosdam casus situationem hanc impedientes,

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de 24: 24 T; 20 S; id est 4 A; *def.* C   **1132** Parisiensium (-ien() AC; -iencium S): VCSA; p(ar)ien. E; *varie cett.*   **1134** contingat: -get HBA; -geret S; *alia* C   scitur: scietur HB; *om.* V; *alia* C   **1137** quot: quod ES, Aa.c.   sunt: sint T; sit V; sunt hic CHB   in divisione: *om.* VCHB   **1139** et₂: *om.* CEA **1140** est: sit VA; *om.* C   secunda ibi: s. pars incipit ibi ST; et incipit s. pars ibi VHB   **1141** circa primum: adhuc primo E; adhuc c.p. ST   **1142** sunt hic: h.s. S; sunt E; sint hic VT; sint A   et secundo: sec. CETA   **1143** et tertio: t. CETA   **1144** autem: dividendus *add.* VHB; d(icitu)r *add.* C   **1146** usque: quouseus V; usque quo D; usque quod HB; donec T   **1147** est sciendum: s.e. SHB; s. VC   **1148** numero: *om.* V; *def.* C   **1149** debet: debeat VHB debeant: debent ESTA   **1150** continget: -git CHBT
    1151 sunt unitates: u. sint A; sunt VHB; sicut (!) C   **1152** contingit: -get HBSA   de illis: *om.* VCHB   **1153** hic: *om.* ESTA   **1154** et₃: *om.* CETA **1155** situationem hanc: h.s. C; situs (situm A) huiusmodi (huius STA) ESTA

cum dicit *Sunt enim duae causae.* – Exemplum ad primam partem
(115): sit numerus, quem velis dividere, iste 9876, et numerus, per
quem velis istum dividere, sit iste 543. Ponas igitur ultimam sub
ultima |et paenultimam sub paenultima| etc., hoc modo $\frac{9876}{543}$. Et dicit
1160 auctor quod locanda est *ultima sub ultima,* sicut hic factum est, *si hoc
competenter fieri potest*; et quia hoc non semper est possibile, ideo
consequenter *(116)* subdit auctor casus, in quibus impedimentum
accidit ne hoc fieri possit, cum dicit **Sunt enim duae causae.** Dicit
igitur quod *duae sunt causae,* scilicet *quare ultima* numeri divisoris *sub*
1165 *ultima numeri dividendi locari non potest*: una causa est, si ultima divisoris
est maior quam ultima dividendi, verbi gratia, si velis dividere 654
per 99; alia causa est, *si ultima* numeri divisoris *possit aliquotiens subtrahi*
ab ultima numeri dividendi, *sed aliae* numeri divisoris *non possunt
totiens subtrahi a sibi suprapositis,* verbi gratia, si velis dividere 654 per 69
1170 vel etiam 6254 per 629.

His itaque *(117)*: exsequitur de modo operandi, et facit duo:
primo enim praemittit quoddam praeambulum in tota hac specie
observandum, et secundo *(118)* iuxta illud praeambulum operatur,
cum dicit *Viso igitur.* In prima parte *(117)* intendit dicere quod
1175 dispositis figuris *incipiendum est operari ab ultima figura numeri divisoris, et
videndum est, quotiens illa subtrahi poterit a figura sibi supraposita, ut et totiens
subtrahantur reliquae* figurae numeri divisoris *a sibi suprapositis et a
residuo, si quid fuerit residuum* versus sinistram; et subdit quod *non con-
tingit pluries subtrahere quam novies nec minus quam semel.* – Hic sciendum

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1157 iste: *om.* VSA; *ante* quem *habet* E   numerus₂: *om.* C; *def.* T   per quem
velis istum (istam H, ipsum V) dividere: dividens C; divisor A; divisor sive
(numerus *add.* E *(ins.)*) p.q.v.i.d. ES; *def.* T   **1159** et paenultimam sub paenultima
(qua *add.* A *(ins.)*): et paenultima T; *om.* VCHB   etc.: *om.* CS   **1161** hoc non
(nec A) semper est: h.s.n.e. ET; n.s.e.h. V; *def.* C   **1163** cum dicit: ibi A; et ideo
d. VCHB   dicit igitur (autem S; ergo T): et ideo dicit auctor V; unde dicit auctor
HB; *def.* C, A   **1164** scilicet: *om.* CET; *def.* A   numeri: aliquando ST; *om.*
CHB; *def.* A   divisoris: non erit *add.* EST; *def.* A   **1165** locari (collocari HB)
non potest: non possit locari C; *om.* ES; *alia* T; *def.* A   **1166** dividendi (divisoris
V): numeri d. ES; *alia* T; *def.* A   **1167** 99: tunc 9 de (per Ap.c.) 6 dividere (dividi
T) non potes (possunt T) *add.* ETA; tunc 9 de 6 non potest dividere *add.* S; et maior
de minori su(m)i non potest *ins.* H   alia causa: secunda c. C; altera VHB
1168 possunt: possint V; possent CA   **1173** et: *om.* CETA   **1177** subtra-
hantur: VCHBD; subtrahi possint (-sent E) EST; *def.* A   **1178** quid: aliquid CT;
def. A   fuerit residuum: r.f. T; f. VCHB; *def.* A   **1179** subtrahere: subtrahi

1180 est quod, quidquid est directe supra aliquam figuram et ab eadem in
superiori versus sinistram, dicitur esse supra inferiorem, et a toto
debet fieri subtractio; quod autem est versus sinistram, vocat auctor
residuum. Item nota, quare non contingit pluries subtrahere quam
novies nec minus quam semel: causa huius est quia, quotiens fit sub-
1185 tractio, hoc significabit figura in numero quotiens, sicut statim
dicetur; et nulla est figura quae plus significet quam 9, et nulla quae
minus quam unitatem, ideo et cetera.

Viso igitur (118): docet iuxta hoc praeambulum operari; et est
intellegendum quod, quia, quotiens poterit ultima subtrahi de
1190 ultima, totiens et quaelibet alia de sibi supraposita, ponenda est
quaedam figura supra numerum dividendum significans quotiens
inferiores de superioribus subtrahi possint; et ideo figura illa et
omnes illius tertii ordinis quotiens vocantur. Facit igitur auctor duo:
primo enim (118) docet invenire quotiens primum et iuxta ipsum
1195 operari, et secundo (119) alia et iuxta ea operari, cum dicit Hoc autem
facto. – Dicit igitur primo (118): cum tu videris, quotiens figurae inferioris
ordinis possint subtrahi a superioribus, scribatur numerus seu figura denotans,
quotiens illa subtractio est possibilis; scribatur, inquam, directe supra illam
figuram, sub qua est prima figura numeri divisoris seu ordinis inferioris; et
1200 per illam figuram subtrahendae sunt omnes figurae inferioris ordinis a suis
superioribus. Verbi gratia, esto quod numerus dividendus sit iste qui
supra 9876, et numerus, per quem velis eum dividere, sit ille ut supra
543. Situentur igitur hoc modo $\overset{9876}{543}$. Videas igitur, quotiens poteris 5

EST; *def.* A   **1180** directe (-ctum C): ducere E   in: T; *om. cett.*   **1181**
supra: fi(gura) C; *def.* V   **1182** autem: *om.* C; *def.* V   **1183** item: D; *latet* E;
ideo *cett.*   **1185** in numero: numeri denotans D; *om.* V; *def.* C   **1186** et
nulla quae (*om.* E): nec VHB; *def.* C   **1187** ụnitatem: unum ES; unitas A; 1 T;
semel sive uno D   ideo: ergo T; *om.* ES; *def.* AD   **1188** igitur: quotiens *add.*
VSD   **1189** quod (quoque A) quia: quod HBD; quia T; *om.* C   **1190** ulti-
ma: quod *add.* B, H (*ins.*)   alia: poterit *ins.* H   supraposita: poterit (*om.* H,
v.s.) et ideo ad hoc denotandum *add.* B, H (*ins.*)   **1192** possint et: possunt
VHBT; possunt et D   **1193** illius: illae E; a(lii?) T; *om.* CA   facit igitur
auctor duo: d.i.a.f. ESTA   **1196** igitur: ergo CT; *om.* VHBS; *def.* A   **1197**
possint: possit C; possunt VD; *def.* A   a: de suis D   **1198** possibilis: quo-
tiens *add.* S; c(um) *add.* V; alia T; *def.* A
    1201 iste: ille VSTA   qui (a S; *om.* T) supra: qui est supra C; qui supra fuerit
HB; *om.* A   **1202** ille: iste HBST; *alia* C   ut supra: ut infra ST; scilicet E; *om.*
A; *alia* C   **1203** igitur (ergo S; *om.* A) hoc (isto ST; illo A) modo: igitur numeri

de 9 subtrahere, et constat quod semel, et alias similiter de suis
1205 superioribus. In signum igitur huius quod semel hoc poteris, ponas
unitatem supra 7, quia sub ea est prima figura divisoris, et stabunt
figurae isto modo $\overset{\text{\tiny 1}}{\underset{543}{9876}}$. Quo facto per unitatem illam subtrahas
omnes figuras inferioris ordinis a superioribus, ducendo eam in
quamlibet inferioris ordinis per modum multiplicationis, sic dicendo:
1210 semel 5 sunt 5, quae tollas de 9, et remanent 4; iterum semel 4 sunt
4, quae tollas de 8, et remanent 4; iterum semel 3 sunt 3, quae demas
de 7, et remanent 4. Et stabunt figurae sic post subtractionem $\overset{\text{\tiny 1}}{\underset{543}{4446}}$.

Hoc autem facto (*119*): docet invenire quotiens alia a primo, et
facit duo: primo enim innuit eodem modo esse faciendum post
1215 anteriorationem figurarum primam, et secundo (*121*) docet, quamdiu
invenienda sunt quotiens et quamdiu sit anteriorandum, cum dicit
Nec cessandum. Primo (*119*) adhuc duo facit: primo enim facit quod
dictum est, secundo (*120*) dat quandam cautelam hic observandam,
ibi *Si autem contingat.* – Dicit primo (*119*) quod *hoc facto,* id est invento
1220 quotiens primo et facta per ipsum subtractione omnium figurarum
inferiorum de superioribus, *anteriorandae sunt figurae numeri divisoris per
unam differentiam, et negotiandum est ut prius.* Verbi gratia, invento primo
• quotiens et facta per ipsum subtractione omnium figurarum inferio-
rum a superioribus, stabunt figurae sic $\overset{\text{\tiny 1}}{\underset{543}{4446}}$. Anteriores igitur inferio-

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sic C; igitur ut prius sic (sicut positi sunt V) VHB   **1204** subtrahere: ut aliae
totiens etiam possint a suis superioribus subtrahi *add.* SA; *def.* T   **1204-5** et
alias--superioribus: *om.* S; *def.* A, T   **1204** et alias: alias E; et aliae V; *def.* STA
1205 superioribus: inferioribus C; *def.* STA   **1207** isto modo: illo modo V; sic
CA; *def.* T   **1208** figuras: alias TA; alias f. S; f. illas B   **1212** remanent₂:
-ebunt C; *def.* V, A   sic post subtractionem: post talem (*om.* T) subtractionem
isto modo ST; sic ad ultimum A; sic C   **1213** autem: *om.* CETA   quotiens:
quo cu(m) V; *om.* E; *alia* HB   alia: aliud C   primo: prima STA; p() V; *alia*
HB   **1214** eodem modo: EVD; idem CHBSA; hoc T   faciendum: omnino
add. SA   **1215** primam: primarum C; a prima STA; «sicut factum est ad» pri-
mam H; sicut factum est ad primam B   et secundo: s. ECA   **1216** inve-
nienda sunt: inv-dus est numerus C; sit utendum STA   **1217** primo adhuc
--enim: a.p. (d(uo) *add.* T) ST; adhuc prima in d(uas) primo A; adhuc duo facit
primo enim V; a.p. ⟨facit duo, quia primo⟩ Cu   **1219** contingat: contingit ES;
contin() A; conveniunt T   **1224** stabunt: E; et stabunt *cett.*   anteriores: -ora

1225 res, et stabunt post anteriorationem hoc modo $\begin{smallmatrix}1\\4446\\543\end{smallmatrix}$. Vide igitur,

quotiens possit 5 subtrahi de 44, et invenies quod octies; ponatur

igitur 8 supra 6, quia sub illa est prima figura divisoris, et stabunt

figurae sic postea $\begin{smallmatrix}18\\4446\\543\end{smallmatrix}$. Deinde per illum 8 subtrahas omnes inferiores

de superioribus, sic: octies 5 sunt 40, quae tollas de 44|, et remanent

1230 4|; item octies 4 sunt 32, quae tollas de 44 |, et remanent 12, et

stabunt sic $\begin{smallmatrix}18\\126\\543\end{smallmatrix}$ |; item octies 3 sunt 24, quae tollas de 126, et stabunt

figurae sic $\begin{smallmatrix}18\\102\\543\end{smallmatrix}$.

Si autem contingat (*120*): dat quandam cautelam hic observan-

dam; et est talis quod, *facta anterioratione, si aliquando ultima figura* vel

1235 alia *non possit subtrahi aliquotiens a superioribus, tunc supra illam, sub qua est*

prima divisoris, ponenda est 0 in ordine numeri denotantis quotiens, et tunc

anteriorandae sunt figurae ut prius; et hoc est verum, si nondum

perventum sit ad primam numeri dividendi; istud igitur semper

faciendum est. – Verbi gratia, esto quod velis dividere hunc nume-

1240 rum 78876 per 38. Situetur igitur hoc modo $\begin{smallmatrix}78876\\38\end{smallmatrix}$. Et quia bis poteris

subtrahere 3 de 7 et similiter bis 8 de sibi suprapraposita, ideo nume-

rum quotiens, scilicet 2, ponas supra 8, sub quo est prima figura

numeri divisoris; et stabunt figurae sic $\begin{smallmatrix}2\\78876\\38\end{smallmatrix}$. Per 2 igitur subtrahas

inferiores a superioribus, sicut dictum est, et facta subtractione

1245 stabunt figurae sic $\begin{smallmatrix}2\\2876\\38\end{smallmatrix}$. Quo facto anteriorentur figurae inferiores per

unam differentiam, et stabunt sic $\begin{smallmatrix}2\\2876\\38\end{smallmatrix}$. Quia igitur nullotiens poteris 3

VA; *def.* C   **1225** et: sic *add.* E; *def.* C   **1226** possit (post sit E; possint T) 5
subtrahi: p.s. 5 V; 5 p.s. CS; 5 *ante* quotiens *supra habet* T; possis subtrahere 5 A
ponatur: ponantur CHBS   **1227** prima figura: f.p. numeri V; p.f. numeri C; p.
«f.» E; p. STA   **1228** figurae: *om.* CEA   sic postea (positae T): p.s. SA; sic
CHB   illum: illa S   **1229-30** et remanent (-ebunt C) 4: CSTA; *om.* D, *cett.*
1230-1 et remanent--sic □: et [[remanebunt]] remanent 12 et stabunt sic □ C;
et remanebunt 3ª et stabunt figurae sic $\begin{smallmatrix}156\\543\end{smallmatrix}$ T; *def.* H, A; *om.* D, *cett.*   **1234** vel
alia: divisoris T; cum aliis D; *om.* V   **1238** istud: id A; illud CHBST   igitur
(*om.* C): ig. ⟨eo usque⟩ Cu   **1241** similiter: *om.* CST; *def.* Aa.c.   bis: bene E;
om. V   de (8 *add.* E; (.)d T; *om.* S) sibi supra-(super- T)posita: d.s. suprapositis
HB; d.s. supposito C; de 8 supraposito Aa.c.; de 8 et residuo Ap.c.   **1242** quo:
qua CBET   figura numeri: n. CSTA   **1245-6** quo facto--sic □: *om.* ET
1246 unam: unicam C; 1 V; *def.* ET   nullotiens: multotiens ET, *add.* C

de 2 subtrahere, signum huius, scilicet 0, ponas supra 8, sub quo est

prima, et stabunt sic $\overset{\overset{20}{2876}}{38}{}^{6}$. Deinde adhuc anteriorentur figurae ut

prius, et stabunt figurae hoc modo: $\overset{\overset{20}{2876}}{38}$. Deinde videas, quotiens

1250 poteris inferiores subtrahere de sibi suprapositis, et invenies quod
septies; ponas igitur 7 supra 7, sub quo est prima divisoris, et stabunt

figurae sic $\overset{\overset{207}{2876}}{38}{}^{6}$. Per hunc igitur 7 subtrahas omnes inferiores ut prius,

et stabunt figurae sic $\overset{\overset{207}{}}{38}{}^{6}$. Quo facto anteriorandae sunt figurae

numeri divisoris, et stabunt figurae sic $\overset{\overset{207}{216}}{38}$. Deinde videas, quotiens

1255 poteris subtrahere figuras inferiores a sibi suprapositis, et invenies
quod quinquies; ponas igitur 5 supra 6, sub quo est prima inferioris

ordinis, et stabunt figurae sic $\overset{\overset{2075}{216}}{38}$. Deinde per illum 5 subtrahas

figuras numeri divisoris ut prius, et facta subtractione remanebunt 26
de numero primo proposito, quod est minus divisore.

1260 **Nec cessandum est** (*121*): docet, quamdiu sit anteriorandum et
invenienda sint quotiens; et dicit quod *a tali anterioratione* figurarum
numeri divisoris *non est cessandum, nec cessandum est ponere numerum
quotiens* supra numerum dividendum, *nec* cessandum est *ducere nume-
rum quotiens in divisorem et productum* a dividendo *subtrahere,* immo

1265 omnia ista facienda sunt, *donec prima* figura cum omnibus aliis numeri
*divisoris fuerint subtractae a prima figura numeri dividendi. Quo facto aut
aliquid erit residuum aut nihil; si aliquid,* sicut in exemplo modo secundo,

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1246-7 3,2: tria, duobus (2^bus C) CS; ternarium, binario HB   **1247** signum: in
signum (igitur *add.* ST) CEST   scilicet 0 (cifram EHB) ponas: p. 0 C; sc. 0 p. 0 V
sub quo est prima: sub qua e.p. figura E; sub quo (quibus T) stat prima inferioris
ST   **1248** stabunt: figurae *add.* E; *alia* ST   **1248** adhuc: *om.* V; *alia* ST
anteriorentur (-rarentur H; -rizentur B) figurae: sunt f. anteriorandae E; *alia* ST
ut prius: prius C; *om.* V; *alia* ST   **1249** figurae hoc modo: h.m.f. V; h.m. HB; f.
sic C; *alia* ST
    1251 quo: qua ETD   **1255** poteris: possis E; potest V*a.c.*; potes V*p.c.*   a:
omnes   **1256** quo: qua ET   **1257** illum: illa S; illam T   **1260** sit
anteriorandum: a.s. S; a. B; sit sic operandum (scilicet a. *add.* D) ED   **1261** sint:
sunt C; sit HB; sit figura ST   **1262** nec cessandum est: n.e.c. ST; *om.* C   po-
nere (pone C; ducere HB, V*p.c.*) numerum quotiens: n.q.p. E; p.q.n. ST   **1266**
fuerint: fuerit *vel* fiunt VHBT; fuerunt C   subtractae: -ta HBET   **1267** *cf. l.*
1258-9   modo (meo HB) secundo (3º V): s.m. E; s. patet S; s. et C; s. T

reservetur exterius in tabula, et erit semper minus divisore, si bene fueris operatus.

1270   **Si velis scire** (*122*): assignat finem et utilitatem huius speciei, dicens quod *si velis scire, quantum de toto numero proposito eveniat cuilibet de numero divisore, numerus quotiens illud ostendit.* – Verbi gratia, de numero primo proposito, scilicet de 9876, evenerunt 18 cuilibet de 543, et remanserunt 102, quae inter 543 non possunt dividi nisi

1275   frangantur; ut si essent tot librae, frangerentur in solidos multiplicando 102 per 20, quae sunt numerus solidorum in una libra; et tunc post multiplicationem exirent 2040, quae iterum dividendo per eundem numerum divisorem, scilicet per 543, haberes 3 solidos; et remanent tunc adhuc 411 solidi, quos si adhuc inter eosdem velis

1280   dividere, resolvas eos in 12, quia tot sunt denarii in quolibet solido; et erunt 4932 denarii, quos sicut prius per 543 dividas, et exibunt 9 denarii; sed remanent adhuc 45 denarii, de quibus quilibet de divisore non habebit dimidiam pictam. Sic igitur de tota summa proposita quilibet de numero divisore habuit 18 libras et 3 solidos

1285   cum 9 denariis.

    Cum itaque facta fuerit (*123*): dat modum examinandi operationem suam in his duabus speciebus, et primo in divisione, secundo (*124*) in multiplicatione, cum dicit *et e converso.* – Et quia utraque pars est plana in littera, ponantur exempla, et primo de divisione: quia,

1290   facta divisione de 9876 per 543, exibunt in numero quotiens 18, remanentibus 102; multiplices igitur 18 per 543, et exibunt 9774, quibus si addideris 102, quae prius remanserunt, redibunt primae figurae, scilicet 9876. – Exemplum de multiplicatione sit istud: numerus multiplicandus erat iste 45060, numerus multiplicans iste

1295   2030, ex quorum unius ductu in alterum proveniunt 91471800;

1270 velis: igitur *add.* ES   **1272** illud: id E; istud V   ostendit: -det HST; om(ne)s e(ri)t C   **1273** de 9876: 9876 CST   evenerunt: eve⟨n⟩⟨er⟩it E; eveniunt CHB; *om.* V   **1274** remanserunt: remanent C   **1275** si essent: si erunt E; scies sec() V   frangerentur: -gentur CE   **1278** scilicet per: scilicet E; semper C; *om.* ST   haberes: habes V; habentes CE   **1279** remanent: remanet V; remanerent STD   **1280** quia tot: et tot V; quot C; quia quot HBS   **1282** remanent: remanet V; *def.* S   quilibet: cuilibet E; *om.* CS   **1286** fuerit: *om.* EST   **1288** et e converso: e conv. CS   **1290** exibunt: -bant V   **1292** remanserunt: -rant V   **1294** iste₂: ille ES   **1295** unius ductu: d.u. E;

dividas igitur hunc per numerum multiplicantem, scilicet per 2030, et exibunt in numero quotiens 45060, quae figurae prius erant in numero multiplicando.

Operatio autem in divisione etiam sine multiplicatione divisoris per
1300 quotiens probari poterit, sicut e converso factum est in fine capituli de multiplicatione: quia sumatur proba numeri dividendi, divisoris et numeri quotiens, et duc probam divisoris in probam numeri quotiens; et provenientis sume probam, quae si aequalis fuerit probae numeri dividendi, bene actum est. Verbi gratia, numerus primo pro-
1305 positus dividendus sit iste 56088, cuius proba est 0; sit divisor iste 123, cuius proba est 6; facta igitur divisione erit numerus quotiens iste 456, cuius proba est etiam 6; duc ergo probam numeri divisoris in probam numeri quotiens, et provenient 36, quorum proba est 0, sicut etiam est proba numeri dividendi. – Verumtamen, facta divi-
1310 sione si aliquid fuerit residuum, aliquid aliud est faciendum: quia videas probam illius residui, et eam tollas de proba totius numeri propositi primo ⟨dividendi⟩, si poteris; si non, tunc probae numeri totalis addas 9 et postea subtrahas probam residui; et tunc duc probam numeri divisoris in probam numeri quotiens, et provenientis
1315 probam sume, quae si fuerit aequalis probae numeri primae, bene fecisti. Verbi gratia, numerus propositus primo dividendus erat iste 9876, cuius proba est 3; numerus autem divisor erat iste 543, cuius proba etiam est 3; numerus vero quotiens erat iste 18, cuius proba est

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d. C   alterum: alium VC   **1296** hunc per: per (*in mg.*) hunc E; hunc pro C
1299 etiam sine mult-e: et sine m. C; et m. A; per mult-em E   **1300** econ-
verso: etiam ec. C; ec. etiam (et A) STAD   **1300-1** *cf. l.* 1102 *sqq.*
    1303 provenientis: p(rae)ventis S; quae provenerint C; numeri *add.* T   aequa-
lis: -ales E; -a(n)s C   **1305** iste$_1$: ille VEA   iste$_2$: ille ET, A (*ins.*)   **1306**
proba est 6: e.p. 6 C; p. 6 V   **1306-7** facta--etiam 6 *om.* & *ins.* E(=E$_2$); *gem.* S
1307 iste: ille E$_2$VA   numeri div.: div. CHBSA   **1309** etiam est: est et. C;
est ST; et. A   **1310** aliquid (*del.* H) aliud: tunc aliud V; aliud B; ad (et A*a.c.*)
quid STA; sic A*p.c.*; aliud quid *Cu*   **1311** illius res.: istius r. VE; i. numeri r. C;
i. numeri T   **1312** propositi--probae numeri *om.* A *et ins.* numeri dividendi
primo propositi   ⟨dividendi⟩: *Cu*   tunc: *om.* CE; *def.* A   **1315** primae:
primi V; p. figurae C; *om.* A   **1316** propositus primo dividendus (-ndi E*a.c.*):
pri. pro. div. E; div. pri. pro. C; pro. div. T   **1317** est 3: erat 3 CT; *n.l.*
V   3: tria C; *n.l.* V   numerus autem: n(un)c a. E; n. vero C; *n.l.* V   iste
543: ille 543 EA; *n.l.* V   **1318** etiam est: est etiam HBTA; etiam erat C; *n.l.*

0; facta autem divisione remanserunt 102, cuius proba est etiam 3;
1320 subtrahas igitur probam numeri residui de proba numeri primo
proposti dividendi, et remanet 0; duc autem probam numeri
divisoris in probam numeri quotiens, et provenient 9, quorum proba
est 0; bene igitur es operatus.

Progressio est etc. *(125)*: haec est octava species, quae est insuffi-
1325 ciens, quia se non ad omnem numerum extendit et undecumque
inceptum; ideo loco huius capituli istud, si placet, pro textu habeatur:
    (1) Progressio est numerorum secundum aequales excessus augmentatorum
aggregatio, ut universorum summa compendiose habeatur. (2*) Unde, si ex
aggregatione numeri ultimi cum primo resultat numerus par, per eius medieta-
1330 tem multiplicetur numerus locorum; (3*) si vero impar, per eum multiplicetur
medietas numeri locorum, et exibit summa quaesiti.*
    In hoc brevi capitulo duo fiunt: primo enim *(1*)* describitur
progressio, secundo *(2*)* de ea dantur duae regulae, per quas haec
tota species regulatur; secunda ibi *Unde si ex aggregatione.* – Dicit primo
1335 *(1*)* quod *progressio est aggregatio numerorum augmentatorum secundum
aequales excessus, ut summa universorum* aggregatorum *compendiose,* id est
breviter, *habeatur.* Verbi gratia, si proponatur 1,2,3,4,5,6, quantum est
in toto? vel sic 1,3,5,7,9; vel sic 1,4,7,10,13; vel sic 3,4,5,6,7,8,9? in
omnibus, in quibus sic uniformiter itur, ita quod in quanto secundus
1340 excedit primum, de tanto tertius secundum et quartus tertium, et ita
deinceps, in omnibus talibus valet haec species. Incipias igitur ubi

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V   iste 18: ille 18 EA; 18 C; *n.l.* V   **1320** numeri primo pro-(*om.* V)positi
dividendi: primi pro. d. E; n.d. pri. pro. C; n. pro. d. A   **1323** igitur: ergo E;
om. CST; *def.* A   es (fuisti HB) -operatus: o.e. EST; *def.* A   **1324** haec est:
haec VCHB   species quae est: sp. quia est VHB; sp. est C; et E   **1325** se
non ad omnem (omnium H) numerum (*om.* B) ext.: non e.s.a.o.nu. C; non a.o.nu.
s.e. V; s.a.o.nu. (*om.* A) non e. STA   et: *om.* VC   **1327** excessus: progressus
T; *om.* EC   **1328** compendiose: -osus C; -osa HBST   **1329** numerus par:
p.n. ED; n. «par» S; n. T   **1332** brevi: ergo TA; octavo S   fiunt: facit VD;
f(acit) E; tanguntur C   describitur progressio: describit progressionem ED
1333 dantur duae regulae: dat duas r-as E   **1334** secunda: *om.* CBE   dicit:
dico S   **1337** proponatur: praeponatur SA; ponatur VB; ponantur sic C;
«pro»ponantur E   123456: iste (ille A) numerus (n.i. T) scilicet (*om.* A) 123456
STA   **1339** sic uniformiter: si u. V; u.s. E; s. STA   in$_2$: est Aa.c.   **1340**

volueris, et sistas ubi volueris, saltes quantum volueris; dummodo
uniformiter iveris in dictis numeris, semper valebit id quod dicetur.

Unde si ex aggregatione (*2**): hic dantur duae regulae hanc
1345 speciem rectificantes, et secundum hoc haec pars dividitur in duas,
quoniam penes numerum locorum et penes numerum aggregatum
ex primo numero et ultimo progressionis rectificatur haec species.
Numerus igitur aggregatus ex numero primo et ultimo aut est par aut
impar; iuxta hanc divisionem bimembrem duae sumuntur regulae.
1350 Prima est: *si ex primo numero cum ultimo resultat numerus par, tunc per eius*
medietatem multiplices numerum locorum. – Verbi gratia, in progressione
naturali, sic 1,2,3,4,5,6,7, iunge primum, scilicet 1, cum ultimo,
scilicet 7, et provenient 8, per quorum medietatem, scilicet per 4,
multiplices 7 loca positionum, et provenient 28. – Vel sic in progres-
1355 sione naturali 7,8,9,10,11,12,13,14,15: hic sunt 9 loca positionum, et
ex aggregatione primi numeri ad ultimum proveniunt 22; ergo per
medietatem de 22, scilicet per 11, multiplices loca positionum, scilicet
9, et proveniet summa totius progressionis, scilicet 99. – Exemplum
autem in progressione intercisa sit istud: primo 1,3,5,7,9,11: hic sunt
1360 6 loca positionum, et ex primo cum ultimo resultant 12; per horum
ergo medietatem, scilicet per 6, multiplices 6 loca positionum, et
provenient 36, quod est summa progressionis. – Secundo istud etiam
de intercisa 9,12,15,18,21,24,27: sunt igitur loca positionum 7, et ex
primo cum ultimo resultant 36, quod est numerus par; per medieta-

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de: et de C; in HBA   ita deinceps: sic d. STA; d. E; *om.* C   **1343** iveris: ieris
VHB; iveris vel ieris ST; numerus CEA; te habeas D   **1344** dantur: *omnes*
1348-50 aut est--cum ultimo: *om.* & *ins.* E(=E$_2$)   **1349** sumuntur: sum(entur)
VH; sum(itur) A; *n.l.* E$_2$ **1350** est: quod *add.* C; *n.l.* E$_2$ resultat numerus
par: resultet p.n. ESA; r.n. V

1352 naturali: numeri E; *om.* C   sic: si C; sint (sit T) ista ST; sunt illae figurae
A   scilicet 1 (unum HB; unitatem S): *om.* CE; *alia* T   **1353** 7: 1 cum 7 C,
Ea.c.; t(ame)n 7 Ep.c.; cum 7 HB   **1354** loca: loco CEA; *def.* T   provenient:
-iet V; -iunt SA   sic: etiam *add.* CE   **1355** 9$_2$: VE; novem CS   **1356**
proveniunt: -ient VS   **1357** de 22 (22^{bus} HB): 22 V; illius C   per 11: 11 VC
1359 primo: *om.* VEA   **1360** resultant: -tat VC; *def.* T   **1361** per 6: 6 CSA;
om. T   **1362** provenient: SD; proveniet VHBE; proveniunt CTA   quod est:
om. D   istud etiam (e.i. E) de intercisa: VED; etiam illud de intercisa progres-
sione ST; istud (illud H; in su(mm)a A) exemplum de intercisa progressione (*om.* H)
(p.i. B) HBA; ista intercisio C   **1364** resultant (-tat T): *om.* V; *def.* D   quod
est: *def.* D   medietatem igitur eius: m.e.i. E; e. ergo m. HB; m.e. CSTA

1365   tem igitur eius, scilicet per 18, multiplicentur loca positionum, scilicet
7, et provenient 126, summa totius progressionis.

Regula secunda (*3**) est quod, *si ex primo numero et ultimo resultat
numerus impar,* semper *per illum multiplices medietatem numeri locorum* sive
positionum, *et exibit summa* in qualibet progressione. - Verbi gratia, in
1370   progressione naturali sit hoc exemplum: primo 1,2,3,4,5,6,7,8: hic
sunt loca positionum 8, et numerus aggregatus ex primo et ultimo est
9; duc ergo 9 in medietatem de 8, scilicet in 4, et provenient 36,
summa progressionis. - Vel sic 8,9,10,11,12,13,14,15,16,17: hic sunt
10 loca positionum, et aggregatum ex primo numero et ultimo est 25;
1375   duc ergo medietatem numeri locorum, scilicet 5, in 25, et provenient
125. - Aliud exemplum in progressione intercisa esse potest istud
1,4,7,10,13,16: hic sunt 6 loca positionum, et numerus aggregatus ex
primo et ultimo facit 17; hunc ergo multiplices per medietatem
locorum, scilicet per 3, et erunt 51. - Vel sic 3,8,13,18,23,28: hic sunt
1380   6 loca positionum, et ex primo numero et ultimo resultant 31; hunc
ergo numerum per medietatem locorum, scilicet per 3, multiplices, et
provenient 93, summa totius progressionis.

Unde debes hoc indubitanter scire quod vel numerus locorum erit
par, vel numerus aggregatus ex primo et ultimo erit par, vel uterque.

1385   **Sequitur de radicum extractione** (*131*): haec est species nona et
ultima huius operis, in qua facit auctor duo: primo enim praemittit
quoddam praeambulum, in quo tangit quaedam quorum cognitio

1366 et provenient: et proveniet VHB; et proveniunt CSTA; *om.* & *ins.* E   **1367**
resultat: -tet VHBST   **1370** hic: haec HBETA; *def.* C   **1371** loca positio-
num 8: 8 (octo S) l.p. STA; *def.* C   **1372** provenient: proveniet VHB; prove-
niunt A; eveniunt ST; exibunt D   **1374-7** et aggregatum--6 loca pos.: *gem.*
T(=T₁,T₂)   **1374** numero: *om.* CSTAD   **1375** ergo: igitur VST₂A   pro-
venient: -iet VHB; -iunt T   **1376** 125: 123 VHSTA   aliud: ad VCT₂; a(liqu)id
A   esse potest istud (illud CST₁A; id T₂): p.e.i. HBA; potest etiam istud accipi V
1378 facit (f()A): faciunt E; fit *Cu*   **1380** resultant: -ta VA; -tabunt C   **1381**
numerum: *om.* STA   multiplices (-ca CE): *supra habent post* ergo STA, *post*
locorum V   **1382** provenient: -iet V; -iunt STA   **1383** hoc: BD; hic HS; *om.*
C; hic *vel* hoc *cett.*   **1385** species nona (noua E; 9ª CHB; 9 V): n.s. CS
1386 praemittit: p. capitulum ST; circa capitulum p. A; p. capitulo HB; auctor p.

necessaria est ad hanc speciem, et secundo (*156*) de intento exse-
quitur, cum dicit *Si velis igitur* iuxta principium capituli sequentis, ubi
1390 alii capitulum assignaverunt. Adhuc primo (*131*) praemittit ea quae
declaranda sunt ad intentum principale, et secundo (*132*) ea pertrac-
tat, cum dicit *Praenotanda tamen.* Adhuc primo (*131*) inquirit, quis sit
numerus quadratus et quae eius radix, et similiter (*138*) quis sit
numerus cubicus et quae eius radix; et secundo (*155*) notificat
1395 tertium propositorum, scilicet quid sit radicem extrahere, cum dicit
Radicem numeri quadrati in principio capituli sequentis. Adhuc primo
(*132*) praemittit quandam divisionem, ex qua investigat duo primo
iam proposita, et secundo (*133*) membra dividentia pertractat, cum
dicit [*Linearis est,* et tertio (*148*) subdit quaedam notabilia, cum dicit]
1400 *Notandum etiam.* – Circa primam partem (*132*) notandum quod, sicut
quantitatis continuae quaedam est linea habens unam dimensionem,
et alia superficies habens duas, et alia corpus habens tres, sic recte est
de quantitate discreta quae est numerus: *numerorum* enim, ut dicit
auctor, *alius linearis, alius superficialis, alius solidus.* – **Linearis est** (*133*):
1405 pertractat membra dividentia, et primo (*133-4*) prima duo membra
pertractat, et secundo (*135*) quasi subdividendo secundum membrum
specialius de eodem secundo et tertio determinat, cum dicit **Sed
sciendum.** Adhuc primo (*135*) praemittit subdivisionem suam, ⟨et
patet;⟩ et secundo (*136*) membra ostendit, ibi **Si igitur numerus.**
1410 Adhuc primo (*136*) pertractat primum membrum, et secundo (*138*)
secundum, cum dicit *Si autem numerus bis.* Adhuc primo (*136*) de

C   **1388** necessaria est: e.n. EST   et secundo: in sec. V; sec. CA   exse-
quitur: proseq- HBS   **1389** cum dicit: ibi CEA   principium capituli sequ-
entis: c.s.p. VA; capitulum sequens C   **1390** alii: aliqui E; alia C; alii aliud SA;
aliud T   assignaverunt: assignant VC; assignavit T   **1392** adhuc: a. in d(uas)
T; hic CE; et V; et haec S; et hoc HB   quis: quid CHBTA   sit: est VHBS
1393-4 et similiter--radix: *om.* HBEA   **1393** quis sit: quis C; quid sit T; *def.*
HBEA   **1394** quae: *om.* C; *def.* HBEA   **1396** numeri: igitur VTA; ergo HBS
1397 duo (d() A; *om.* T) primo (-ma VSTA) iam proposita: duo primo dicta primo
proposita E; 2 iam primo posita C; duo iam prop. HB   **1399** linearis--cum
dicit: CE; *om. cett.*   **1400** etiam: etc. E; est STA   partem: est *add.* ESTA
     1401 habens unam dimensionem: u.h.d. VHB; u.d.h. STA   **1402** recte:
VHBS; r(e)c(t)e ETA, C(*vel* r(ati)o(n)e)   **1404** alius₁: est *add.* ES   **1405**
pertractat: hic p. HBSTA   prima duo: 2 prima C; duo VHBSTA   **1407** et
tertio: *om.* STA   determinat: declarat E; declarat vel det. C; pertractat V
1411 bis: *om.* C; *def.* HB   **1413** cum dicit: ibi A, C (*ins.*); *def.* S   autem:

primo membro investigat, quis sit numerus quadratus, et secundo
(*137*), quae sit eius radix, cum dicit *Radix autem.*

   Primo igitur (*136*) investigat, quis sit numerus quadratus, sub
1415 quadam subdivisione membri primi, quia, *si numerus semel ducatur in
numerum, aut ducitur in se ipsum aut in alium; si in se ipsum, fit numerus* qui
quadratus dicitur; *si in alium, fit numerus superficialis non quadratus.* Quasi
diceret quod numerus quadratus est sub superficiali, et superficialis
non quadratus est sub eodem superficiali; quia superficialis absolute
1420 est ille numerus absolute etiam, qui ex ductu numeri in numerum
semel provenit, sed superficialis specialis fit secundum quod est
proveniens ex ductu numeri non cuiuslibet in quemlibet, sed numeri
in quendam alium. Et est simile: sicut enim, sub animali si essent
duae species solum, puta homo et quodcumque aliud ab homine
1425 [, tunc cum quodcumque aliud ab homine] non habet forsan imposi-
tum unum nomen, tunc dividendo animal contingeret sic dicere
"animalium quoddam est homo; quoddam est animal non homo",
recte sic est in proposito, ut patet. – *Et vocatur numerus quadratus,* sicut
dicit auctor, *quia divisim scriptus per unitates* constituit quadratum; verbi
1430 gratia, iste numerus est quadratus scilicet 4, et scribitur 4 unitatibus
sicut hic ∴; et 9 est numerus quadratus et scribitur in 4 lateribus
aequalibus per 9 unitates, sic ⦂⦂⦂ ; et ita de aliis. Sed in superficiali
non quadrato non fiunt omnia latera aequalia; verbi gratia, senarius
provenit ex ductu ternarii in binarium et scribitur 6 unitatibus, sic ⦂⦂⦂ .
1435 Constat quod latera non sunt aequalia: in uno enim sunt duo puncta
et in alio tria, opposita autem solum aequalia sunt; unde senarius
bene est numerus quadrangulus, sed non quadratus. Unde, sicut

igitur E; *def.* S   **1416** fit: tunc est C; est A; sic est *cett.*; fit est *Cu*   **1417** fit:
def. CA; sic est *cett.*; fit est *Cu*   **1418** diceret: d(icens) ET; dicet(ur) quasi dicat V;
alia HB; diceretur *Cu*   numerus quadratus: q.n. EV   **1420** absolute etiam: e.a.
ST; a. E; *om.* A; *def.* HB   **1421** fit: fit *vel* sit CB; sic T; sicut A; *vacat Ha.c.*
1423 si: sed A; *om.* VC   essent duae species solum: e.d. so. sp. V; tantum e.d.
sp. C; e.d. sp. T; e. so. d. sp. HBSA   **1425** tunc--homine: *om.* VEA   tunc
cum: tunc «illud» H; tunc illud B; cum enim C; *def.* VEA   **1427** quoddam$_2$: et
q. VSTA   **1428** recte: VHBS; r(e)c(t)e ETA, C(*vel* r(ati)o(n)e)   **1430** unitati-
bus: vicibus V; v(er)itatibus C   **1431** sicut (sic V) hic (*ins.* H): sicut C; scilicet A
1433 fiunt: *omnes*   senarius: VE; 6 CS   **1434** ternarii: VS; 3 CE   bina-
rium: S; 2 VE; 2º C   **1436** opposita: (*sc.* latera) *omnes; aliter intellegit et explet*
Cu   autem: enim C   sunt: fiunt C; *om.* V   senarius: VS; 6 CE   **1437**

quadrangulum est superius ad quadrangulum quod est quadratum et quadrangulum non quadratum, sic superficialis est superius ad
1440 numerum superficialem qui est quadratus et qui non est quadratus; et ideo dicit auctor quod *omnis quadratus est superficialis, sed non convertitur.* – **Radix autem** *(137)*: ostendit, quae est radix numeri quadrati, et patet.

Si autem numerus bis ducatur *(138)*: pertractat secundum
1445 membrum dictae suae divisionis, scilicet quod aliquis numerus provenit ex ductu alicuius numeri bis in numerum, vel etiam quod aliquis numerus bis ducitur in numerum; ex quo membro elicit, quis sit numerus cubicus et quae eius radix. Et primo *(138)* quasi in generali pertractat membrum hoc, notificans, quis est numerus in
1450 genere, qui provenit ex ductu numeri in numerum bis, absolute loquendo, non contrahendo ad eundem vel ad alium; et secundo *(140)* quasi specialiter descendendo sub illo numero membrum praedictum subdividit, ibi *Sed numerus potest dupliciter.* Adhuc primo *(138)* facit quod dictum est, et secundo *(139)* dat rationem impositionis
1455 nominis huius, quod est solidus, qui est numerus ille absolutus; et incipit secunda pars ibi *Et dicitur solidus.* – Dicit igitur primo *(138)* quod *si numerus ducatur bis in numerum, constituet solidum, aut,* pro "quia", *numerus solidus est qui provenit ex duplici ductu numeri in numerum,* scilicet non contrahendo ad eundem vel ad alium: sic enim habentur
1460 species sub solido. – **Et dicitur solidus** *(139)*: haec pars plana est.

Sed numerus potest dupliciter *(140)*: specialiter descendendo sub solido membrum hoc subdividit, constituendo species sub

quadrangulus: quadrangularis CHBEA   **1439** quadrangulum (-gulati HB) non quadratum: VHBS; quadrang. quod (quod qua. E; qua. *om.* C) non est (e.n. T) quadrat. CETA   **1440** qui non est: ad eum qui non est E; non CSTA
1442 est: sit CE   **1445** suae: *om.* CE   scilicet: *om.* CSTA   **1447** ducitur: ducatur VE   **1449** hoc: hoc *vel* hic TA; *om.* CE   numerus: n. ⟨solidus⟩ *Cu*
1453 adhuc: a. d(uo) f(acit) T; *def.* C; a. ⟨primo duo facit quia⟩ *Cu*   **1454** et secundo: s. ETA; *def.* C   **1455** solidus: -dum HBS; *def.* C   **1456** pars: *om.* VHBT; *def.* C, A   primo: *om.* E; *def.* C, HB   **1457** numerus ducatur (ducitur ST) bis: n.b.d. EA; b.n.d. T; *def.* C, HB   aut p(ro) quia *(distinxit Ebbesen)*: et patet quod T; quia A; *def.* C, HB; *om. Cu*   **1458** ex: de E; *def.* CHB
1459 habentur: *def.* CHB; haberetur *Cu*   **1460** plana (plena A) est: e.p. E; *def.* C   **1461** dupliciter: d. etc. HB; d. bis etc. S; distingui T; *om.* V; *def.* C; *alia* A
1462 hoc: hoc *vel* hic EH; hic CSTA   **1465** pars prima: pr. pa. CSTA   sed:

solido: primo ergo subdivisionem illam ponit, et secundo (*141*)
membra dividentia pertractat, cum dicit **Si igitur numerus**. Pars
1465   prima (*140*) est plana, sed secunda (*141*) dividitur in quattuor partes:
primo enim pertractat membrum primum; et secundo (*143*) secun-
dum, cum dicit *Si vero aliquis*; et tertio (*145*) quasi correlarie per
comparationem ad radicem quadratam ostendit, quae sit radix
[cubica sive] numeri cubici, cum dicit *Ex praedictis etiam patet*; et
1470   quarto (*147*) removet dubium, ibi *Cum igitur ex ductu*.

Primo adhuc (*141*) pertractando primum membrum notificat, quis
sit numerus cubicus, et secundo (*142*) dat rationem impositionis no-
minis eius, cum dicit *Et dicitur cubicus*. – Dicit ergo primo (*141*) quod,
si numerus bis ducatur in se vel semel in suum quadratum, quod idem est, tunc
1475   *fit numerus cubicus*; et dicitur cubicus solidus, quia est species solidi
{*142*}. – *In se bis*, verbi gratia ter tria ter, *vel semel in suum quadratum*, ut
ter 9; proveniunt 27 utrobique: cum enim dicitur ter tria, habentur 9,
quod est quadratum de tribus, et cum replicatur ultimo ter, illa
replicatio extenditur ad totum quod praecessit, scilicet ad ter tria vel
1480   ad 9; et ideo idem est ducere numerum quemcumque semel in suum
quadratum et bis in seipsum. – **Est autem cubus corpus quoddam**
sex habens etc. (*142*), sicut est imaginari de taxillo bene verificato,
in quo scilicet est profunditas, longitudo et latitudo eiusdem quan-
titatis et distensionis. Iuxta corpus istud sic imaginari poteris nume-
1485   rum cubicum: sicut enim {*139*} corpus istud 3 habet dimensiones, sic
numerus iste 3 habet numeros ipsum dimetientes. – Esto igitur quod

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STA; *om. cett.*   partes: *om.* EC   **1466** membrum primum: p.m.
CSTA   et secundo: s. STA; *def.* C   **1467** cum dicit: ibi CA; *om.* V   cor-
relarie: CS, H *fere*; correlative B; *varie abbreviant cett.*   **1468** quadratam: quan-
dam C; quadratum S; quadrantem T   **1469** cubica sive numeri cubici: cubici
C; cubici «. . . .bici» V; cubica A   et: *om.* C; *om.* & *ins.* E   **1470** ductu: etc.
add. E; unitatis *add.* S   **1471** adhuc: ad hunc S; ergo E; *om.* A   quis: quid
EHBA   **1472** et: *om.* EA; *def.* T   **1473** ergo: igitur VS; *def.* T, A   **1474**
bis ducatur in se: ducatur bis in se S; ducitur bis V; *def.* T, A   **1481** corpus
(Q(?) *add.* E) quoddam: corpus V; *notis inv.* C; *def.* A   **1482** sex: VS; 6
EC   etc.: superficies S; superficies et 08 angulos et 12 latera C; *om.* HB; *def.*
A   est imaginari: est de im. C; et im. E; potest im. S; im. poteris T; licet im. A
1484 istud: illud CTA; *om.* HB; *def.* S   poteris numerum cubicum: poteritis
n.c. B, H*p.c.*; positis n.c. Ha*.c.*; potest n-us c-us C; *def.* S   **1485** istud: illud
CTA; *om.* E; *def.* S   3: 3es C; *def.* S   habet: habens C   **1486** 3: tres
CS   habet: *om.* VCHB   dimetientes: diment. CSA; disment. HB   igitur:

sit linea trium pedum sive punctorum. Ducantur ergo haec tria puncta in se, et fiunt 9, qui est numerus quadratus mensuratus numero duplici, scilicet ternario bis sumpto; et ideo, quasi linea
1490 trium pedum flueret ad tantam distantiam in ante, quanta est eius longitudo, constituitur quaedam superficies more mathematicorum loquendo. Deinde in eadem 9 ducatur eadem linea, ac si in deorsum fluens secum totam superficiem hanc trahens ad tantam distantiam descenderet, quanta est eiusdem lineae longitudo sive totius super-
1495 ficiei latitudo; et sic quasi corpus quoddam constitutum est, quod sic factum habebit in qualibet 6 superficierum 9 et in quolibet 12 laterum tria puncta, et ab angulo quolibet in angulum oppositum in quamcumque partem habebit etiam tria puncta; et ideo merito hic numerus cubicus est vocatus.

1500 **Si vero aliquis numerus** (*143*): pertractat membrum secundum, notificans, qualiter appellandus sit numerus qui ex opposito distinguitur contra numerum cubicum; et primo facit hoc, secundo (*144*) comparat numerum cubicum ad solidum, cum dicit *Unde patet.* – Primo igitur (*143*) dicit quod *si numerus bis ducatur* non in se, sed *in*
1505 *alium, fit numerus solidus non cubicus,* et ut legatur sub uno, dicit secundo (*144*), comparando numerum cubicum ad solidum, quod *omnis numerus cubicus est solidus et non e converso*; et haec est comparatio speciei ad genus, sicut superius erat de quadrato et superficiali.

Ex praedictis etiam patet (*145*): per comparationem ad radicem
1510 numeri quadrati ostendit, quae est radix numeri cubici. Unde dicit quod *sicut ex praedictis patet, idem numerus est radix quadrati et cubici*: hoc

ergo ES   **1487** sive punctorum: vel p. C; sex p. A; fi(eri) p(otes)t eor(um) E; *def.* HB   ergo: igitur VT; enim S; *def.* HB   **1489** duplici: E; *def.* HB; cubici *cett.*; lineari *Cu*   ternario: 3° VE; ter C; 3 S; *def.* HB   linea: h(aec) *add.* V; h(ic?) *add.* C; *def.* HB   **1490** flueret: fluent C; fluat HB; f«l»uerat E; fluit T; fluente *Cu* **1492** eadem₁: eodem HBSTA   in deorsum: d. EC   **1494** descenderet: descendet (distendet B) VHBST; -dat C; -dens E; divisionibus A   lineae: CE; *om. cett.*   **1495** corpus quoddam: q.c. STA; c. C   **1498** etiam: et VCS **1499** cubicus est: est V; e.c. C
   1501 notificans: notificando E; notans S; ostendens TA   appellandus: applicandus V; ampliandus C   **1502** et: *om.* C; *def.* V   hoc: haec S; *def.* V **1504** igitur: ergo STA; *om.* C   **1505** fit: *def.* A; est *cett., Cu*   **1507** et non: sed non V; non C; *def.* A   **1509** etiam: CE; igitur VSTA; ergo HB   **1511** patet: quod *add.* CS   radix quadrati et cubici: r. numeri q. (*om.* V) et cu. VHB;

ex praedictis patet, cum idem est per dicta prius ducere numerum bis in se vel semel in suum quadratum. Et subdit quod tamen *idem quadratus et cubicus non sunt unius* et eiusdem *radicis*: verbi gratia, iste

1515 numerus scilicet 729 et est quadratus et cubicus, sed non idem numerus est eius radix ut est cubicus et ut est quadratus; immo, ut est quadratus, radix eius est 27, ut autem est cubicus, radix eius est 9. Et similiter iste numerus scilicet 4096 et est quadratus et cubicus, non tamen idem numerus est eius radix ut est quadratus et ut est cubicus;

1520 immo, ut est quadratus, eius radix est 64, et ut est cubicus, eius radix est 16. – Et subdit *(146)* quod *etiam patet quod omnis numerus est radix quadrati et cubici,* quod patet ex hoc quia, cum numerus non stat in sursum, quemcumque numerum contingit ducere in se semel, contingit eundem ducere in se bis; *sed non tamen omnis numerus est*

1525 *quadratus vel cubicus,* quia superficialium quidam est quadratus et quidam superficialis non quadratus; item solidorum quidam est cubicus et quidam solidus non cubicus, sicut patet per praedicta.

Cum igitur ex ductu etc. *(147)*: removet dubium, quod sic ex dictis ortum habet: dixit enim *(137)* quod *4 est primus numerus*

1530 *quadratus, et radix eius est 2,* ex quo sequitur quod 2 est prima radix et minima; ex isto dubitaret aliquis utrum unitas sit numerus, cum non possit esse alicuius numeri radix, quia 2 est radix minima. Ideo introducit auctor partem istam *(147)*, et stat sententia partis in hoc quod unitas non est aliquis numerus *in actu,* quia numerus est

1535 multitudo, sed *potentialiter est unitas omnis numerus,* quia est ut materia: per replicationem enim untitatis omnis numeri quantitas efficitur.

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cu. et q.r. S; *def.* T, A   **1512** per dicta prius (*cf. l.* 1480-1): secundum praedicta C; per praedicta prius E; *def.* A   bis in se: in se bis ST; *def.* A   **1513** vel: et EHB; *def.* A   tamen idem: cum idem V; cum HB; non tamen non idem est C; tamen non idem S; non idem T; *def.* A   **1514** non sunt: non sint V; sint idem non (*om.* H; *om.* & *ins.* B) sunt HB; ut C; sunt S; sunt quamvis sint T; *def.* A   **1515** scilicet: *om.* VCA   et est: est ESA; *def.* T   **1516** ut$_2$ est: ut E; *om.* C; *def.* T   **1518** scilicet: *om.* HBTA   **1520** eius$_1$ (cuius C) radix est: e(ius) eius ra. est E; ei. ra. V; ra. ei. est HBT; est ei. ra. S; et ra. ei. A   eius$_2$ (cuius C) radix est: ra. ei. est HB; est ei. ra. (est *add.* A) SA   **1523** sursum (sensum C): quod *add.* SA; quia *add.* T; quomodo *add.* Cu   **1524** non tamen (cum C): tantum non E; non V   **1526** superficialis: -lium E; et *add.* C   **1527** *cf. l.* 1507   **1528** etc.: *om.* ESTA   **1529** dixit: dicit VCHB   4: 4^{or} T   **1530** 2$_1$: duo ET   2$_2$: duo CHEA   **1532** 2: duo HE   **1533** sententia: summa VC, *Cu*   **1535** est unitas omnis numerus: e.o.n.u. VC; u.e.o.n. B; *def.* A   **1539** cor-(co-H)

Notandum etiam (*148*): subdit quaedam notabilia, et sunt tria: primum est hic, secundum (*149*) ibi *Inter duos cubicos,* et tertium (*150*) per modum correlarii ponitur ibi *Cum igitur ultra.* – Primum (*148*) est
1540 quod *inter duos quadratos numeros proximos est unicum medium proportionale, quod scilicet provenit ex ductu radicis unius quadrati in radicem alterius.* Verbi gratia, 4 est numerus quadratus, cuius radix est 2; 9 est alter numerus quadratus proximus, et eius radix est 3. Inter 4 et 9 est unicum medium proportionale, scilicet 6, quod provenit ex ductu binarii in
1545 3, quia bis tria sunt 6; et vocatur medium illud "proportionale" quia, quae est proportio quadrati maioris, scilicet 9, ad illud medium, eadem est proportio eiusdem medii ad minorem quadratum: utrobique enim est proportio sexquialtera: sicut enim 9 continet 6 et eius medietatem, sic 6 continet 4 et eius medietatem. – Et nota quod illi
1550 quadrati sunt proximi, inter quorum radices non est medium vel numerus medius: propter hoc igitur 9 et 4 sunt quadrati proximi, quia inter radicem unius et radicem alterius non est medium, scilicet inter 2 et 3. Et dicit auctor signanter quod *inter duos quadratos proximos est unicum medium proportionale,* quia, si aliqui duo sumantur quadrati
1555 non proximi, sicut sunt 4, primus quadratus, et 49, constat quod isti non sunt quadrati proximi, quia radix primi est 2, secundi autem 7, et inter eos non est medium unum, immo plura media, scilicet 3,4,5,6; et ideo inter istos duos quadratos sunt plura media proportionalia, scilicet 42,36,30,25,20,16,12,9 et 6. Sicut enim maior quadra-
1560 tus, scilicet 49, continet 42 et eius sextam partem, sic 42 continet 36 et eorum sextam partem; item sicut 36 continet 30 et eorum quintam, sic 30 continent 25 et eorum quintam; adhuc, sicut 25 continent 20 et eorum quartam, sic 20 continent 16 et eorum quartam; insuper, sicut 16 continent 12 et eorum tertiam, sic 12
1565 continent 9 et eorum tertiam; ultimo, sicut 9 continent 6 et eorum medietatem, sic 6 continet 4 et medietatem de 4, quae 4 sunt minor
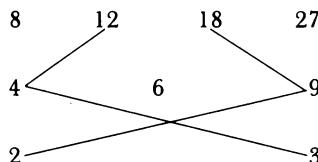
relarii: CHS; corelative B; *varie abbreviant cett.*   ultra: ultima ESA   **1544** binarii: 2 ES; *alia* T; *def.* A   **1545** illud: id V; istud BE; *def.* A   **1548** continet: -ent VCS; *def.* A   **1549** 6: sex EC; *def.* A   continet: -ent VCS; *def.* A
1553 signanter: CHBS; sig()nter VETA   **1554** sumantur quadrati non proximi: q.n.p.s. E; q.s.n.p. C   **1557** medium unum: u.m. T; unicum m. HB; m. VES; *def.* A   **1562** quintam₁: partem CSTA   25 continent: 25 continet VBS
1563 20 continent: 20 continet VHB   eorum₂: etiam *add.* VC   **1566** medie-

quadratus. Sic igitur apparet quod non est necesse semper inter duos quadratos tantum unum esse medium proportionale, et ideo addit auctor "proximos".

1570   **Inter duos cubicos** (*149*): ponit notabile secundum, et est quod *inter duos numeros cubicos proximos est duplex medium proportionale, scilicet maius medium et minus etc.* Verbi gratia, primus cubicus est 8, secundus proximus est 27, radix primi est 2, radix secundi 3, et ideo sunt proximi cubici, quia inter eorum radices non est medium. Inter istos

1575   duos cubicos est duplex medium proportionale, scilicet 18 et 12: sicut enim 27 semel continent 18 et medietatem eorum, sic 18 continent 12 et medietatem eorum, et consimiliter 12 continent 8 et medietatem eorum, ita quod omniquaque est proportio sexquialtera. Et proveniunt haec media sic, sicut dicit auctor, quod *ducendo radicem*

1580   *maioris cubici in quadratum minoris cubici provenit minus medium*; sic scilicet: quia radix maioris cubici erat 3 et quadratum minoris cubici erat 4, ducendo igitur 3 in 4 exeunt 12, quod est minus medium proportionale; *ducendo etiam radicem minoris cubici,* scilicet 2, *in quadratum maioris cubici,* scilicet in 9, exibit maius medium, scilicet 18. Et ordines

1585   numeros istos in tali figura sicut quae sequitur:

Et scias quod, in quacumque proportione sunt radices adinvicem,

1590   in eadem sunt media, ita quod, quae est proportio maioris radicis ad minorem, eadem est proportio maioris cubici ad maius medium, et maioris medii ad minus, et minoris medii ad minorem cubicum. Hoc

tatem de 4: eorum med. HBEA; eorum med. de 4 ST   **1567** igitur: ergo HBSTA **1568** unum (unicum CHB) esse (est T): e.u. CE   addit: addidit CE   **1574** cubici: numeri VCST, *Cu; om. cett.*   **1575** duos cubicos: c.d. V; c. S; d. numeros E; d. numeros c. HB; *om.* A   **1576** 18 continent: 18 continet VT; *def.* E **1577** consimiliter: similiter ET; simili V; *def.* A   **1578** omniquaque: cuiquam T; cuicumque H; cuique B; in qualibet A; utrobique V   **1579** haec media: h. ST; m. E; *om.* A   **1580** quadratum m.c.: *def.* A   **1581** quadratum m.c. (*om.* E): *def.* A   **1583** quadratum: radicem (?-cis H) vel q. HB; *def.* C, A   **1586-8**

generaliter est verum in omnibus, et potest idem etiam ostendi in
aliis numeris: sit minor radix 4 et maior 5; ducatur 4 in se semel, et
1595 exibunt 16, suum quadratum, cuius cubicus est 64; deinde ducatur
maior radix, scilicet 5, in se semel, et exibunt 25, suum quadratum,
cuius cubicus est 125. Duc ergo unam radicem in aliam, et exibunt
20, medium proportionale inter duos quadratos numeros, scilicet
inter 25 et 16; deinde ducatur radix minoris cubici, scilicet 4, in
1600 quadratum maioris cubici, scilicet in 25, et exibit maius medium
proportionale, scilicet 100; deinde ducatur radix maioris cubici,
scilicet 5, in quadratum minoris cubici, scilicet in 16, et exibit minus
medium proportionale, scilicet 80. Si ergo velis scire, in qua
proportione se habet maior quadratus ad medium suum, et maior
1605 cubicus ad maius medium, et cetera, videas, in qua proportione se
habet maior radix ad minorem; et constat quod 5 se habet ad 4 in
proportione sexquiquarta, quia 5 continent 4 et quartam partem eius;
eodem modo se habet maior quadratus ad medium unicum propor-
tionale, et idem medium ad minorem quadratum, scilicet 25 ad 20 et
1610 20 ad 16, quia 25 continent 20 et quartam partem de 20, et similiter
20 continent 16 et quartam partem de 16; consimiliter maior cubicus,
scilicet 125, continent 100 et quartam partem eius, quae sunt 25, et
similiter 100 continent 80 et quartam partem de 80, quae sunt 20, et
similiter 80 continent 64 et quartam partem eius, scilicet 16. Sic ergo,
1615 quae est proportio maioris radicis ad minorem radicem, eadem est
proportio maioris quadrati ad medium unicum, et eiusdem medii ad
minorem quadratum; et similiter eadem est proportio maioris cubici
ad maius medium, et maioris ad minus, et minoris ad minorem
cubicum. Insuper, quae est proportio minoris medii proportionalis
1620 ad medium inter quadratos, eadem est eiusdem medii inter qua-

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lineas figurae varie ducunt codd.; *secutus sum* E   **1593** idem etiam: idem E; id etiam
V; illud etiam ST; etiam illud CHBA   **1594** ducatur: ducantur CHBT;
ducuntur A   **1595** cubicus: cubus C; *n.l.* V   **1596** scilicet: sic VHBS; *def.* A
1598 medium: *om.* S; *n.l.* V   **1599** inter: in CS
    1602 minus (maius C; *om.* A) medium proportionale: me. pr. mi. HB; me. mi.
pr. S; *def.* V   **1606** habet₂: *omnes*   **1607** continent: continet E; constat T
1610 de 20 (16 A): eius HB; eius de 20 E   **1611** de 16: eius de 16 EA; *def.*
HB   consimiliter: et similiter T; similiter EA   **1612** eius: eorum S   sunt
25: est 25 S   **1613** partem: p. eius scilicet A; *om.* VHB; *def.* C   **1614** eius:

dratos ad maiorem radicem, et quae est proportio maioris medii ad medium inter quadratos, eadem est proportio eiusdem ad minorem radicem. Item, quae est proportio maioris medii ad maiorem quadratum, eadem est medii quadratorum ad maiorem radicem, et
1625 quae est proportio minoris medii ad minorem quadratum, eadem est proportio medii quadratorum ad minorem radicem. Istud verum est universaliter in omnibus numeris sine dubio.

   Cum igitur ultra etc. (*150*): ponit notabile tertium per modum correlarii, in quo facit auctor tria: primo enim dat eorum numerum,
1630 et secundo (*151*) in generali ostendit, quid sit limes, et tertio (*152*) specialiter ostendit, quid sit unusquisque. – Dicit primo (*150*) quod limites non sunt nisi novem, quia *ultra summam numerorum solidorum in hac arte* numeratoria *non proceditur*: consequentia ista in fine partis videbitur. – Et tunc (*151*) cum dicit **Est enim limes**, definit limitem
1635 in generali, dicens quod *limes est continua ordinatio numerorum contentorum terminis extremis,* terminis dico *eiusdem naturae* existentibus. Haec etiam definitio iam apparebit in fine partis.

   Et tunc (*152*) cum dicit **Unde primus**, notificat in speciali, quis sit unusquisque eorum 9 limitum. – Dicit igitur quod *limes primus est*
1640 *continua progressio 9 digitorum,* verbi gratia 1,2,3,4,5,6,7,8,9. – Secundus vero est continua ordinatio *9 articulorum principalium,* qui vocantur denarii, verbi gratia 10,20,30,40,50,60,70,80,90. – Et tertius est continua ordinatio sive progressio 9 *centenariorum,* verbi gratia 100, 200,300,400,500,600,700,800,900. – Quartus est 9 *millenariorum,* verbi
1645 gratia 1000,2000,3000,4000,5000,6000,7000,8000,9000. – Et subdit etiam (*153*) quod *3 limites resultant in compositis per appositionem digitorum super quemlibet istorum* scilicet trium limitum: verbi gratia, apponantur digiti omnes, qui sunt in primo limite, super denarios qui sunt in secundo, et fiet quintus limes, ut 11,12,13,14,15,16,17,18,19, vel 21,

eorum S   **1628** etc.: *om.* HBEA   ponit: hic est STA; *om.* VC   **1629** cor-(co- HB)relarii: HBS; corpor(um) T; *varie abbreviant cett.*   eorum: (*sc. 'limitum'*): omnes; limitum Cu   **1631** sit: sit ⟨limes⟩ Cu   **1633** *cf. l.* 1705   **1634** est: et VCHB   **1636** haec etiam: sed etiam C; h⟨uius⟩modi etiam S; huius autem A   **1637** apparebit: patebit E   *cf. l.* 1718   **1638** primus: prius E; primo A; unus C   quis: quid HBTA   **1642** est: E; limes est STA; *om.* VCHB   **1644** quartus est: quartus C; limes 4 T; quartus limes est HBSA   verbi gratia: ut CSTA; scilicet B; *om.* HE   **1646** etiam quod: q.e. S; q. VHBTA   **1647** super: puta C; ut per HB; *om.* V   **1649** fiet: fiat E; est C; erunt V   **1650** 24

1650 22,23,24,25,26,27,28,29, vel 31,32,33,34,35,36,37,38,39; et sic appo-
nendo omnes digitos supra 10, supra 20, supra 30, usque ad 90, fiet
iste limes quintus, ita quod maior numerus in hoc limite est 99. –
Apponantur iterum omnes digiti super omnes centenarios qui sunt in
tertio limite, et fiet limes sextus: verbi gratia 101,102,103 usque ad
1655 109, vel 201, 202, 203 usque ad 209, vel 301,302,303 usque ad 309;
et sic apponendo omnes digitos supra omnes centenarios, scilicet
supra 100, supra 200, supra 300, et sic usque ad 900, fit iste limes
sextus, ita quod maior numerus in hoc limite est 909. – Apponantur
iterum omnes digiti super omnes millenarios, qui sunt in quarto
1660 limite, et fiet limes septimus: verbi gratia 1001,1002,1003 usque ad
1009, vel 2001,2002,2003 usque ad 2009; et sic apponendo omnes
digitos supra omnes millenarios, scilicet supra 1000, supra 2000,
usque ad 9000, fit iste limes septimus, ita quod maior numerus in
hoc limite est 9009. – Et addit auctor quod etiam, *si alter alteri praepo-*
1665 *natur,* resultabit aliquis de his tribus limitibus: verbi gratia 111,112,
113 usque ad 119, vel 121,122 usque ad 129, vel 131,132 usque ad
139, praeponendo sic aliquem de denariis cum omnibus digitis ante
centum, et eodem modo praeponendo eadem ante ducenta vel

--28: usque ad ES; *similia* T, A   33--38: 33 usque ad E; etc. (etc. *add.* T) et sic
usque ad ST; *def.* A

  1651 supra 20: et super 20 (21 A) SA; 20 T; et E   fiet: viget V; vel sic viget C;
fit EST; sic fit A   **1653** iterum: igitur ET; ergo S; *alia* A   **1654** et fiet: erit V;
et quia C; et fiat A   usque ad: utroque ad A; 104,. . .,108 VC   **1655** vel 201:
vel sic 201 C; 201 A; *def.* E   203: 204 *add.* S; *def.* E   usque₁ ad: 204,. . .,208
VC; *def.* E   303: 304 H; *om.* AC; *def.* S   usque ad 309 («nongenta» novem H):
304 etc. C; 304,. . .,309 V; *def.* S   **1656** supra: super ESTA   **1657** supra 300:
super 300 S; 300 T; *om.* VA   et sic (si V): et sic de aliis A; *om.* E; *post* 900 *habent*
ST   fit iste (ille E): quid sit V   **1658** 909: 900 S; 999 C   **1659** iterum:
igitur VSA; *om.* CT   **1660** 1003 (3003 H; *om.* E) usque ad: 1003 et sic usque ad
STA; 1003,. . .,1008 V; 1003,1005,. . .,1008 C   **1661** 2003 (*om.* E) usque ad:
2003,. . .,2008 VC; *def.* A   **1662** supra (super T) 2000: 2000 B; 2000 3000 CS;
def. A   **1663** 9000: 9009 VST; *def.* A   fit: sit VC   **1664** etiam si: si etiam
V; si et S; si TA   **1665** aliquis: quis ST; aliquid V   **1666** usque ad 119:
114,. . .,119 VC   usque ad 129: 123 u.a. 129 HBSTA; 123,. . .,129 VC   us-
que ad 139: 133 usque ad 139 STA; 133,. . .,139 V; 134,. . .,139 C; *def.*
HB   **1667** praeponendo: propon. V; pon. HB; *def.* C   sic: si V; *def.*
C   aliquem de: aliquod E; *def.* C   **1668** centum: VS; 100 E; *def.* C
praeponendo (-ende S): propon. VHB; praedicto C   eadem: eandem VHBA;

trecenta etc.; consimiliter praeponendo centenarios ante millenarios
1670 cum omnibus digitis, ut 1101,1102,1103 vel 2101,2102,2103, et
consimiliter etiam praeponendo denarios cum omnibus digitis ante
millenarios, |et similiter etiam praeponendo denarios et centenarios
cum omnibus digitis ante millenarios,| quilibet istorum ad aliquem
trium ultimorum limitum reducitur, ita quod, si digiti apponantur
1675 denariis, praecedente sive centenariorum aliquo sive millenariorum,
ad quintum reducetur, sed si digiti apponantur centenariis, millena-
riorum quocumque praecedente, ad sextum limitem reducetur. Ita
credo auctorem esse intellegendum. – Et tunc, quantum ad octavum
et nonum limites, dicit auctor (154) quod *limes paenultimus et ultimus,*
1680 id est octavus et nonus, *resultant per replicationem termini finalis ex*
receptione millenarii supra se, quocumque alio praecedente: ex receptione,
dico, millenarii supra se *semel per modum quadratorum aut bis per modum*
solidorum. Auctor vult dicere quod limes octavus fit, cum supra
millenariorum aliquem millenarius replicatur: verbi gratia, mille
1685 millesies, duo milia millesies, tria milia millesies, quattuor milia
millesies, et sic usque ad novem milia millesies vel millesies novem
milia; et fit idem limes praeponendo isti replicationi quemcumque de

eosdem S; *om.* E   ducenta: VS; 200ta C; 200 E   **1669** trecenta: VS; 300ta C;
300 E   praeponendo: propon. VHB; in proposito C   centenarios: -rium *Cu*;
100 ECA; centum HBST; *def.* V   millenarios: *Cu*; mille E; 1000 *cett.*   **1670**
1103 (*om.* A): 1104 etc. *add.* C; 1104,. . .,1109 *add.* V   vel: sic *add.* VC   2103
(203 T; *om.* SA): etc. *add.* E; 2104 etc. *add.* C; 2104,. . .,2109 *add.* V   **1671**
praeponendo: propo. VHB; -ndos C   **1672-3** et similiter--millenarios: E; *om.*
cett.; ⟨et centenarios, ut 1111.1112, vel 2111.2112, vel 1211.1212 etc.⟩ *Cu*   **1672**
et similiter: s. et E; *def. cett.*   **1674** ultimorum: *omnes*; aliorum *Cu*   reducitur:
-catur A; -cetur T   **1675** denariis: ⟨ad quintum reducuntur, si digiti praepo-
nantur denariis⟩ *add. Cu*   sive c.a. (*om.* E; a.c. A)_sive (vel A) mill.: c.a. *Cu*
1676 quintum (5^m E): tertium (t^m VT; 3^m HB) VCHBSTA; sextum *Cu*   redu-
cetur: -citur C; -cuntur E; -ce(re) T   **1677** sextum: *omnes*; septimum *Cu*
reducetur: -cuntur S; -centur VCTA   **1679** limites: limitem ESTA   **1680** id:
ille VC; id(em) T; *alia* A   replicationem: rationem EHB   ex receptione:
exceptionem T; ex replicatione *Cu*   **1681** ex receptione: exceptione T; *def.* A,
B; ex replicatione *Cu*   **1683** fit: est VCHBE; *om.* TA   **1685** tria (3^a T) milia
millesies: t. milia CA; 3000 E   quattuor: 4^{or} S; 4 CTA; *def.* EH, B   **1686**
novem$_1$ milia: 9 milia CHSTA; 9000 E; *def.* B   novem$_2$ milia: 9 milia (minus T?)
HBSTA; 9000 E; *def.* C   **1687** fit: *Cu*; est ESTA; etiam C; est etiam VHB
praeponendo: proponendo (-ndus HB) VHBS   quemcumque: quaec. VE;

aliis limitibus, scilicet dicendo millesies centies decies mille, millesies centies decies duo milia, millesies centies decies tria milia, et sic
1690 usque ad millesies centies decies 9 milia; vel millesies ducenties vigesies mille, vel duo milia, vel tria milia: sic quoque eundo et replicando semper millenarium semel supra quemcumque millenarium, quocumque praecedente, fit iste octavus limes. – Nonus vero fit modo fere consimili: non enim differt, nisi quia in hoc nono fit
1695 replicatio millenarii bis supra quemcumque millenarium, et quocumque praecedente: verbi gratia, millesies mille milia vel millesies mille millesies, quod idem est, millesies duo milia millesies, millesies tria milia millesies, vel millesies decem milia millesies, vel millesies viginti milia millesies, vel millesies 30 milia millesies, vel millesies
1700 centum milia millesies, millesies ducenta milia millesies, millesies trecenta milia millesies, vel millesies centum et decem milia millesies, millesies ducenta et viginti milia millesies, etc. Hoc modo intellegi debet limes iste nonus.

  Ex praedictis patent duo prius omissa et supposita, quia accepta est
1705 haec consequentia (*150*) valere: *Cum ultra summam numerorum solidorum in hac arte non fiat processus, ideo tantum 9 sunt limites.* Hoc patet, quia tot debent esse limites quot in numeris possibiles sunt processus fieri, continua apprehensione imaginationis stante; sed, a digitorum processu eundo usque ad replicationem millenarii supra quemcum-
1710 que bis, stat apprehensio imaginationis, et non ultra, sicut patet in

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quamc. C   **1689** duo (et C) milia: 2000 E; *def.* HB   **1690** 9 milia: 9000 E; *def.* A   **1694** modo fere consimili: f.m.c. ES; m.c.f. HB; m.c. T; m.f. A **1695** supra: super ES; sumpti(-ta B) HB; *def.* V   et: etiam S; *om.* E; *def.* V **1697** est: vel *add.* S; quod *add.* T; *def.* C   duo milia millesies (milies V): d. milia ST; *def.* C   **1698** tria: EC; 3ª S; *def.* V   millesies$_1$: *om.* S; *def.* V, B   decem: x ST; *def.* B   **1698-9** vel mil. vig. mil. mil. *gem.* A (= A$_1$, A$_2$)   **1699** viginti: 20 EA$_2$; xx ST; *def.* B   30: 30ª H; triginta V; xxx ST   **1700** centum (100 EA) mil. (milia *add.* E; millesies *add.* A) mil.: vel *add.* CS; ut *add.* A   ducenta (200 EA) mil. mil.: vel *add.* CS; ut *add.* A; *def.* HB

  1701 centum (c C)⁻et decem (x T): 100 et 10 E; *def.* A   **1702** ducenta (ccª T) et viginti (xx ST; decem HB): ducenta et 20 C; 200 et 20 E   **1704** *cf. l.* 1633, 1637 **1705** summam: summa CHT; *ins.* E   **1706** hoc: ut VC; *alia* A   **1707** quot: quod ES   possibiles sunt processus fieri (s(upe)r HB): pote(ntia)les s.p.f. E; possibile f.s.p. S; potest fieri processus T   **1708** continua: -nui EH; *om.* VC **1710** ultra: u. ⟨it⟩ Cu   **1711** iam exemplificatis (exemptis HB): pro exemplis iam E

numeris iam exemplificatis ad nonum limitem adductis; immo vix
adhuc imaginatio istud apprehendit; ergo et cetera. Vel sic: hic
ostendit quod completiva et ultima dimensionum est dimensio trina,
et ideo, cum numerus solidus dimensione triplici mensuretur, ultra
1715 ipsum non contingit transcendere; ideo concludere possumus quod,
cum limes nonus est in genere numerorum solidorum, quod tantum
novem erunt limites et non plures. – Item secundo suppositum est
(*151*) quod *limes est continua ordinatio numerorum contentorum terminis
extremis eiusdem naturae.* Illud nunc manifestum est, inducendo in
1720 omnibus limitibus: extrema enim primi limitis sunt eiusdem naturae,
quia utrumque extremum est digitus, scilicet 1 et 9; similiter extrema
secundi utraque sunt articuli principales, scilicet 10 et 90; extrema
tertii utraque sunt centenarii, scilicet 100 et 900, et sic deinceps.

Radicem numeri quadrati (*155*): superius (*131*) notificavit, quis sit
1725 numerus quadratus et quae eius radix; iterum et secundo (*138*), quis
sit numerus cubicus et quae eius radix; consequenter (*155*) notificat
hic tertium propositorum, scilicet quid sit radicem extrahere, et patet
pars illa.

Si velis igitur (*156*): praemissis praeambulis ad intentum necessa-
1730 riis exsequitur de intento, et primo determinat de extractione radicis
in quadratis, secundo (*164*) in cubicis; secunda ibi *Sequitur de radicum.*
Circa primum (*156*) tria facit: primo enim docet, ubi in quocumque

1712 adhuc: ad hu(n)c V; aliqua huius A; *om.* S   istud apprehendit: appre-
hendit (repr. A; -dat S) istud (illud STA) ESTA   **1713** completiva: completa(m)
ETA; completa C; cum paenultima B; *def.* V   dimensionum: di(visi)onum C;
[[di(vi)so]] d. E   **1715** ipsum: ipsam V; t(em)p(o)r(e) C   **1717** novem: VS; 9
EC   **1720** enim: eius VHBST; cuius A   **1721** extrema: ex(tra) V; *om.* S
1723 sunt: *om.* VC   **1724** quadrati: etc. *add.* VHBS; extrahere *add.* A   notifi-
ficavit: auctor n. STA; notificat auctor HB   quis: quid VCHBE   **1725**
iterum: iterum *vel* item EH; item S; *def.* B; alia T, A   quis: quid CH   **1727**
hic: hoc H; hic *vel* hoc VC; *om.* EA; illum T   **1731** radicum: etc. *add.* VC;
extractione *add.* ST   **1732** ubi: ut V; *om.* STA   quocumque: quo STA

numero est incipiendum operari in extractione radicis de numero quadrato, et secundo (*157*) docet qualiter sit operandum, et tertio
1735 (*162*) dat modum rectificandi suam operationem; secunda (*157*) ibi *Sub ultima igitur,* tertia (*162*) ibi *Quo facto aut.* - Pars prima (*156*) manifesta est de se. - **Sub ultima etc.** (*157*): docet qualiter est operandum; circa quam partem notandum est quod haec species completur in inventione digitorum quorundam, et ipsorum in se et
1740 in sua dupla ductione, et in producti a numero proposito subtrac-tione; ideo auctor primo (*157*) docet, quid agendum sit quantum ad processum primum, scilicet quantum ad inventionem digiti primi; secundo (*158*) quantum ad digitos alios, cum dicit *Quo facto.* - Dicit primo (*157*) quod *sub ultima figura in impari loco posita* incipiendum est,
1745 et *inveniendus est* ibi *quidam digitus, qui ductus in se quadrato modo,* scilicet semel, *deleat totum suprapositum respectu sui vel in quantum vicinius potest;* vult dicere quod illud, quod ex ductu eius in se semel provenit, deleri debet ab eo quod ex directo eius supraponitur. Et nota quod figura illa, quae directe est figurae alteri supraposita, cum omnibus
1750 versus sinistram positis dicitur illi figurae suprapositum. Et subdit auctor quod, *tali digito invento et a superiori* isto modo *subtracto, duplandus est ille digitus,* scilicet primo inventus, *et duplatum* sive duplum eius *ponendum est sub proxima figura versus dextram, et eius sub-duplum,* quod est digitus primo inventus, debet poni *sub illo* duplo. Et
1755 nota quod, si duplum hoc fuerit articulus vel numerus compositus, tunc loco digiti primo inventi debet poni articulus, et digitus seu cifra loco memorato, scilicet sub proxima figura ante; et sub illo digito seu cifra locari debet subduplum illud, quod est digitus primo inventus. –
Quo facto (*158*): determinat hic de inventione aliorum digitorum, et

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1735 secunda: incipit *add.* VC   **1736** facto aut: f. VHBT; f. autem S; autem f. A
1741 agendum sit: s.a. VC   **1742** scilicet quantum: secundo (2° VS) sc.q. VCS; secundo q. A; secundo q.sc. T   **1742-3** inventionem--ad: *om.* V   **1743** secundo: tertio C; *om.* A; *def.* V   **1744** in (*om.* & *ins.* A) impari: imp. VT   incipien-dum est: e.i. E; i.e. operari S   **1745** et inveniendus est: et est i. E; *om.* V
1746 suprapositum: S; *om. cett.*   **1748** ex: e ETAD   eius: *om.* D; *def.* A; ei Cu   **1749** est figurae (illi *add.* & *del.* E) alteri (-ius V) supra-(sup- V)posita: e.a.f.s. HB; a.f. (f. *om.* T; f.a. A) super-(sup- TA)ponitur STA   **1750** dicitur: debet V; dicuntur C   illi (ille C): *om.* STA   **1751** invento: ⟨et ducto in se⟩ *add.* Cu
     1758 subduplum: CAD, Cu; duplum *cett.*   quod: qui ESD; q(ui+uod) V
1759 facto: inveniendus *add.* VHB; inveniendus est *add.* C   **1761** id est: et

1760 primo secundi, et quomodo circa ipsum sit agendum; et secundo
(*161*) innuit, quid circa alios processus, id est circa inventionem
aliorum digitorum et iuxta eorum modum agendi, sit faciendum; et
incipit secunda pars ibi *Nec cessandum.* Adhuc primo (*158*) facit quod
dictum est, et secundo (*160*) dat cautelam quandam hic observan-
1765 dam, cum dicit **Si autem contingat.** Prima pars cum secunda siquid
scrupulosum habent, in fine videbitur, cum me transtulero ad
exempla. – **Nec cessandum** (*161*): innuit, quid circa alios processus
sit faciendum, et patet in littera, et magis patebit infra. – **Quo facto**
etc. (*162*): dat modum rectificandi hanc operationem, et est duplex:
1770 per primum habetur, utrum numerus propositus fuerit quadratus, et
quae sit eius radix; per secundum autem (*163*), utrum erratum sit in
operando necne; secundus modus ponitur ibi **Si velis igitur;** et
planae sunt ambae partes.

   In exemplum dictorum sit ille numerus propositus 9548198. Unde,
1775 quia figurae sunt in numero impari, sub ultima incipiendum est
operari; et ibi inveniendus est quidam digitus, et erit 3, quem ducas
in se, et productum, scilicet 9, deleas a figura sibi supraposita, et loco
figurae ultimae nihil remanebit. Quo facto dupletur digitus inventus,
et duplum eius, scilicet 6, ponatur sub proxima figura versus
1780 dextram, scilicet sub 5, et eius subduplum, scilicet 3, sub eo, scilicet

sub duplo, et stabunt figurae sic $\frac{548198}{\begin{smallmatrix}6\\3\end{smallmatrix}}$. Quo facto inveniatur quidam
digitus sub proxima figura, scilicet sub 4, quem ducas in duplatum
etc.; et constat quod nullus digitus poterit hic inveniri, quia 6 nequa-
quam de 5 subtrahentur. In hoc igitur casu, sicut dixit cautela (*160*),
1785 *debet poni cifra sub cifra sub tertia figura versus dextram inclusive, et*
postea anteriorandum est duplum cum suo subduplo per unam differen-

tiam; et tunc in fine stabunt figurae in hunc modum $\frac{548198}{\begin{smallmatrix}60\\30\end{smallmatrix}}$. Quo facto
inveniendus est quidam digitus sub proxima figura versus dextram,

omnes   **1762** iuxta eorum: circa *vacat* iuxta E; eorum C; iuxta alios D; iuxta eos
HB   **1763** primo: ⟨duo facit, quia primo⟩ *add. Cu*   **1764** cautelam
quandam: c. C   **1765** prima pars: pa. pr. VSTA   **1767** cessandum: est *add.*
CST   **1770** propositus: ppos. V; praepos. HB; compos. S; *def.* C   **1774** ille
numerus propositus (pos. C): iste n.p. C; n. iste p. S; n.p. iste T; n. ille A   **1782**
quem ducas: quam d. VEH; que (!) d. C; qui ductus TD   **1783** poterit hic
inveniri: h.p.i. S; p.i.h. ETD   **1784** subtrahentur: -etur D; -eres E; subtrahuntur

scilicet sub unitate, qui ductus in duplata deleat supra duplata,
1790 deinde ductus in se deleat supra se; et erit digitus ille 9, quo ducto in
6 provenient 54, quae deleas, et totum tolletur supra 6; deinde
eodem ducto in se provenient 81, quae deleas supra ipsum digitum,
et totum etiam tolletur. – Et est etiam alius modus subtrahendi, sicut
auctor tetigit in littera *(159)*, scilicet ut ducatur digitus inventus, scili-
1795 cet 9, in duplatum, scilicet in 6, et ponatur productum supra 6;
deinde ducatur ille digitus, scilicet 9, in se, et productum, scilicet 81,
ponatur supra eundem digitum, ita quod prima secundi producti
stabit ante primam primi producti; ita dixit in littera, verumtamen,
propter cifram mediam, in hoc casu ultima etiam figura secundi
1800 producti stabit ante primam primi producti. Et stabunt figurae sic

$$\begin{matrix} 548\mathit{1} \\ 548198 \\ 609 \\ 30 \end{matrix}$$. Deinde subtrahas singulas de singulis, et stabit residuum sic

$$\begin{matrix} & 98 \\ 609 \\ 30 \end{matrix}$$. Hoc facto dupletur digitus iam inventus, scilicet 9, et duplum
eius, scilicet 18, ponas sub proxima figura versus dextram, scilicet
sub 9, ponendo, sicut supra dixi, digitum illius numeri compositi,
1805 scilicet 8, sub figura illa proxima, et articuli digitum, scilicet 1, loco
eiusdem digiti 9; et ille 9, qui iam est subduplum de 18, ponatur sub
suo duplo, ita quod sub digito semper ponetur, scilicet sub 8; et

stabunt figurae hoc modo $\begin{matrix} & & 98 \\ & 60\mathit{18} \\ 30 & 9 \end{matrix}$. Deinde anteriores duplata cum

subduplis primis, scilicet 60, quae sunt duplata, et 30, quae sunt

1810 subdupla; et stabunt figurae sic $\begin{matrix} & 98 \\ & 618 \\ 30 & 9 \end{matrix}$. Quo facto inveniatur quidam
digitus ante omnia duplata, scilicet sub prima figura, quae est 8, qui
ductus in omnia etc., et constat quod nullus erit; et ideo in hoc
casu ponenda est cifra sub cifra sub prima figura, sub qua inveni-

STA; subtrahi potest HB   **1789** duplata₁: du-(2- B)platum BEAD; triplatum HS;
duplato T   deleat: totum *add.* CHB, A *(ins.)*   **1794** inventus: *om.* S; *def.* C
1798 dixit: dicit HBEST; habet A *(ins.)*   in littera: 1. ESA

    1802 hoc: quo HBS   duplum: subduplum VHBS   **1805** figura illa
proxima: f.p.i. ES; p.f.i. T; p.f. D; *def.* A   **1806** ille: D, *Cu*; *def.* C; illum
cett.   ponatur: ponantur C   **1807** ponetur: ponatur VT; ponantur .C; po-
nentur HB   scilicet sub 8: igitur hic sub 8 E; 9 (8 VHB) hoc *(vel* hic V; hic «est»
A; scilicet BT) sub 8 (9 HB; 18 T) VHBTAD; 9 sub hoc 8 C; 8ᵘˢ S; digitus *Cu*
1809 duplata: dupla CSTAD; *def.* B   **1813** est cifra: E; est 0 VCS   sub cifra

endus esset digitus, licet auctor de hoc non faciat mentionem; et

1815 stabunt figurae hoc modo $\begin{smallmatrix}98\\6180\\3090\end{smallmatrix}$.

|Unde quia, facta operatione tota, *aliquid est residuum,* scilicet 98, constat,| sicut auctor dixit (*162*), *quod numerus propositus non fuit quadratus; sed radix quadrati maximi sub illo numero contenti* est 0 ultimo habita cum subduplis, scilicet 3090; quod si ducatur in se, exibit

1820 maximus quadratus ex numero proposito extractus, scilicet 9548100, quibus si residuum, scilicet 98, addideris, exibunt figurae quas prius habuisti, scilicet 9548198, et ideo non est erratum. – Idem etiam probes aliter per probam ut in praecedentibus: videas enim, quae sit proba radicis, scilicet 3090, et constat quod 3; ducas eam in se semel

1825 per modum quadratorum, et proveniunt 9, quibus abiectis erit proba radicis ductae in se cifra. Deinde videas, utrum proba numeri primo propositi sit etiam cifra: tunc enim bene operatus es, dato quod numerus propositus fuerit quadratus, ita quod completa operatione nihil sit residuum. Cum igitur aliquid erat hic residuum, scilicet 98,

1830 eis de toto numero subtractis sumatur residuum, scilicet 9548100, cuius proba si fuerit cifra, bene invenisti radicem, sin autem, non; et constat quod proba numeri huius sit cifra; constat igitur quod in toto est bene factum.

Sequitur de radicum extractione (*164*): cum nunc exsecutus sit

1835 auctor de his quae proponebantur determinanda circa radicis extractionem in numeris quadratis, consequenter aggreditur, determinando de eisdem, proposita circa radicis extractionem in cubicis, et facit

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(0 T): *om.* C   **1814** licet: sed ESA   faciat: facit ESA   **1816-7** unde--constat: ED; *om. cett.*; ⟨sic 98 remanebunt⟩ *Cu*   **1816** tota: D; cum *add.* E   aliquid--98: E; residuum est 98 D   **1817** auctor dixit: d.a. STA; a. dicit HBED   **1820** scilicet: *om.* EC   **1822** est erratum (-ticum A): est err. istud C; errasti E   idem: illud VSTA; istud CHBE   **1824** scilicet: EB; *om. cett.*   **1826** cifra: 0 VCT; *om.* HB   **1827** cifra: 0 CT   **1829** cum--residuum: VC, E (hic *ante* aliquid); *om.* S; *varie cett.*   **1831** cifra: 0 VCST   **1832** cifra: 0 VCTA   constat: quod C; *alia* E   igitur: *om.* STA; *alia* E   in toto: toto V; *alia* E   **1835** radicis (-cum T) extractionem: e.r. VCE   **1836** aggreditur: hic *add.* CST; auctor *add.* E   **1837** eisdem proposita (-itis E*a.c.*): eisdem quae p.

duo: primo enim proponit seu praemittit quaedam ad propositum necessaria, et secundo (*168*) de intento exsequitur, cum dicit *Proposito.*

1840 Adhuc primo (*164*) in generali, secundo (*165*) singulum notificat in speciali, cum dicit **Est igitur numerus**; prima pars (*164*) patet; in secunda (*165*) tria facit secundum numerum trium praemissorum, et patet pars quaelibet, quarum secunda (*166*) incipit ibi **Radix autem,** tertia (*167*) ibi **Radicem autem cubici.**

1845   **Proposito igitur** (*168*): exsequitur, et facit tria, quia primo disponit figuras, et secundo (*169*) docet operari secundum modum quem auctor iste assuevit, vel secundum modum quem compositor huius tractatus magis ab inventore artis invenit traditum; et tertio (*178*) dat alium modum novum considerandi ordinem figurarum pro

1850 inceptione operis, qui modus idem est realiter cum priori; et hoc facit in fine, cum dicit *In hac autem radice.* Adhuc primo (*168*) docet operari in extractione radicis a pluribus figuris quam tribus, et secundo (*177*) cum fuerint 3 vel pauciores in numero proposito, cum dicit *Notandum etiam quod si in numero.* Circa primum (*168*) adhuc duo facit:

1855 primo enim facit quod dictum est, et secundo (*176*) dat quandam cautelam hic observandam, cum dicit *Si autem aliquis digitus.* Adhuc docet primo (*168*), qualiter sit hic operandum, et secundo (*175*) docet rectificare operatum, ibi *Hoc facto aut.* Adhuc primo (*168*) docet, quid agendum sit iuxta inceptionem operis, et secundo (*170*) docet,

1860 qualiter in sequentibus sit procedendum, ibi *Quo facto triplandus.* Partes omnes patebunt in exemplo. – In secunda igitur parte (*170*) duo facit: primo enim docet, qualiter in sequentibus sit procedendum, et secundo (*174*) ponit quendam novum modum subtrahendi, cum dicit *Notandum etiam.* Tota prima pars (*168-174*) legatur continue

1865 et videbitur in exemplo. – Et secundo (*175*), ibi **Hoc facto,** docet

sunt A; eis [[de proposito]] H; eis B   **1838** seu: sive VC; *def.* HBA   **1840** primo in g.: p. facit hoc (hic S) i.g. SA; p. facit quod dictum est T; p. facit ⟨duo, quia primo facit⟩ hoc i.g. Cu   **1844** cubici: cubicam E; cub() V   **1845** tria: d(uo) A   **1846** secundo: *om.* E   **1847** assuevit: ass[[e]]uerit C; adinvenit E; proposuit T   vel: et T; id est Cu   **1848** artis: huius a. ESTA   tertio: Cu; secundo (2° VBST) *omnes*
  1853 3: tres C   **1854** quod si (*om.* HB) in numero: proposito *add.* C; *om.* S; *alia* A   **1857** docet primo: p.d. ST; p. E; d. A   sit hic: h.s. CE; sit T **1858** facto aut: autem f. EA; f. autem CS; *def.* T; f. *cett.*   docet: *om.* VCHB; *def.* T   **1861** igitur parte: igitur T; parte S; «igitur» parte ergo E   **1865**

rectificare operatum, et patebit in exemplo. – **Si autem aliquis digitus** (*176*): dat quandam cautelam hic observandam, quae etiam videbitur in exemplo. – **Notandum etiam** (*177*): innuit, quid agendum sit, cum figurae numeri propositi fuerint 3 vel pauciores. –

1870 **In hac autem radice** (*178*): dat modum alium considerandi ordinem figurarum, et recapitulat in fine, et patet satis.

Ad evidentiam omnium dictorum et suppositorum, sit numerus, cuius radicem velis extrahere, iste 751089429. *Computes* (*168*) *figuras per 4 sive per loca millenariorum, et* (*169*) *sub loco ultimi millenarii,* scilicet

1875 sub 1, *inveniendus est quidam digitus, qui ductus in se cubice,* scilicet bis, *deleat totum suprapositum respectu sui, vel in quantum vicinius potest.* Erit autem digitus iste 9, quem ducas in se positum sub 1, et provenient 81; loces igitur 8 supra 5 versus sinistram et 1 supra 1, sub qua est digitus 9. Deinde ducas eundem 9 in productum, et erunt 729; et

1880 stabunt 9 supra 1, sub qua est digitus inventus, scilicet 9, et 2 supra 5 versus sinistram, et 7 supra 7, quae est figura ultima. Quo igitur facto deleas singula de singulis, et de 7 remanebit nihil, de 5 2, et loco 1 2; et stabunt figurae sic $9^{22089429}$. *Deinde* (*170*) *digitum inventum triples, et triplatum,* scilicet 27, *ponas sub tertia figura proxima versus dextram*

1885 inclusive, scilicet sub [primo] 8, ita quod digitus qui est pars illius numeri compositi, scilicet 7, ponatur sub illa figura, et digitus articuli, scilicet 2, ponatur sub proxima figura versus sinistram, scilicet sub cifra, *et subtriplum sub triplo,* sic $27^{22089429}_{\ 9}$. *Deinde* (*171*) *inveniendus est alter digitus sub proxima figura* versus dextram *ante triplatum,* scilicet sub

1890 secundo 9, *qui cum subtriplo ductus in triplatum, deinde sine subtriplo ductus etc.* Illud sic faciendum est: ponatur digitus, quem credis inveniendum, sub ultima figura triplati, et subtriplum post ipsum proximo loco versus sinistram; ut si credas quod digitus inveniendus erit 1, stabunt figurae sub hoc ordine $91^{22089429}_{\ \ 27}$; ducas igitur 91 in 27 per

videbitur: videtur VCA   et secundo ibi: et secunda ibi B; et secunda VEH; *om.* STA; *def.* C   **1868** notandum etiam: quod *add.* C; hic *add.* STA   **1869** 3: tres C   vel: aut EST; p(er) V   **1878** supra 5: VC; sub 5 *cett.*   supra 1: super 1 VCSA; sub 1 HBT   **1879** 729: 759 S; 720 C   **1882** singula: singulas HBS; singulos E; *om.* TA   nihil: 0 n(ihi)l C; 0 nu(n)c V; 0 S   **1884** triples: triplices CS   **1885** primo: prima C; primis S; p(ost) T; *om. Cu*   **1888** cifra: 0 CHBSTA   **1890** secundo: *om.* E, *Cu*   9: 8 VCSA   **1892** proximo loco: T; proxime AD; proximo *cett.*   **1893** credas: credis CE   **1894** figurae sub hoc ordine: h.o. V; f. sic A; f.h.o. STD   **1895** provenerit:

1895 modum multiplicationis primo, et quidquid provenerit ponas supra
figuras supremas; et stabunt figurae perfecta multiplicatione recte in

hunc modum $\begin{smallmatrix}2457\\22089429\\27\\91\end{smallmatrix}$. Et tunc digitum inventum duxisti cum subtri-

plo in triplatum, et hic est primus processus. Deinde eundem
digitum sine subtriplo ducas in productum, id est in numerum
1900 supremo stantem, scilicet in 2457, et provenit idem numerus, quia,
sicut supra dictum est, ex ductu numeri in unitatem vel e converso
non crescit aliquis numerus. Duo igitur facta sunt: iam enim duxisti
digitum inventum cum subtriplo in triplatum, et iterum eundem
digitum sine subtriplo in productum. Subtrahas igitur singulum de
1905 singulo, et non poteris; nullus igitur digitus erit. In hoc igitur casu,
sicut vult auctor *(176)*, *ponatur cifra sub cifra sub tertia figura versus*
dextram exclusive, scilicet sub 2, *et anteriorentur* triplum et subtriplum
versus dextram per duas differentias, et stabunt figurae isto modo

$\begin{smallmatrix}22089429\\270\\90\end{smallmatrix}$. Quo facto inveniatur digitus sub prima figura, scilicet sub 9,

1910 qui cum subtriplis etc.; et erit 9, quem cum duxeris cum subtriplis in
triplatum, exibunt 24543, quem productum vocat auctor *(171)*, in
quem ducas adhuc digitum eundem, scilicet 9; et exibunt 220887,
quae tollas respectu triplatorum, subtrahendo primam, scilicet 7, ab

illa sub qua est 7; et stabunt figurae sic $\begin{smallmatrix}220887\\22089429\\2709\\90\end{smallmatrix}$, facta autem

1915 subtractione stabit residuum sic $\begin{smallmatrix}729\\2709\\90\end{smallmatrix}$. Deinde ducas adhuc eundem
digitum in se cubice, et provenient 729, quo subtracto de residuo
nihil remanebit de numero primo proposito.

Quia igitur nihil est residuum *(175)*, *numerus primo propositus erat*
cubicus, cuius radix est digitus ultimo inventus praepositus subtriplis; et est ista

perv. T; provenit CSAD   **1896** recte: ratione C; *om.* D; *def.* A   **1898** hic:
hoc ST; h() C; *def.* H, B   **1900** supremo (-mum HB): in sup. STA

1901 *cf.* § *147 algorismi*   unitatem: ES; 1 V; *def.* C   **1906** cifra$_2$: VE; 0 CS
1907 anteriorentur: -retur ST; -rarentur HE   **1910** quem (quod E) cum: *omnes*;
quem tum *Cu*   **1911** exibunt: exibit V; et e. istae figurae STA   24543:
245430 BE; 24543«0» H   quem: quae ED; q. numerum T   **1912** quem:
quod VHBE   exibunt: istae *add.* V; istae figurae *add.* STA   220887 (250- S):
2208870 BE; 220887«0» H   **1914** *(summa tabula)* 220887 (250- S): 2208870 BE
1916 provenient: proveniunt (figurae *add.* SA) VHBSTA   **1917** primo: *om.*
CHBSTA   **1918** nihil: 0 S; non C   **1919** radix est: r. erat ED; *def.*

1920   909, quam si duxeris in se cubice, redibunt primae figurae. Ad hoc
autem sciendum ordinentur figurae semper isto modo $909\,^{909^{909}}$. Deinde
ducas infimas in medias, et provenient 826281, et easdem in
supremas, et provenient 751089429. Si autem aliquid fuisset resi-
duum, tunc ei, quod provenit ex ductu radicis in se cubice, addatur
1925   illud residuum, et redibunt eaedem figurae quae primo erant, si recte
fecisti. – Istud idem examinare poteris per probam: sumatur enim
proba radicis, et eam ducas in se cubice; et si proba numeri
provenientis aequalis fuerit probae numeri propositi, bene est fac-
tum, sin autem, erratum est. Verbi gratia, radix numeri nunc
1930   propositi est 909, cuius proba est cifra, quam si in se duxeris cubice,
adhuc erit 0. Videas igitur si proba numeri propositi sit 0; et constat
quod sic; bene igitur actum est. Si etiam aliquid fuisset residuum,
subtracto illo de totali numero proba residui ostenderet intentum.

   Et hoc credo sufficere ad intellectum eorum quae in algorismo
1935   continentur.

Verumtamen, quia radicum extractio in numeris cubicis laboriosa
videtur et poenalis propter difficultatem inveniendi digitum *qui cum
subtriplis etc.,* ideo compendium quoddam ad hoc diu investigans post
omnes visos angulos qualecumque remedium adinveni, ad cuius
1940   intellectum praemitto quaedam. – Quorum primum est quod, cum
aliquis numerus alicui figurae addi dicitur vel alicui figurae debere
suprascribi, si ille numerus fuerit digitus, ut sic sibi addetur vel sibi
suprascribetur; si vero articulus vel numerus compositus, addito vel

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C   praepositus: p. cum *Cu*; propos. VSTA; praepositis E; cum (*om.* & *ins.* H)
propositis HB; *def.* C   **1921** sciendum: *omnes*; faciendum *Cu*   figurae semper
isto modo: f.m.i.s. V; f. sub i.m. C; s. istae f.i.m. HB; s.f.i.m. ST; f. super hoc m. A
1922 provenient: -iunt VBSA; -it H   **1923** provenient: -iunt HBTAD; -iet V;
deinde *add.* STA; ista scilicet *add.* D   **1930** cifra: 0 CHBT   si: *om.* C; *def.* E
1931 adhuc: ad hu(n)c V; ad hoc T; *def.* E   erit: erunt HB; *om.* C; *def.* E
1933 de: residuo de C; a residuo V   **1934** hoc: haec VB, E*a.c.*; h() H
1935 continentur: hic est finis et de invenienda radice aliud (*om.* H) documentum
add. in mg. B, H (*man. alt.*)   **1939** angulos: avunculos HB   **1941** addi dicitur:
adit(ur) addi d(icitu)r V; additur additur C; additur A; addi debet HB   debere:

suprascripto articulo versus sinistram, cifra vero vel digito supra-
1945 scripto vel addito figurae memoratae, totus numerus ille figurae addi
dicetur. – Secundum est quod, cum aliquis numerus sic additur alicui
figurae respectu figurae subscriptae, directe addi dicitur. – Tertium
est quod, cum in multiplicatione quaelibet figura unius numeri in
quamlibet alterius duci habeat, quocumque ordine hoc fuerit, in
1950 idem redibit; et hoc est verum, si divisim hoc fiat. Verbi gratia, si
multiplicare velis 98 per 64, sive duxeris 6 et 4 coniunctim in 9 et 8
sive divisim, idem exit. Nec de alio debet intellegi dictum meum:
error enim erit, si prius duxeris 4 in 98 quam 6, vel 64 prius in 8
quam in 9. – Quartum est quod, supra quamcumque figuram
1955 ponitur sive scribitur sive cuicumque additur minoris numeri figura,
respectu illius ponitur sive scribitur ille numerus, cui supraponitur
sive cui additur illa figura minorem significans numerum; et hoc est
prope idem cum secundo.

Ex his, proposito numero quocumque, computa numerum figura-
1960 rum, et incipias operari sub ultimo ternario, sive fuerit completus sive
non, sive sub ultimo loco millenarii. Et sit numerus iste 1234567890.
Ultima figura, scilicet 1, est in loco ternarii ultimo, quia primus
ternarius completus est in 8, secundus inceptus in 7 completus est in
5, et tertius inceptus in 4 completus est in 2, et ultimus inceptus est
1965 solummodo in ultima figura, scilicet in 1; illa eadem etiam unitas est
in ultimo loco millenarii: primus enim est 7, secundus 4, et ultimus

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debet HBA; *om.* S   **1944** suprascripto₁: supra[[addito]]scripto E; subscripto V;
scripto *cett.*   **1945** ille: *omnes*; illi *Cu*   figurae addi dicetur: a.d.f. V; additur
figurae C   **1946** est: erit E; c(um) V   additur: addatur E; adducitur C
1947 addi dicitur: a. dicetur SA; additur CHB   **1950** si: *omnes*; ⟨sive coniunc-
tim⟩ sive *Cu*

1951 et 4: in 4 E; *def.* C   **1952** sive: vel SA; *om.* E   exit: erit E; est C;
esset HB; redibit SA; *om.* V   **1953** enim: *omnes*; ⟨enim⟩ non *Cu*   **1954** supra
qu.: s. quamque S; si s. quamque *Cu*   **1955** ponitur: ponetur VC   **1956**
scribitur: ⟨sive additur⟩ *add. Cu*   cui: qui VC   **1957** cui: qui V   hoc: haec
E; hic C   **1958** prope: proprie SA   **1959** *ante* ex his *distinx.* HBESA; *cum*
secundo *coniunxit Cu*   **1962** est: erit E; *om.* & *ins.* S; *om.* C   ultimo:
ultimi E, *Cu*   **1963** in 7: a 7 V; est (in 4 *add.* & *del.* A) 7 CA   completus₂(-plet
V) est: c. erit E; et compl. S; c. A   **1964** completus (-tum V) est: c. erit E; et
compl. SA   **1965** scilicet in: sc. VC   eadem etiam unitas (ES; 1 VC; *varie
cett.*) est: et. un. est HB; ead. est un. E; ead. est un. et. S; et. ead. un. A   **1967**

1. Ibi igitur incipias, et erit digitus ibi inventus 1, quae ducta in se bis adhuc est 1; deleas igitur illam ultimam 1, et triplum eius ponas sub 3, et 1 sub eo; et stabunt figurae facta anterioratione sic $\overset{234567890}{\underset{3}{i}}$. Quo facto sub 4 inveniendus est digitus, qui sic invenietur generaliter: pone 0 sub ultimo triplo, et ordines versus sinistram omnia subtripla eo ordine quo sunt, et ducas omnia subtripla in omnia triplata per modum multiplicationis; et quidquid ex ductu cuiuslibet in quamlibet provenerit, supra illam numeri propositi ponas, sub qua est multiplicans, modo quo in primo praemissorum dictum est. Quo facto ducas digitum, quem velis, in ultimam figuram totius producti; et si excrescat maior numerus quam significetur per ultimas figuras numeri propositi, ille digitus non est quem intendis; si autem, sic transcurrendo per digitos, tandem ex ductu alicuius in eandem ultimam producti provenit numerus non transcendens ultimas numeri propositi, confidas quod ille sit digitus quem intendis, quia necessario vel erit ille vel proximus minor. – Ad propositum ergo ponatur 0 sub triplo, et subtriplum ponas versus sinistram sub proxima figura, scilicet sub figura proxima illi sub qua est triplum, scilicet sub 2, quae nunc est ultima; et ducas subtriplum in triplum, ponens quod provenit supra figuram, sub qua est subtriplum, scilicet supra 2; et constat quod statim exceditur ultima figura propositi numeri; sed multo fortius excedetur facta ductione ulteriori, et ideo certus sis quod nullus digitus hic invenietur. Ponas ergo cifram sub cifra sub 6, et anteriores .triplum sub 5 cum suo subtriplo, ut stent figurae isto modo $\overset{234567890}{\underset{10}{\overset{30}{}}}$. Deinde sub 7 inveniatur digitus, modo qui dictus est: ponas ergo 0 sub 3, scilicet sub ultima triplatorum, et

1₂: VCS; unitas E   quae ducta: quod ductum V; qui ductus S   **1968** 1₂: unitatem EHBA   **1969** 3: ternario E; tribus S   eo: ea VC   facta anterioratione sic: s.f.a. VA; a. isto modo S; isto modo Cu   **1970** sub 4 (quarto A) inveniendus est (quidam add. A): inv. est sub 4 C; inv. est HB; «sub» inv. erit (est Ea.c.) E   **1972** eo: E, Cu; et VCS; alia HB, A   sunt: alia A; sunt ⟨inventa⟩ Cu triplata: tripla C; duplata E; alia A   **1973** quamlibet: queml. VS   **1977** significetur: -catur E   **1980** provenit: -nerit HBSA   **1986** ponens: et pones V; ponas C, Aa.c.   **1989** invenietur: -itur CBE; -iatur A   cifram: 0 CHBSA **1990** cifra sub: 0 sub HS; cifra scilicet sub B; om. EC   5: quinario V   ut stent f.: et stabunt f. V; ut (et Ea.c.) s.f. E; ut f.s. A   **1991** (infima tabula) 10: 00 VCS   **1992** dictus: ductus ESA, Ba.c.   ultima: Cu; -mo omnes   **1993**

subtripla versus sinistram, et stabunt figurae isto modo $\frac{234567890}{100}^{30}$. Quia
igitur in ordine subtriplorum et etiam triplatorum tantum ultimae

1995 sunt significativae, ducas ultimam in ultimam, et 3, qui provenit,
ponas supra 3, sub quo est ultima subtriplorum, et stabunt figurae sic
$\frac{3}{234567890}$
100^{30} . Quo facto compares ad supremum tres digitos incipiendo a
maximo, scilicet a 9; et constat quod ducendo 9 in 3 provenit maior
numerus quam 23; item si duxeris 8 in eundem 3, proveniet adhuc

2000 maior numerus quam 23; et ideo neuter horum est quem intendis.
Duc ergo 7 in 3, et exit minor, scilicet 21: 7 igitur erit digitus quae-
situs; deleta igitur 0, quam posuisti sub ultima triplatorum, loco eius
ponas 7. Et ducas nunc de novo omnes figuras infimas in triplatum,
et quod provenit ex ductu, hoc ponas semper supra multiplicantem,

2005 modo quo dixit quartum praemissorum; et stabunt figurae sic
$\frac{321}{234567890}$
107^{30} . Quo facto duc 7 in productum, et erunt in producto tales
figurae 2247, quibus deletis de sibi suppositis stabunt figurae sic
$\frac{9867890}{107}^{30}$. Quo facto reponas subtripla locis suis et digitum nunc in-
ventum, scilicet 7, sub 7 sicut hic $\frac{9867890}{10}^{307}$. Quo facto eum ducas in se

2010 bis, et productum, scilicet 343, tollas supra 7, et remanebunt supra
figurae tales 9524890. Deinde tripletur 7, et triplum eius ponatur sub
9, et eius subtriplum, scilicet 7, sub eo, et anteriorentur triplata cum
suis subtriplis ut prius, ut stent figurae sic $\frac{9524890}{\frac{321}{107}}$. Et tunc ultimo
inveniendus est quidam digitus sub prima figura, scilicet sub 0: ponas

2015 igitur sicut prius 0 sub ultima triplatorum, subtriplis ordine quo

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subtripla: subtriplata VSA   **1995** significativae: fig(ur)at(iv)ae C; si (i)g(itur) E; *om.*
& *ins.* H   **1998** a: 7 C; *om.* HB; *def.* E   3: tria C; ternarium SA   **1999** 23:
27 E; 33 C   item: qui cum C; *def.* V, A   eundem: eadem S; *def.* V, A
2000 numerus quam 23: digitus quam 27 E; *def.* V
    2001 ergo: EB; igitur A; *om. cett.*   exit: est C; esset HB; erit *cett.*   **2002**
$\frac{234567890}{30}$
deleta: debes V; deleto S   **2003** 7: sic *add.* HS; sic A*a.c.*; sic 107^{30} *add.* B
2004 provenit: provenerit VHBS   **2007** suppositis: suprapos. CESA
2008-9 quo facto--sicut hic □: *gem.* C (=C_1,C_2)   **2009** scilicet 7: s. VC_2; s. «7»
H; *om.* SA   sicut hic: sic hic V; sic S; sicut haec H   **2010** supra (semper H;
om. BA) figurae tales: f.s.t. E; f.t.s. C   **2013** ut stent: et stet V; et (ut E*p.c.*) stent

sunt versus sinistram anterioratis, et stabunt sic $1070\begin{smallmatrix}9524890\\321\end{smallmatrix}$. Duc igitur

omnes figuras infimas in medias sicut prius, et stabunt figurae sic

$1070\begin{smallmatrix}34347\\9524890\\321\end{smallmatrix}$. Quo facto compares iterum digitos omnes ad 3, quae est

ultima figura producti, et videbis quod, quemcumque in eum duxeris

2020 maiorem ⟨quam⟩ 3, statim exceditur figura ultima numeri propositi,

et si 3, statim aequalis numerus resultat; sed tunc ducendo eundem 3

in figuras sequentes maior fiet; et ideo nec 3 erit digitus iste; erit

igitur 2. Quo scito ordines subtripla ut prius, et loco cifrae, quae

prius erat sub ultima triplatorum, ponas eundem 2, sic $1072\begin{smallmatrix}9524890\\321\end{smallmatrix}$.

2025 Ducas igitur nunc de novo omnes figuras infimas in medias, et hoc

est ducere digitum inventum cum subtriplis in triplata; et provenient

istae figurae stantes in supremo ordine sic ⟨ ** ⟩ $107\begin{smallmatrix}344112\\9524890\\3212\end{smallmatrix}$. Quo facto

ducas digitum inventum in productum, et erunt in supremo ordine

688224, quibus subtractis de numero proposito remanebunt

2030 2642650; deinde ducas eundem digitum inventum in se cubice, et

productum, scilicet 8, tollas respectu digiti, et remanebunt de toto

numero proposito 2642642. Radix autem inventa habetur, si prae-

ponatur digitus ultimo inventus omnibus subtriplis, et erit 1072; quae

si ducatur in se cubice, proveniet iste numerus 1231925248, qui est

2035 maximus cubicus de toto numero proposito; cui si residuum addi-

deris, redibunt figurae primae, scilicet 1234567890.

Et quod iste sit cubicus maximus illius numeri, probes sic: radici

inventae addas unitatem, et ducas eam in se cubice; et resultabit

maior numerus numero proposito, quia resultabit iste 1235376017,

EBA; et stabunt S   **2016** igitur: ut prius *add.* EHBSA   **2017** figuras infimas:
i.f. S; f. omnes f.(!) V; infimas HBE   sicut prius: *omnes*   **2018** (*summa tabula*)
34347: 343470 A   iterum: igitur SA; *om* & *latentia ins.* E   quae: qui CEA
2020 maiorem quam 3: *Cu*; maiorem 3 V; «plus» tribus A; 3 HBS; maiorem CE
2021 3_2: tria C; digitum 3 B; ternarium E; *om.* S   **2023** cifrae: E; figurae 0 A,
Cu; figurae *cett.*   **2024** 2: binarium A; et EV   **2027** *de tabula cum satis constet,
excidisse videntur* ⟨344112. Quo facto reponas subtripla locis suis et digitum inven-
tum, scilicet 2, sub 0, sic⟩ *vel similia*   **2029** 688224: 6.8.24 S; 68224 VC
2032 2642642: 2642 VCHS, *Aa.c.*   **2035** cubicus: cubus C; cub() V
2037 cubicus: cubus CH; cub() V   **2038** unitatem: ES; 1 V; *om.* C   **2041**

2040 qui excedit primum numerum in tanto numero scilicet 808127; erat
igitur numerus extractus, cuius radicem invenisti, maximus cubicus
in toto numero proposito.

[Accipiens hunc, lector, laborem penses non modicum in hoc pauco;
qui autem dedit intellegere, sint gratiae infinitae.

2045   Inventum et completum anno domini 1292 ultima die Iulii, scilicet
in profesto beati Petri ad vincula, per magistrum Petrum de Dacia
dictum Philomenam.]

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cubicus: numerus Ea.c.; numerus c. C; cub(us) VH   **2043-7** accipiens--Philo-
menam: VCHBE; *ceterorum subscriptiones in praefatione dedi*   **2043** accipiens:
incipies V   hunc: hoc VCH; haec B   penses: pñs E   **2044** sint: sit HBE;
om. C.   **2045** 1292: m^{o}cc^{o}lxxxxij^o E;1°2°9°2° HB; 12901 (!) C   **2046** pro-
festo: E; festo *cett.*   beati: sancti E   **2047** Philomenam: Filo. V; amen *add.* VC

Algorismus
Iohannis de Sacro Bosco

§1. The Algorism was most recently printed by Curtze 1897; earlier editions are listed at p.V of that work. The number of extant manuscripts has hitherto prevented critical editing of the text, nor has this been attempted for the present purpose. The text follows ms.K, aided by mss. BOX (below). Paragraphs of the text are referred to by means of numbers in parentheses.

Manuscripts:

K København, Kgl. Bibl., Ny kgl. Saml., 275ª,4°. Vellum, 20½ × 14½, ff.85, late 13th c.

Jørgensen 1923,419-20.   Eneström (1885,3)22 no.1. Zinner 1936,321. OP p.4. Further references on the calendar of K are noted below; the scribal hands have been inspected by Dr. Sten Ebbesen and myself. Cf. *Introduction* §4d.

1r-10v Omnia quae a primaeva. . .tam in numeris quadratis quam cubicis. *p.9*

The manuscript is written in one main hand, from the close of the 13th century (after 1292, as is seen from a set of 4 solar tables with values from William of St.Cloud's *Almanach,* at 73r-74v, dated 1292-5). The following recapitulates those secondary notes which have been adduced to show that the manuscript was in the possession of a Dane at the University of Paris during the 1290's (Jørgensen 1923,420).   At 84v, a contemporary hand (=A) has made a list of countries belonging to the English Nation at the University, followed by an index to the whole manuscript. The last entry in *p.13* the latter is "calendarium magistri p. de dacia", referring to the calendar at 78v-84r. Within this calendar, hand A ("manu secunda sæc.xiii exeunt.", Jørgensen) has added entries adapting the calendar for use in the English Nation, and probably also the note to April 17(-18), "anno domini 1295° o(biit) matheus crac cuius anima requiescat in pace amen": 'Krag' can be Danish. Four notes on Danish feasts are written in a lighter ink and partly in a larger hand ("manu tertia", Jørgensen): Jun.25, "translatio sancti kanuti ducis"; Jul.10, "kanuti regis"; Aug.24(-25), in margin, "translatio beati lucii pape"; Jan.7, in an erasure leaving traces of hand A, "kanuti ducis". These four notes are in the same hand, with some variation, such that the first-mentioned is hard to distinguish from hand A: thus they may be later notes by the same scribe. At Aug.19, hand A has apparently written on top of some hand not recognizable elsewhere: neither note is revealing.

Another hand which is certainly different from hand A has made two notes on a Danish feast: March, top of page, "anno domini m° cc° nonagesimo quarto nonas marcii die sancti lucii"; Mar.4, "lucii pape".   Thus, except for trifles, there need have been no more than two supplementary scribes in the calendar, both of them Danes. One of them dates a note at 1294; the other one has a note for the year 1295, re-works the calendar for use in the English Nation, and makes the index including the name of Peter of Dacia.

Langebek (VI,1786,260) assumed that Peter had owned this manuscript; extracts of the calendar was printed as Peter's work by Langebek/Suhm (Langebek VI,260-5; illustration, Langebek V,1783,table facing p.38). Jør-gensen (1910,255-6) disbelieved in Peter's ownership while still adhering to the attribution of the calendar, subsequently disproved by Beckman/ Kålund (1914,XXXIX), who showed that the conjunction table was the common one by Grosseteste. It may, then, be tempting to revert to the assumption that the name concluding the index, and the manuscript as it was then, is indeed an owner's note; if so, this text of the Algorism has come into Peter's hands rather later than the composition of his *Exp.Alg.*

The Algorism is accompanied by some glosses, mostly in later hands. There are only two which may be contemporary, both at 1r, in a hand apparently different from the hands in the calendar (reproduction, p.9). One contains the quotations of Boëthius mainly as found in the *Exp.Alg.*, lines 29-35. The other one (cf. *Exp.Alg.*, lines 24-7) has: "Notificat causam finalem, quia finis istius scientiae est cognitio eorum quae sunt, et hoc probat auctor sic: Ars illa est necessaria, quae ducit nos in cognitionem omnium; sed haec ars est huiusmodi; ergo est necessaria. Maior est evidens; minorem probat: Unumquodque sicut est, ita cognosci habet; sed omnia sunt sub aliquo numero; si sic, ergo ars numerandi valet ad cognitionem omnium. Minorem rationis primae ponit in littera cum sua declaratione, et in hoc tangit causam finalem huius operis". The same hand, and a hand which is possibly Hand A above, have added most of the numerical examples from *Exp.Alg.*, beginning with "Exemplifices de additione per hunc modum $\frac{98706\,3}{12345\,6}$ " in hand A.

B Oxford, Bodleian Libr., Bodl.491. Cf. *Exp.Alg., Pref.*§1.

1r-8r (Hdg.:) Hic incipit Algorismus. (Txt:) Omnia quae a primaeva. . .tam in numeris quadratis quam in cubicis. (Subscr.:) Explicit Algorismus compendiose compilatus.

O Oxford, Bodleian Libr., Can.Misc.161. Cf. *Calendar, Pref.*§2b, ms.Oc, and §4 below for the glosses.

1r-6r Omnia quae a primaeva. . .tam in numeris quadratis quam cubicis.

X Stockholm, Kgl.Bibl., X 767. Vellum, large 8°,ff.99, early 14th c.(text-hand). Reproduction in København, Kgl.Bibl., ms.phot. 5,4°. See §4 for the glosses.

Stephens 1847,32-4, no.XII.   Jørgensen 1910,257. Beckman/Kålund 1914, XLI-XLII.

15r-23v (p.29-46 of reproduction; hdg.:) Incipit algorismus sive ars introductorius in numerum. (Txt:) Omnia quae[[cumque]] a primaeva. . . Et haec de radicum extractione dicta sufficiant. (Subscr.:) Explicit algorismus.

The manuscript has been in Danish possession from some early time. It begins with a Grosseteste-calendar (p.1-14) in a contemporary hand, containing feast-days for the diocese of Roskilde, and with secondary notes in various hands, including contemporary ones, two of which bear the dates 1303 and 1290 (Apr.7 and Jul.4; Jørgensen). The calendarial part ends abruptly with the Tabula Gerlandi at p.14, and at p.15 there is a canon to the Tabula Gerlandi (see *Calendar,* App.5(a2)) with about a page of text missing at the beginning: thus just one leaf may have disappeared, and even if the calendar may be in a hand of its own, the coherence with the rest is probably original (compare Beckman). At p.131, to a Quadrant treatise in the same hand as the Algorism, a hand of the 14th-15th century has added "Rosk(ildis) 55 graduum 12 mi(nutorum) et 16 secundorum" (*Intr.* §18a).

I have also seen the following manuscripts:

D Paris, Bibl.Nationale, lat.7195, 1r-6v, 14th c.

E Erfurt, Wiss. Allgemeinbibl., 4°351,43r-45v, 13th-14th c.

G Princeton, Univ.Libr., Garrett 99, 117r-124r, early 14th c. See §4 for the glosses.

J Firenze, Bibl.Medicea-Laurenziana, plut.18 sin.6, 20r-(photo incomplete), 13th-14th c.

L Leipzig,Univ.Bibl., 1470, 433r-444v, 15th c.

N Paris, Bibl.Nationale, lat.7420A, 54r-55v, first half of 14th c.

P Salzburg, Bibl. der Erzabtei St.Peter, b IX 14, 78r-82v, 74r-77r, 15th c.

Q Erfurt, Wiss. Allgemeinbibl., 4°369, 145r-151r, early 14th c.

R Paris, Bibl.Ste.Geneviève, 1043, 1r-5r, early 14th c.

S München, Bayerische Staatsbibl., Clm 11067, 138r-142r, 15th c.

T London, British Libr., Sloane 514, ff.2-3-5-4-7-6-8, 13th c.

I have not seen München Clm 14684, used by Curtze in addition to S (Curtze p.V).

§2. For a rough guess as to what texts are similar to that used for Peter's *Exp.Alg.,* one might consider the following variants:

(2), alternative versions (ms.T not present):

(a) Hanc igitur... (as *Exp.Alg.*)	: KQ,OENS, J,R
(b) Cum igitur...	: DG, X(with (a) added in mg. before (b))
(a)+(b)	: PL
(b)+(a)	: B

(136) or (137), "et dicitur quadratus quia...quadranguli" (ms.J not present):

in (136) only (as prob. *Exp.Alg.*)	: Q,B, OENS
in (137) only	: K,XT,R, L(with an example at (136))
both	: DG (first time "quia...quadr."), P (first time garbled)

(138), the definitions (ms.J not present):

(a) Si autem numerus bis...	: DG,XT,OENS
(b) Numerus solidus est...	: R,L
(a)+(b) (as in *Exp.Alg.*)	: KQ,B
(b)+(a)	: P (preceded by "vel habes illam litteram")

None of the manuscripts show the beginning "et ratio huius est" for (74) (cf. *Exp.Alg.,* lines 805,813-4), nor the reading "qui ductus in se quadrato modo" in (157) (*Exp.Alg.,* line 1745). Thus, if Peter used only one text and reproduced the wording with any fidelity, no version like it has been found. The best approximation seems to be Q, but since the text is bad in details I have decided not to use it. Among the next-best there are K, B, and the group OENS, among which K recommends itself for its external history. For the same reason, and to have a counter-balance to the text, I also adduce X.

§3. Thus K is used as basis for this text, and generally a reading is adopted which is either common to K and at least one of BOX, or common to all of BOX against K. In other cases K was generally preferred. The notation of numbers follows K. Chapter rubrics have been ignored. In the text, | | and ( ) enclose passages which are not in K; the latter set denotes expansions of passages represented by "etc.", generally printed on no particular manuscript authority. Passages in [ ] are in K, but are considered to be individual additions or not to have been known by the *Exp.Alg.* ⟨ ⟩ enclose a passage only known to me from the *Exp.Alg.*

The apparatus notes all departures from K, readings against K in at least two of BOX, and a selection of longer variants, which turn out to be mainly from X.

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§4. The marginal *glosses on the Algorism* in manuscript X (and GO), here printed below the text and apparatus of the Algorism, form part of a set which also covers Sacrobosco's *Sphaera* and *Compotus.* The other incipits are

(*Sphaera:*) Quia hic (ille X) tractatus de sphaera astronomiae subicitur, primo videndum est quid sit astronomia. . .

(*Compotus:*) Iste liber dividitur in prooemium et (tractatum sive *add.*O) exsecutionem, ibi (*om.*X) *Tempus igitur.* In prooemio primo definit hanc scientiam. . .

The part concerning the *Sphaera* was printed by Thorndike (1949,412-44, cf.33) from G and O (=his O and B, resp.).

I print all the glosses from X which are in a uniform hand possibly contemporary with the text-hand. The only other notes in X are short and probably later, including the numerical examples from the *Exp.Alg.,* up to and including "exemplum multiplicationis in omni casu $\frac{45060}{2030}$". X contains very few glosses which are not also in both G and O. On the other hand, each of these contains extra matter, as follows:

G has the numerical examples from the *Exp.Alg.,* up to and including division; extracts on *proba* from the same work (cf. *Exp.Alg.,* lines 689-92; 777-85; 1102-5; 1299-1323), the last and longest one with readings much resembling those of ms.E of that work. Further, G has some quite extensive notes on calculation with fractions; four smaller notes on the etymology of "algorismus", on Boëthius, on a table of cubes, and on cube roots of numbers less than 1000; and a figure of chess-board multiplication. Finally, some notes meant as corrections to the text itself, among which appear the additional passages of O at (36), of X at (87) and (103), of XB at (130), and some lesser ones. These may be the result of a collation against some text similar to X.

O, which from the details seems to be independent of XG, has revised the glosses to the first two chapters, collecting the original

glosses after the end of the treatise. Near the end there are also two versions of the glosses, in some disorder. In both cases I have disregarded the secondary versions. There are some two dozen extra glosses, none very informative, and apparently unconnected with the *Exp.Alg.* The numerical examples are not those of Peter.

For the glosses in K see §1. I have noted substantial glosses also in Q,P, and L, which do not much resemble each other or those printed here except for some shorter passages and some extracts from the *Exp.Alg.* Q in particular contains an abbreviation of Peter's section on cube roots with the example 1234567890. P also has various shorter extracts; a *terminus post* is given by its citations of Jean de Murs and Bradwardine.

The present text, then, is strictly an edition of X, with only the most necessary additions and corrections from GO. Single glosses are divided by "–" or by a paragraph boundary. The division is according to X or, in a few cases, provoked by omissions or displacements in G or O. I print the glosses in X or in both G and O, with the restrictions mentioned. Single glosses which are only in X or only in GO are marked accordingly, in some cases with [ ] and 〈〉, respectively. The use of lemmas and of "ibi","hic","hic agit/determinat" follows X tacitly, as does the notation of numbers. The apparatus registers all departures from X, and the consensus of GO against X.

Sigla testium.

B   Oxford, Bodl.L. Bodl.491, s.xiv^2, 1r-8r

K   København, K.B. NkS 275^{a}4°, s.xiii^2, 1r-10v

O   Oxford, Bodl.L. Can.misc.161, s.xiv, 1r-6r

X   Stockholm, K.B. X 767, s.xiii-xiv, 15r-23v

Cu   lectiones aut coniecturae selectae ex editione Curtzii, qui usus erat codicibus München Clm 11067 et Clm 14684 et textu Halliwelliano (Rara Mathematica,1841,1-26).

G   Princeton, U.L. Garrett 99, s.xiv^1, 117r-124r (pro scholiis tantum, cf. §4).

(1) Omnia, quae a primaeva rerum origine processerunt, ratione numerorum formata sunt; et quemadmodum sunt, sic cognosci habent; unde in universa rerum cognitione ars numerandi est operativa.

5   **(2)** Hanc igitur scientiam numerandi compendiosam edidit quidam philosophus nomine Algus, unde et algorismus nuncupatur; vel "ars numerandi" vel "ars introductoria in numerum" interpretatur. [Cum igitur haec scientia, de qua ad praesens intendimus, circa numerum consistat, primo videndum est, quid sit nomen ipsius proprium et

10   unde dicatur, deinde quid sit numerus et quot numeri species. Est autem nomen eius algorismus, et dicitur ab 'algos', quod est ars, et 'rithmus', quod est numerus: inde 'algorismus' quasi ars numerandi. Vel dicitur ab 'an', quod est in, et 'gogos', ductio, et 'rismus', numerus, quasi inductio in numerum. Tertio modo dicitur ab Algo

15   inventore et 'rismus'.]

(3) Numerus quidem dupliciter notificatur: materialiter enim, ut numerus est unitates collectae; formaliter, ut numerus est multitudo ex unitatibus profusa. **(4)** Unitas vero est, qua unaquaeque res una dicitur. **(5)** Numerorum autem alius digitus, alius articulus, alius

20   numerus compositus. **(6)** Digitus quidem est omnis numerus minor denario. **(7)** Articulus est omnis numerus divisibilis in decem partes aequales, ita quod nihil sit residuum. **(8)** Compositus sive mixtus est qui constat ex digito et articulo; **(9)** et sciendum quod omnis numerus inter duos articulos proximos est compositus.

25   **(10)** Huius autem artis novem sunt species, scilicet: numeratio, additio, subtractio, mediatio, duplatio, multiplicatio, divisio, progres-

5-7 hanc igitur--interpretatur: *habent* KBO, X *in mg. hic insertum, cum additamento alterius manus* haec praedicta littera communior est loco huius "cum igitur" (*v.i.*). **5** edidit qu.ph.: ph.e. BO; e.ph. X   **6** et: *om.* K   **7-15** cum igitur--rismus: *habent* X, B *ante* hanc igitur (*supra, l.*5); *secutus sum* X   **16** notificatur: not. (scilicet *add.* B) materialiter et formaliter *add.* BX   **20** compositus: sive mixtus *add.* K   **24** compositus: numerus c. BO   **28** numeratione: dicendum est

sio et radicum extractio, et hoc dupliciter, quoniam in numeris qua-
dratis et cubicis; **(11)** inter quas primo de numeratione et conse-
quenter de aliis per ordinem dicetur.

30 **(12)** Est autem numeratio cuiuslibet numeri per figuras competentes
artificialis repraesentatio. **(13)** Figura vero, differentia, locus et limes

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add. BO   consequenter: postea BO   **29** per ordinem: *om.* OX   **32**

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(1) In hoc prooemio tangit breviter 4 causas huius libri et necessitatem, et
incipit a causa finali.

Et nota, cum dicit *ratione numerorum etc.,* quod ratio materialiter dicitur, unde
versus "Vis animae ratio discretio compotus atque Definitio causa proportio
5*   dicitur esse". Sumitur autem hic ratio pro proportione vel discretione, quia
omnia discreta ac distincta sunt adinvicem secundum discretam quantitatem;
vel pro proportione quia, cum omnia facta sint in numero pondere et
mensura, et in his proprie proportio existat, omnia debita proportione con-
stabunt. – (*XO:*) Unde Philosophus in primis 4 elementis decuplam innuit esse
10* proportionem, cum dicit quod ex uno pugillo terrae fiunt 10 aquae, et ita in
ceteris, et hoc per rarefactionem; eodem modo per condensationem ex 10
pugillis ignis fit unus aëris, et ita in ceteris. Si ergo simplicia inter se sunt
secundum proportionem, multo fortius composita, in quibus multiplex ele-
mentorum proportio multiplices differentias inducit et formas; unde, qui
15* numeros, id est artem numerandi, ignorat, omnia quodammodo et per conse-
quens se ipsum ignorat.

(3) Quia haec ars sine numeris exerceri non potest, primo in exsecutione sua
ostendit de numero quid sit, secundo dividit ipsum, ibi *Numerorum* **(5).** – Nota
quod triplex est numerus, scilicet numerus numerans, ut anima; numerus quo
20* numeramus, quae est quantitas de qua tractatur in arismetica; tertius est
numerus numeratus, ut res numeratae, de quo hic intendit.

primus denariorum
(7) Articulus ⟨ secundus centenariorum
tertius millenariorum

25* **(10)** In hac secunda parte determinat de speciebus huius artis; et primo in
generali eas enumerat et ordinem de eis determinandi dat; secundo in
speciali, ibi *Est autem numeratio (12).*

3* et nota--dicitur: nota quod ratio multa significat GO
18* quid sit--ipsum: et primo definitive, secundo agit de ipso divisive GO   nota:
et nota GO   **20*** tractatur: agitur GO   **21*** numeratae: *om.* GO   intendit: -itur
GO

idem supponunt, **(14)** sed a diversis rationibus imponuntur: "figura"
enim dicitur quantum ad lineae protractionem; "differentia" vero,
quia per illam ostenditur qualiter figura sequens differt a praece-
35 dente; "locus" dicitur ratione spatii in quo scribitur; "limes" vero
dicitur, quia est via ordinata ad cuiuslibet numeri repraesentatio-
nem.

(15) Sciendum igitur quod iuxta novem limites inveniuntur novem
figurae significativae novem digitos repraesentantes, quae tales sunt:
40 [0,]9,8,7,6,5,4,3,2,1. **(16)** Decima vero dicitur theta vel circulus vel
cifra, vel figura nihili, quoniam nihil significat; **(17)** ipsa tamen locum
tenens dat aliis significare, nam sine cifra vel cifris purus non potest
scribi articulus. **(18)** Cum igitur per has 9 figuras significativas,
adiunctas quandoque cifrae, quandoque cifris, contingat quemlibet
45 numerum repraesentare, non fuit necesse plures figuras inveniri
significativas.

(19) Notandum igitur quod quilibet digitus una sola figura sibi
appropriata habet scribi; omnis vero articulus per cifram primo posi-
tam et digitum, a quo denominatur ille articulus, habet repraesen-
50 tari, quoniam quilibet articulus ab aliquo digito denominatur, ut
denarius ab unitate, vigenarius a binario et ita de aliis. **(20)** Omnis
vero numerus in eo quod digitus habet poni in prima differentia,
omnis articulus in secunda. **(21)** Omnis quidem numerus a decem
usque ad centum, ut centenarius excludatur, duabus figuris habet
55 scribi: si sit articulus, per cifram primo positam et figuram scriptam
versus sinistram, quae significat digitum a quo denominatur ille
articulus; si sit numerus compositus, praescribatur digitus qui est pars
illius compositi, et sinistretur articulus ut prius. Omnis numerus, qui
est a centum usque ad mille, ut millenarius excludatur, per tres
60 figuras habet scribi; omnis numerus a mille usque ad decem milia
per 4, et ita deinceps. **(22)** Notandum etiam quod quaelibet figura
primo loco posita significat suum digitum, secundo decies suum

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rationibus: *om.* K   **34** differt: differat BO   **36** dicitur: *om.* OX   **40** 0,9--1:
1--9,0 K   **43** articulus: *ante* non potest OX   igitur: ergo K   significativas:
om. OX   **44** quandoque cifris: vel c. OX   **45** repraesentare: -ari OX   in-
veniri significativas: s. invenire OX   **47** igitur: ergo K   **48** vero: autem K
primo positam: *om.* BOX   **53** numerus: qui est *add.* K   **58** compositi: numeri
c. BX   omnis: autem *add.* K   **62** secundo: loco *add.* K   **64** millesies et

digitum, tertio centies, quarto millesies, quinto decies millesies, sexto
centies millesies, septimo millesies millesies; et sic in infinitum,
65 multiplicando per haec 3: decem, centum, mille; quae tamen omnes
in hac comprehenduntur maxima: quaelibet figura sequenti loco
posita decies tantum significat quantum in praecedenti.

(23) Et sciendum quod super quamlibet figuram loco millenarii
positam competenter potest poni quidam punctus, ad denotandum
70 quod tot millenarios debet ultima figura repraesentare quot fuerint
puncta pertransita. (24) Sinistrorsum autem scribimus in hac arte
more Arabum, huius scientiae inventorum, vel hac ratione, ut in
legendo consuetum ordinem servantes maiorem numerum praepo-
namus.

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sic: mille et sic K   **65** mille: et mille K   omnes: omnia O,*Cu*; *om.* X
66 sequenti: secundo K   **68** super: supra OX   **73** praeponamus: minori

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(12) Hic determinat de speciebus huius artis in speciali; et secundum 9
species sunt 9 partes, quae planae sunt; et primo de numeratione, quae 4
30* habet partes: primo describit eam; secundo de figuris huius artis, quae et quot
sint, et de sufficientia earum, ibi *Sciendum igitur* (15); tertio dat 2 regulas
numerationis, *Notandum igitur* (*19*); quarto ponit 2 notabilia, *Et sciendum* (*23*). Et
primo definit, secundo declarat quaedam.

(16) Nota quod cifra dicitur tetha a quodam ferro rotundo, quod ignitum
35* frontibus latronum imprimitur. Dicitur etiam circulus, quia ad modum circuli
sic fit 'O' et non sic sicut antiquitus 'Ø'; dicitur cifra quasi circumferentia; et
dicitur figura nihili, ratione quae in libro assignatur.

(19) Hic ponit 2 regulas numerationis, et primo penes numerum figura-
rum, – (22) secunda regula numerationis penes locum figurarum. – (23) Ponit
40* 2 notabilia. ⟨– (24) Secundum notabile, in quo redditur duplex ratio
ordinandi figuras a dextra in sinistram.⟩

(24) Cum ab initio omnia a primo, et tandem cuncta ordinentur in primum,
secundum hanc duplicem ordinationem duplex sapientum secta disponitur,
barbarorum scilicet et Latinorum, in hoc mundo. Primi a deo omnia profi-
45* tentur exisse, cum et nobis ab ipsis tota sapientia derivetur; secundi in deum
cuncta iterato reflecti asserunt, unde per ipsos in primis tota prudentiae
gloria in futurum restaurabitur et salus. Ex his itaque 2 deus signanter "alfa et
ω", principium et finis, nuncupatur, et dextera simplex in natura. Primi ergo

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34* tetha: thetha G   **36*** sic sicut: sicut O; *def.* G   **38*** ponit: tertio ponit G; *def.* O.
39* ponit: quarto ponit GO
40*-41* secundum--sinistram: *om.*X; *pauca add.*O

75 **(25)** Additio est numeri vel numerorum ad numerum aggregatio, ut
videatur summa excrescens. **(26)** In additione duo ordines figura-
rum et duo numeri ad minus sunt necessarii, scilicet numerus, cui
debet fieri additio, et numerus addendus. **(27)** Numerus, cui debet
fieri additio, est ille numerus qui recipit additionem alterius, et debet
80 suprascribi; numerus vero addendus est qui debet addi ad alium, et
debet subscribi. Et competentius est, ut minor numerus subscribatur
et maiori addatur, quam e converso; sed sive sic sive sic fiat, semper
idem proveniet.

   (28) Si velis igitur numerum numero addere, scribe numerum, cui
85 debet fieri additio, in superiori ordine per suas differentias, numerum
vero addendum in inferiori per suas differentias, ita quod prima
inferioris ordinis sit sub prima superioris, secunda sub secunda, et ita
de aliis. **(29)** Hoc facto addatur prima inferioris ordinis primae
figurae superioris. Ex tali igitur additione aut excrescet digitus aut
90 articulus aut numerus compositus. **(30)** Si digitus, loco superioris
deletae scribatur digitus excrescens. **(31)** Si articulus, loco superioris
deletae scribatur cifra; et transferatur digitus, a quo denominatur ille
articulus, versus sinistram, et addatur proximae figurae sequenti, si sit
figura sequens; **(32)** sin autem, ponatur in loco vacuo. **(33)** Si autem
95 contingat quod figura sequens, cui debet fieri additio, sit cifra, ea
deleta loco eius scribatur digitus articuli; **(34)** si autem sit figura
novenarii et ei debet addi unitas, loco illius novenarii scribatur cifra,
et sinistretur articulus ut prius. **(35)** Si excrescat numerus compo-
situs, loco superioris deletae scribatur digitus qui est pars illius
100 compositi, et sinistretur articulus ut prius. **(36)** Hoc facto addatur
secunda secundae sibi suprapositae, et negotiandum est ut prius.

   (37) Notandum etiam quod in additione et in omnibus sequenti-
bus speciebus, quando una alii directe supponitur, utendum est qua-
libet figura ac si per se poneretur.

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numero proponamus X; proponamus O   75 ad numerum: *om.* OX   **77-8**
cui d.f.--addendus: cui fit--O; add-us et num. cui d.f. add-o BX   **79** ille: *om.* OB
80 alium: alterum K   **82** fiat: *om.* OX   **84** velis igitur: v. ergo K; i.v. O
85-6 numerum vero--differentias: *om.* K   **86** inferiori: ordine *add.* B; *def.* K
87 superioris: ordinis *add.* BO   ita: sic OX   **88** ordinis: *om.* OX   **89**
figurae: *om.* K   superioris: ordinis *add.* OX   igitur: ergo K   **97** et ei--
novenarii: *om.* K   **100** addatur s-a s-e: s-e a.s-a K; s-a s-e a. B   **101** sibi

105 **(38)** Subtractio est, propositis duobus numeris, maioris ad minorem
excessus inventio; **(39)** vel subtractio est numeri a numero ablatio, ut
videatur summa derelicta.

(40) Minor autem de maiori vel par de pari subtrahi potest, maior
vero de minori nequaquam. **(41)** Ille quidem numerus maior est, qui
110 plures habet figuras, dummodo ultima sit significativa. Si autem tot
sint in uno quot sunt in reliquo, iudicandum est per ultimas, vel per
paenultimas, et sic deinceps.

(42) In subtractione duo numeri sunt necessarii, scilicet numerus,

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suprapositae--ut (sicut B) prius: per easdem regulas K; per easdem regulas et
quidquid excreverit negot.--prius O; sibi sup. sicut prius X   **103** supponitur:
supraponitur K   **107** derelicta: relicta BX   **109** quidem: autem K*p.c.*   **112**
et sic: vel K; et ita O   **113** necessarii: et duo ordines figurarum ad minus *add.* K

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barbari tria haec faciunt: legunt enim et scribunt a dextera in sinistram; et in
50* pronuntiatione numerorum a simplici ad composita via intellectus simplicio-
res compositioribus praemittunt, Latinis e contra facientibus, quoniam et
legunt et scribunt in dexteram a sinistra, et numeros proferendo compositos a
compositis ad simplicia via sensus compositiores simplicioribus anteponunt;
praeterquam in 6 primis compositis, in quibus, secundum primum numerum
55* perfectum, omnium perfectionem scientiarum se a primis fore testantur
adeptos. *Scribimus igitur,* id est, ordinamus a dextra in sinistram, ut, proposito
aliquo numero, idem, et sui ordine et triplici ritus utriusque consuetudine
illibatis manentibus, sub amicis et obviis amplexibus exprimatur.

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(25) De secunda specie huius artis, et primo quid sit et quae in ea sunt
60* necessaria; et nota quod ipsa est prima in operatione, et numeratio est non
species sed quaedam praeparatio ad alias. - **(28)** Secundo de modo operandi,
et primo docet ordinationem figurarum, secundo operationem, *Hoc facto* **(29)**,
et primo in prima figura, cuius 3 sunt condiciones. ‹- **(30)** Prima condicio.›
- **(31)** Secunda condicio, in qua accidit sinistratio, et habet 4 condiciones:
65* prima (*31*), si sequens sit significativa; secunda condicio **(32)** est, si locus
sequens sit vacuus; tertia condicio **(33)** est, si sequens figura sit 0; quarta
condicio **(34)**, si sequens sit novenarius. - **(35)** Tertia condicio principalis. -
(36) Secundo de operatione secundarum figurarum, et sic in aliis. - **(37)** Ter-
tio ponit unum notabile.

70* **(38)** De tertia specie huius artis, scilicet subtractione, et primo quid sit et quae
sunt in ea necessaria. - **(41)** Quis numerus minor vel maior. - **(42)** Quae sint

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63* prima condicio: O,*Gs.l.; om.* X

a quo debet fieri subtractio, et numerus subtrahendus. **(43)** Nume-
115 rus, a quo debet fieri subtractio, scribendus est in superiori ordine
per suas differentias, numerus subtrahendus in inferiori per suas, ita
quod prima sit sub prima, secunda sub secunda, et ita de aliis. **(44)**
Subtrahe igitur primam inferioris ordinis a figura sibi supraposita. Et
illa aut erit par figurae sibi suprapositae aut maior aut minor. **(45)** Si
120 par, ea deleta loco eius scribatur cifra propter figuras sequentes, ne
minus significent. **(46)** Si maior, deleantur ab ea tot unitates quot
continet inferior figura, et residuum loco eius ponatur. **(47)** Si minor,
quia maior de minori subtrahi non potest, mutuetur unitas a figura
proxima sequente, quae valet 10 respectu figurae praecedentis; ab illo
125 igitur denario et a figura, a qua debuit fieri subtractio, simul iunctis
subtrahatur figura inferior, et residuum ponatur loco figurae deletae.
(48) Si vero figura, a qua mutuanda est unitas, sit unitas, ea deleta
loco eius scribatur cifra, ne figurae sequentes minus significent, et
deinde operare ut prius. **(49)** Si vero figura, a qua mutuanda est
130 unitas, sit cifra, transeatur ulterius ad figuram significativam, et ibi
mutuare unitatem, et in redeundo loco cuiuslibet cifrae pertransitae
ponatur figura novenarii; cum igitur perventum fuerit ad illam
figuram, de qua intenditur, remanet tantum denarius; ab illo igitur
denario (et a figura, a qua debuit fieri subtractio, simul iunctis sub-
135 trahatur figura inferior, et residuum ponatur loco figurae deletae).
(50) Ratio autem quare loco cuiuslibet cifrae pertransitae relinquatur
figura novenarii, haec est: si a tertio loco mutuetur unitas, illa re-
spectu figurae, a qua debuit fieri subtractio, valuit centum; sed loco
cifrae pertransitae relinquitur novenarius, qui valet 90, unde remanet
140 tantum denarius; et eadem erit ratio, si a quarto loco vel quinto vel
deinceps mutuetur unitas. **(51)** Hoc facto subtrahe secundam inferi-
oris ordinis a sua superiori, et negotiandum est ut prius.

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122 ponatur: scribatur K   **124** figurae praec.: p.f. K   **129** vero: autem BX
130 transeatur ulterius: [[. . .]]atur (eatur *mg.*) u. K; procedatur u. O; reiciatur u. et
t. usque X   **131** mutuare unitatem: OKX; mutuetur unitas B   **132** pona-
tur: *omnes*   **133** figuram: *om.* K   **134-5** et a figura--deletae: et a figura a qua
etc. K; etc. BOX   **137** figura novenarii: novenarius K   **139** valet: valuit K
140 denarius: novenarius *Ka.c.*   erit (est X) ratio: r.e. K   vel₂: et K
141 hoc: autem *add.* BO   **142** sua superiori: suo sup. KX; secunda superioris
(ordinis *add.* O) BO   **143** etiam: tamen K   **144** incipere: operari *add.* BX

(52) Sciendum etiam quod tam in additione quam in subtractione
possumus bene a sinistra incipere, tendendo versus dextram; sed ut
145 dicebatur fiet commodius.

(53) Si autem probare velis utrum bene feceris necne, figuras quas
prius subtraxisti adde superioribus; et occurrent eaedem figurae, quas
prius habuisti, si recte feceris. (54) Similiter in additione, cum omnes
figuras addideris, subtrahe easdem quas prius addidisti, et redibunt
150 eaedem figurae, si recte feceris. Est enim subtractio additionis
probatio et e converso.

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(55) Mediatio est numeri propositi medietatis inventio, (56) ut
videatur quae et quanta sit illa medietas.

(57) In mediatione tantum unus ordo figurarum et unicus nu-
155 merus est necessarius, scilicet numerus mediandus.

(58) Si velis igitur aliquem numerum mediare, scribatur ille
numerus per suas differentias; et incipe a dextris, scilicet a prima
figura versus dextram, si illa fuerit significativa. (59) Aut igitur
repraesentabit unitatem aut alium digitum. Si unitatem, loco eius
160 deletae ponatur cifra propter figuras sequentes, ne minus significent.

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145 dicebatur: doc- BX   **147** prius: p(ri) Ka.c.   **149** easdem: figuras *add.* K
152 numeri: alicuius n. OX   **158** dextram: *textum duarum fere linearum add.* S, Cu

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in subtractione necessaria. – (43) Secundo de modo operandi, et primo de
ordinatione figurarum; – (44) secundo de operatione primarum figurarum,
cuius 3 sunt condiciones: – (45) prima condicio, si supraposita sit par; – (46)
75* secunda condicio, si maior; – (47) tertia condicio, si minor sit superior, in
qua accidit mutuatio, cuius 3 sunt condiciones: prima, si sequens sit signi-
ficativa ⟨et alia⟩ ab unitate; – (48) secunda mutuationis condicio, si sequens
sit unitas; – (49) tertia mutuationis condicio, si sequens sit 0. – (51) Secundo
de operatione secundarum figurarum. – (52) Tertio ponit notabile: *Sciendum.* –
80* (53) Quarto dat operis probationem.

(55) De quarta specie, scilicet de mediatione: et primo definit eam, – (58)
secundo de operatione, et primo primae figurae.

77* et alia: *scripsi*   **78*** secundo: *om.* GO

Et scribatur illa unitas exterius in tabula; vel resolvatur in 60 minuta, et medietas illorum abiciatur, reliqua reservetur exterius in tabula, scilicet 30; vel scribatur exterius figura dimidii, sic ∂, quae nullum locum ordinis obtinet, aliquid tamen significat; quae medietas du-
165 plata in suum locum recipiatur in duplatione. **(60)** Si autem prima figura significet alium digitum ab unitate, ille aut erit par aut impar. **(61)** Si par, loco eius scribatur medietas illius paris. **(62)** Si impar, sume proximum parem sub illo contentum, et pone medietatem eius loco illius imparis deleti; de unitate autem, quae remanet medianda,
170 fac ut prius. **(63)** Hoc quidem facto medianda est secunda. **(64)** Si sit cifra, praetermittatur intacta. **(65)** Si sit significativa, aut par aut impar erit. **(66)** Si par, loco illius deletae scribatur medietas eius. **(67)** Si impar, sume proximum parem sub illo contentum, et loco illius imparis deleti scribatur eius medietas. Unitas autem, quae remanet
175 medianda, respectu figurae praecedentis valet 10: dividatur ergo ille denarius in duos quinarios, et unus illorum abiciatur, reliquus addatur figurae praecedenti. **(68)** Si autem cifra fuerit cui debet addi, deleatur, et loco eius scribatur quinarius. **(69)** Et sic operandum est, donec totalis numerus medietur.

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180 **(70)** Duplatio est numeri propositi ad se ipsum aggregatio, ut videatur summa excrescens.

(71) In duplatione tantum unus ordo figurarum est necessarius. **(72)** Et inchoandum est a sinistra sive a maiori figura, hoc est secundum figuram maiorem numerum repraesentantem. In tribus
185 vero speciebus praecedentibus inchoavimus a dextra et a figura minori; in hac vero specie et in omnibus sequentibus inchoamus a sinistra. **(73)** Unde versus:

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159 eius: illius K   **162** reliqua: vero *add.* K   **163** exterius: in tabula *add.* K   **164** obtinet: obtineat K   **166** erit: *post* impar BO   **168** illo: illa K   pone med. eius (illius X): med. pone BO   **170** hoc: quo K   **172** erit: *om.* K; *ante* par X   illius: eius OX   deletae: -ti K   medietas eius: e.m. BX; illa m. O   **173** si impar: *textum sex fere linearum nescio unde add. Cu*   **174** scribatur: ponatur BO   **175** figurae praecedentis: p.f. B; p. OX   ergo: *om.* K; igitur X   **182** duplatione: autem *add.* K   **183** sinistra: parte *add.* K   maiori figura: f.m. BX   **185** speciebus: *om.* OX   inchoavimus: -amus K   figura minori: m.f. K   **186** vero: quidem BO; autem X   **191** et ratio h.e.: *Cu*   incipias:

Subtrahis aut addis a dextris vel mediabis,
A laeva dupla divide multiplica,
190   Extrahe radicem duplam sub parte sinistra.

(74) ⟨Et ratio huius est⟩ quoniam, si a prima figura incipias duplare,
continget quandoque idem bis duplari; (75) et licet aliquo modo
possemus operari incipiendo a dextris, difficilior tamen erit doctrina
et operatio.

195   (76) Si velis igitur aliquem numerum duplare, scribatur primo ille
numerus per suas differentias, et dupletur ultima. Ex illa igitur
duplatione aut excrescet digitus aut articulus aut numerus compo-
situs. Si digitus, loco prioris deletae scribatur digitus excrescens. Si
articulus, loco prioris deletae scribatur cifra et transferatur articulus
200 versus sinistram. Si numerus compositus, loco prioris deletae scri-
batur digitus qui est pars illius compositi, et sinistretur articulus. (77)
Hoc facto duplanda est paenultima, et quidquid excreverit, nego-
tiandum est ut prius. (78) Si vero occurrat cifra, relinquenda est
intacta; sed si aliquis numerus cifrae debeat addi, loco illius deletae
205 scribatur numerus addendus. (79) Eodem modo operandum est de
omnibus aliis.

(80) Probatio autem huius talis est: si recte duplaveris, media, et si
recte mediaveris, dupla, et occurrent eaedem figurae quas prius
habuisti. Est enim mediatio duplationis probatio et e converso.

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incipis K   192 continget: -git K   quandoque: *post* bis K   196 igitur: *om.* K
199 transferatur--sinistram: sinistretur articulus K   200 numerus: *om.* K
202 hoc: autem *add.* K   204 cifrae: *post* addi K   205 eodem: autem *add.*
K   de: in OX   206 aliis: donec totalis numerus duplicetur *add.* B   210

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(70) Agit auctor de duplatione, quinta specie huius artis, et primo quid sit
⟨et quae sibi necessaria⟩; secundo de modo operandi, *Si velis* (*76*); tertio de
85* operis probatione, *Probatio huius* (*80*). - (76) Secundo de modo operandi, cum
3 condicionibus: et primo de ultima figurarum, - (*Si digitus*) prima condicio; -
(*Si articulus*) secunda condicio; - (*Si numerus compositus*) tertia condicio. - (77)
Secundo de modo operandi in paenultima figura. - (79) Tertio de modo
operandi in ceteris figuris. - (80) Ultimo de operis probatione.

83* agit--duplatione: de G; hic exsequitur de O   artis: scilicet (de *add.* O)
duplatione *add.* GO   84* et--necessaria: *om.* X

210 **(81)** Multiplicatio est numeri per se vel per alium, propositis duobus
numeris, tertii inventio, qui totiens continet alterum illorum quot
sunt unitates in reliquo.

(82) In multiplicatione principaliter duo numeri sunt necessarii,
scilicet numerus multiplicandus et numerus multiplicans. **(83)** Nu-
215 merus multiplicandus nominalem recipit appellationem, numerus
multiplicans adverbialiter designatur. **(84)** Potest etiam tertius nu-
merus assignari, qui productus dicitur, proveniens ex ductione unius
in alterum. **(85)** Notandum etiam quod de multiplicante potest fieri
multiplicandus et e converso, manente semper eadem summa; et hoc
220 est quod communiter dicitur: omnis numerus in se convertitur
multiplicando.

(86) Sunt autem 6 regulae multiplicationis. **(87)** Quando enim
digitus multiplicat digitum, subtrahendus est minor digitus ab arti-
culo suae denominationis per differentiam maioris digiti ad dena-
225 rium, denario simul computato. Verbi gratia, si velis scire quot sunt
quater 8, vide quot sunt unitates inter 8 et 10, denario simul
computato, et patet quod duae; subtrahatur igitur quaternarius bis a
40, et remanent 32, summa totius multiplicationis. [Similiter agen-
dum est, si digitus multiplicat se ipsum.] **(88)** Quando digitus multi-
230 plicat articulum, ducendus est digitus in digitum a quo denominatur
ille articulus; et quaelibet unitas valebit 10, quilibet denarius 100.

(89) Quando digitus multiplicat numerum compositum, ducendus
est digitus in utramque partem numeri compositi, ita quod digitus in
digitum per primam regulam, in articulum per secundam; postea
235 producta coniungantur, et patebit summa totius. **(90)** Quando
articulus multiplicat articulum, ducendus est digitus, a quo deno-
minatur unus illorum, in digitum a quo denominatur reliquus; et
quaelibet unitas valebit 100, quilibet denarius mille. **(91)** Quando
articulus multiplicat numerum compositum, ducendus est digitus
240 articuli in utramque partem numeri compositi, et iungantur pro-

est: *post* alium B   **216** etiam: et K   **217** assignari: desig- K   ductione:
induc. K   **220** in se convertitur: c.i.s. BO   **225** sunt : sint BX   **226**
sunt : sint BX   **228-9** similiter--se ipsum: X; *om. cett.*   **229** quando: secunda
regula (talis est *add.* X) q. OX; q. autem K   **231** articulus: per primam regulam
add. X   valebit: valet OX   denarius: articulus (sive 10 *add.* B; valet *add.* X)
BX   **232** quando: autem *add.* K   **235** producta coniungantur: c.p. K; p.
iungantur B   patebit: erit(!) BX; vel erit *add.* O   **238** valebit: valet OX

ducta, et patebit summa. **(92)** Quando numerus compositus multi-
plicat numerum compositum, ducenda est utraque pars numeri
multiplicantis in utramque partem numeri multiplicandi⌊, et pro-
ducta coniungantur, et patebit summa totius⌋. Et sic ducetur digitus
245   bis, quia semel in digitum et semel in articulum; articulus similiter
bis, semel enim in digitum et iterum in articulum. Hic tamen
'articulus' non nisi ad principales extendatur articulos.

   (93) Si velis igitur aliquem numerum per se vel per alium multi-
plicare, scribe numerum multiplicandum in superiori ordine per suas
250   differentias, numerum vero multiplicantem in inferiori per suas, ita
tamen quod prima inferioris ordinis sit sub ultima superioris. **(94)**
Quo facto ducenda est ultima multiplicantis in ultimam multipli-

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240 iungantur: coniung- O; «(?con)»iug- K   **241** quando: autem *add.* K
243-4 et producta--totius: X; *om. cett.*   **244** ducetur digitus: di.du. K   **246**
enim: *om.* BO   iterum: semel BX   tamen: uterque *add.* B; ubique *add.* O
250 suas: differentias *add.* BX   **251** prima: *post* ordinis K   **254** directo (-te

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90*   **(81)** De sexta specie huius artis, et primo quid sit et quae necessaria; secundo
dat 6 multiplicandi regulas, *Sunt autem 6 (86)*; tertio de modo operandi, *Si
velis (93)*. Adhuc primo, quid sit; secundo, quot ordines sint necessarii, *In
multiplicatione etc. (82)*.
      (81) Iordanus sic definit multiplicationem: Multiplicatio est, propositis 2
95*   numeris, tertii inventio, qui ad unum eorum sic se habet sicut reliquus ad
unitatem.
      ⟨**(83)** *(GO:)* Ex hoc nota quod adverbia digniora sunt nominibus, quia
multiplicans dignior multiplicando, sicut et agens adverbialiter designatur. Et
Hugutius dicit quod deus non nominum sed adverbiorum est remunerator,
100* quia non bonum factum sed bene factum est gratum.⟩
      (86) Dat 6 regulas multiplicationis, de quibus sola prima bona est et utilis.
Unde, quando digitus multiplicat digitum, si vis scire productum, nota
regulam, in qua tria sunt, scilicet: quid subtrahendum? quia minor digitus; a
quo? quia ab articulo suo; quotiens? quia per differentiam maioris digiti ad
105* 10; et haec nota.
      (87) Prima regula; – **(88)** Secunda regula. – **(89)** Regula tertia. – **(90)**
Regula quarta. – **(91)** Regula quinta. – **(92)** Regula sexta.
      (93) Tertio de modo operandi: et primo dat ordinem figurarum, secundo
de operatione, *Hoc facto* **(94)**, et ibi primo de multiplicatione ultimae figurae

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94*-96* Jordanus--unitatem: X; *alteram versionem habet* O; *def.* G   **97*-100*** *secutus
sum* G

candi. Ex illo igitur ductu aut excrescet digitus aut articulus aut numerus compositus. **(95)** Si digitus, ex directo supraposito figurae
255 multiplicantis scribatur digitus excrescens. **(96)** Si articulus, ex directo supraposito figurae multiplicantis scribatur cifra, et transferatur articulus versus sinistram. **(97)** Si numerus compositus, ex directo supraposito figurae multiplicantis scribatur digitus illius numeri compositi, et sinistretur articulus ut prius. **(98)** Hoc autem facto ducenda est
260 paenultima multiplicantis in ultimam multiplicandi, et quidquid excreverit, negotiandum est ut prius. Et sic fiat de omnibus figuris numeri multiplicantis, donec veniatur ad primam multiplicantis, **(99)** quae ducenda est in ultimam multiplicandi. Et ex illo ductu aut excrescet digitus aut articulus aut numerus compositus. **(100)** Si digitus,
265 loco superioris deletae scribatur digitus excrescens. Si articulus, loco superioris deletae scribatur cifra, et sinistretur articulus. Si numerus compositus, loco superioris deletae scribatur digitus illius compositi, et sinistretur articulus ut prius. **(101)** Hoc autem facto anteriorandae sunt figurae numeri multiplicantis per unicam differentiam, ita
270 scilicet quod prima multiplicantis sit sub paenultima multiplicandi, reliquis similiter per unum locum anterioratis. Quo facto ducenda est ultima multiplicantis in illam multiplicandi, sub qua est prima multiplicantis. **(102)** Ex illo ductu aut excrescet digitus aut articulus aut numerus compositus. **(103)** Si digitus, ex directo figurae sibi supra-
275 positae addatur. Si articulus, transferatur versus sinistram. Si numerus compositus, addatur figurae sibi suprapositae digitus, et sinistretur articulus. **(104)** Similiter quaelibet figura numeri multiplicantis ducenda est in paenultimam multiplicandi, donec perveniatur ad primam multiplicantis, ubi operandum est quemadmodum dicebatur
280 de prima. **(105)** Deinde ut prius anteriorandae sunt figurae numeri

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K) supraposito: d.s-tae BX; d.suppositae O   figurae: numeri *add.* K   **255**
directo (-te K) supraposito f.: d.supra caput f. B; d.f. O; d.figurae s-tae X   **256**
figurae: numeri *add.* K   **257** directo (-te K) supraposito: d. BOX   **258**
figurae: numeri *add.* K   numeri compositi: c.n. BO   **259** autem: *om.* BX
261 sic fiat: faciendum est sic K; sic fiet O; sic fac X   figuris n.m.: numeris
multiplicandis K; aliis X   **262** veniatur: perveniatur K   **264** articulus--
compositus: etc. K   **268** autem: *om.* OX   **273** aut articulus--compositus: etc.
K   **274** sibi supr.: su.si. K; su. X   **275** sinistram: et figura sibi directe
supraposita relinquatur intacta sive sit significativa sive non *add.* X, Cu; *alia* B
276 sibi: *om.* BX   digitus (*ante* figurae O): illius numeri compositi *add.* K
277 numeri: *om.* OX   **279** dicebatur: doc. OX   **280** numeri multiplicantis:

multiplicantis per unicam differentiam. Nec cessandum est a tali anterioratione, nec a tali ductu, quousque quaelibet figura numeri multiplicantis ducatur in quamlibet figuram numeri multiplicandi.

(106) Si autem contingat quod prima figura numeri multiplicantis
285 sit cifra, et ei supraponàtur figura significativa, loco illius superioris deletae scribenda est cifra. (107) Si autem occurrat cifra inter primam et ultimam inferioris ordinis, et directe supraponatur figura significativa, relinquenda est intacta; (108) si vero spatium ei suprapositum sit vacuum, in eodem spatio scribenda est cifra. (109) Si
290 autem contingat quod cifra sit inter primam et ultimam numeri multiplicandi, anteriorandus est ordo figurarum numeri multipli-

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m.n. O; m. BX   **283** figuram numeri: n. B, *om.* OX   **285** supraponatur: superp. K   **287** inferioris ordinis: in inferiori ordine K, X *(ante* inter primam) **290** contingat--sit: cifra sit B; cifra occurrat O   **292** ductione: additione K

110* multiplicandi, secundo paenultimae, *Hoc facto (101).* Adhuc primo de ductu ultimae multiplicantis in ultimam multiplicandi; secundo de ductu paenultimae multiplicantis in eandem multiplicandi, *Hoc facto (98).* Tertio de aliis omnibus multiplicandi figuris et de prima, *Deinde anteriorandae (101);* quarto ponit notabilia multiplicationis 5, *Si autem contingit (106).* ⟨Adhuc autem primo
115* ponit tres multiplicationis condiciones,⟩ secundo eas explanat, *Si digitus (95).* – **(95)** Prima condicio. – **(96)** Secunda. – **(97)** Tertia condicio. – **(98)** Secundo de ductu paenultimae multiplicandi, cum 3 eiusdem condicionibus. – (*Et sic fiat)* Tertio de ductu aliarum et primae multiplicandi, cum eisdem 3 condicionibus. – **(101)** Secundo de ductu multiplicantium in paenultimam multi-
120* plicandi, et primo dat ordinationem figurarum per anteriorationem, secundo de multiplicatione, *Hoc facto (101);* et ibi *(Quo facto)* primo ponit de multiplicatione 3 condiciones, secundo eas explanat, *Si digitus* **(103)**; et primo explanat primam, secundo secundam, ibi *Si articulus (103).* – **(105)** Tertio de ductu omnium figurarum multiplicantium in alias multiplicandi et in primam.
125* – **(106)** Quarto ponit notabilia multiplicationis 5, et primo, si 0 sit in principio multiplicantium; – **(107)** secundum notabile, si 0 sit in medio multiplicantium; ⟨**(108)** ...⟩ – **(109)** tertium notabile, si 0 sit in medio multiplicandi; – **(110)** quartum notabile, si 0 sit in principio multiplicandi.

113* et (primo X) de prima--anteriorandae: et de prima anterioratione O; deinde G   **114*-115*** adhuc--condiciones: *om.* X; *secutus sum* G   **116*** prima condicio: de prima c-one (multiplicantis *add.* O) GO   secunda: de s. condicione GO   tertia c-o: de t.c-one O   **118*** aliarum: -orum XG; *def.* O   primae: G; primo X
120* ordinationem: ordinem GO   **121*** et ibi--mult.: primo de m. ponendo GO

cantis per duas differentias, quoniam ex ductione alicuius figurae in
cifram nihil resultat. (110) Ex praedictis patet quod, si prima figura
numeri multiplicandi sit cifra, sub ea non debet fieri anterioratio.
295   (111) Sciendum etiam quod in multiplicatione, divisione et radi-
cum extractione competenter potest relinqui spatium inter duos
ordines figurarum, ut ibi ponatur quod provenit addendum aut sub-
trahendum, ne aliquid memoriae intercidat.

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(112) Divisio numeri per numerum est, propositis duobus nume-
300   ris, maioris in tot partes distributio quot sunt unitates in minori.
(113) Notandum igitur quod in divisione 3 numeri sunt necessa-
rii, scilicet numerus dividendus, et numerus dividens sive divisor, et
numerus denotans quotiens sive numerus exiens. (114) Numerus
autem dividendus semper debet esse maior vel saltem par numero
305   divisori, si debeat fieri divisio per integra. (115) Si velis igitur ali-
quem numerum per alium dividere, scribe numerum dividendum in
superiori ordine per suas differentias, divisorem vero in inferiori per
suas, ita quod ultima divisoris sit sub ultima dividendi, paenultima
sub paenultima, et ita de aliis, si competenter fieri possit. (116) Sunt
310   enim duae causae quare ultima sub ultima collocari non potest,
scilicet aut quia ultima inferioris non potest subtrahi ab ultima supe-
rioris, eo quod est minor inferiori; aut quia, licet ultima possit ali-
quotiens subtrahi a sua superiori, reliquae non possunt totiens a sibi
suprapositis, ut si ultima inferioris sit par figurae sibi suprapositae,
315   paenultima vero sive antepaenultima maior.
(117) His itaque ordinatis incipiendum est operari ab ultima figura
numeri divisoris; et videndum est, quotiens possit subtrahi a figura

294 ea: eadem K   295 et: *om.* K   296 spatium: vacuum *add.* BX   297
ponatur: scribatur OX   aut: vel K   298 aliquid: aliud BX   intercidat:
intercidatur K; intercedat B   301 igitur: ergo K; *def.* X   302 numerus
dividens: d. K   303 sive numerus exiens: *om.* OX   304 autem: vero OX
305 fieri divisio: d.f. BO   306 per alium: per alterum K; *om.* X   307 infe-
riori: inferioriori K; *def.* X   309 ita: sic K   fieri possit: potest f. OX
310 quare: quod K   311 aut quia: q.a. K   inferioris: ordinis *add.* K
non potest (possit X) s.: s.n.p. K   313 totiens: *post* suprapositis K   sibi: suis
K   314 suprapositis: et a residuo si aliquid fuerit residuum *add.* O   321

sibi supraposita, ita quod totiens possint subtrahi reliquae a sibi
suprapositis et a residuo, si aliquid fuerit residuum. Et notandum
320 quod non contingit pluries subtrahere quam novies, nec minus quam
semel. **(118)** Viso igitur, quotiens figurae inferioris ordinis possint
subtrahi a suis superioribus, scribendus est numerus denotans quo-
tiens ex directo supraposito illius figurae, sub qua est prima figura
numeri divisoris; et per illam figuram subtrahendae sunt omnes
325 figurae inferioris ordinis a suis superioribus. **(119)** Hoc autem facto
anteriorandae sunt figurae numeri divisoris per unicam differentiam
versus dextram, et negotiandum est ut prius. **(120)** Si autem ita
contingat post anteriorationem quod non aliquotiens possit subtrahi
ultima divisoris a figura sibi supraposita, supra figuram, sub qua est
330 prima divisoris, directe scribenda est cifra in ordine numeri denotan-
tis quotiens, et anteriorandae sunt figurae ut prius. Similiter facien-
dum est, ubicumque contingit in numero dividendo quod divisor
non possit subtrahi: ponenda est cifra (in ordine numeri denotantis
quotiens), et anteriorandae sunt figurae. **(121)** Nec cessandum est a
335 tali anterioratione, nec a numeri denotantis quotiens positione, nec

igitur: ergo K   **323** directo (-te K) supraposito: d.s-tae OX   **326** numeri: *om.*
BX   **329** supra figuram: sub figura K   **330** scribenda e.c.: c(um) c.s.e. K
333-4 in ordine--quotiens: etc. KBO; *om.* X   **334** est: *om.* K   **335** a numeri: a
tali n. K   **336** ductu numeri: tali n.d. K   denotantis: *om.* OX   divisoris:

(112) De divisione, septima specie huius artis, et primo, quid sit divisio et
130* quae in divisione sint necessaria; secundo de modo operandi, *Si velis etc. (115)*.
Adhuc primo dicit quid ⟨sit⟩ divisio, secundo, quot numeri sint in divisione
necessarii, *In divisione etc.* **(113)**. - **(115)** Secundo de modo operandi, et primo
de ordinatione figurarum; secundo de ipsa operatione, *His itaque (117)*; tertio
de operis probatione, *Cum itaque (123)*. - **(117)** Secundo de operatione, et
135* primo de sub ultima figura dividendi; secundo de sub paenultima, per ante-
riorationem, *Hoc facto etc. (119)*; tertio de sub prima, *Nec cessandum etc. (121)*. -
(119) Secundo de operatione sub paenultima figura dividendi per anterio-
rationem dupliciter. - **(121)** Tertio de operatione de sub prima figura
dividendi. - **(123)** De operis probatione.

129* de divisione: agit de G; determinat de O   artis: scilicet (de *add.* O) divisione
GO   divisio: *om.* GO   **130*** in divisione: *om.* GO   **131*** sit: *om.* X; *def.* O   **133***
ordinatione fig.: [[operatione]] fig. ord. X

a ductu numeri denotantis quotiens in divisorem, nec a divisoris subtractione, donec prima divisoris sit subtracta a prima dividendi. Quo facto aut aliquid erit residuum aut nihil. Si aliquid, reservetur exterius in tabula, et erit semper minus divisore.

340   **(122)** Si igitur scire velis, quot unitates de numero dividendo eveniant cuilibet numeri divisoris, numerus quotiens illud ostendet.

(123) Cum igitur facta fuerit talis divisio, et probare velis utrum bene feceris necne, multiplica numerum denotantem quotiens per divisorem, et redibunt eaedem figurae quas prius habuisti, si nihil

345   fuerit residuum; sed si aliquid fuerit residuum, tunc cum additione illius residui redibunt eaedem figurae quae prius fuerunt. Et ita multiplicatio probat divisionem, **(124)** et e converso, ut, si facta multiplicatione dividatur productum per multiplicantem, exibunt in numero denotante quotiens figurae numeri multiplicandi.

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350   **(125)** Progressio est numerorum secundum aequales excessus ab unitate vel binario sumptorum aggregatio, ut universorum summa compendiose habeatur.

(126) Progressionum autem alia naturalis sive continua, alia intercisa sive discontinua. Naturalis est quando incipitur ab unitate et

355   non omittitur aliquis numerus, ut 1,2,3,4,5,6,7 et deinceps; et sic semper numerus sequens superat praecedentem in unitate tantum. Intercisa est quando uniformiter omittitur aliquis numerus, ut 1,3,5,7 et cetera; similiter a binario potest incipere, ut 2,4,6; et sic semper numerus sequens superat praecedentem in duabus unitati-

360   bus. Notandum igitur quod [progressio naturalis semper incipit ab unitate, progressio autem intercisa quandoque ab unitate, quando-que a binario.]

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producti *Cu*   **340** igitur scire velis: ergo s.v. K; v.s. igitur X   **341** cuilibet: cuiuslibet K; unitati *add.* BO   illud: hoc K   ostendet: -dit OX   **342** igitur: itaque BX; ita *add.* K   **345** sed: et K; *def.* X   **346** quae prius fuerunt: quae prius B; quas p.habuisti O; *def.* X   **347** si: sic K   **348** multiplicantem: numerum m. K   **351** binario: a b. OX   ut--habeatur: *om.* OX   **354** incipitur: incipit BX   **355** 1--7: 1--6 BX; 1--5 O   et deinceps: et ita deinceps O; etc. X   **356** semper: *om.* OX   in unitate: u. BOX   **358** 1--7: 1--9 BO   2--6: 2--8 (etc. *add.* X) OX   **360** igitur: *om.* BX   **360-2** progressio--

(127) De progressione naturali duae dantur regulae. Quando enim
progressio naturalis terminatur in numerum parem, per medietatem
365 ipsius multiplica numerum proximum totali superiorem. Verbi gratia,
1,2,3,4: multiplica quinarium per binarium sic: bis 5, et exibunt 10,
summa totius progressionis. (128) Quando autem progressio natu-
ralis terminatur in numerum imparem, per maiorem portionem
ipsius multiplica numerum totalem. Verbi gratia, 1,2,3,4,5: multiplice-
370 tur quinarius per ternarium sic: ter 5, et resultabit quindenarius,
summa totius progressionis. (129) De progressione intercisa similiter
duae dantur regulae, quarum prima talis est: quando progressio
intercisa terminatur in numerum parem, per medietatem illius multi-
plica numerum proximum medietati superiorem. Ut 2,4,6: multi-
375 plicetur quaternarius per ternarium sic: ter 4, et resultabit duodena-
rius, summa totius progressionis. (130) Secunda regula talis est:
quando progressio intercisa terminatur in numerum imparem, multi-

binario: K; *om. cett.*   **365** superiorem: -ore K   **367-76** quando--progres-
sionis: *om.* B   **370** resultabit qu.: resultabunt 15 OX; *def.* B   **372** quarum--
est: prima est O; *def.* B   quando: enim *add.* O; *def.* B   **374** numerum proxi-
mum med. sup.: num. sup. illi m.p. K; p.n.m.s. X; *def.* B   **376** secunda--est:
s.e.t. B; *om.* OX   **377** quando: autem *add.* O; vero *add.* X   **379** exit: erit

140* (125) De progressione, octava specie huius artis: et primo definit ipsam,
secundo dividit, ibi *Progressio⟨num⟩* (*126*). Et hic primo dividit; secundo
membra declarat, *Naturalis* (*126*); tertio dat regulas quattuor, *Notandum* (*127*). Et
nota quod hae 4 regulae non sunt universales, sed et omnes etiam aliae in hac
universali regula continentur subscripta, scilicet "Per medietatem numeri
145* etc."; et haec regula valet per totam hanc speciem. - (*125*) Primo, quid pro-
gressio. - (126) Secundo, quae eius species in generali. - (*Naturalis est*)
Secundo, quae in speciali, et primo, quae naturalis, – (*Intercisa est*) secundo,
quae intercisa. - (127) Tertio dat 4 regulas progressionis, et primo primam in
naturali. ⟨(128) Secunda regula in naturali.⟩ - (129) De intercisa progres-
150* sione regula prima. - (130) Secunda regula in progressione intercisa. [- (*Item*)
(*X:*) Regula generalis notabilis.]

141* progressionum: -sio X   **144*** medietatem numeri: medium numerum
XG   **145*** per: *om.*XG
149* secunda reg. in nat.: *om.*X; *def.*G   **151*** regula--notabilis: *om.*G, O *ubi littera
abest*

plica maiorem portionem per se ipsam. Verbi gratia, 1,3,5: multi-
plicetur ternarius per se ipsum sic: ter tria, et exit novenarius, summa
380   totius progressionis.

[Item per unicam regulam poterit sciri omnis progressio, continua
et intercisa, sive terminetur in numero pari vel impari, quae talis est:
per medietatem positionum multiplica numerum ab extremis
coniunctum.]

385   (131) Sequitur de radicum extractione, et primo in numeris qua-
dratis. Unde videndum est, quid sit numerus quadratus, et quae sit
radix numeri quadrati, et quid sit radicem extrahere.

(132) Praenotanda tamen est haec divisio: numerorum alius
linearis, alius superficialis[, alius quadratus, alius cubicus sive soli-
390   dus].

(133) Linearis est qui consideratur tantum penes processum, non
habito respectu ad ductionem numeri in numerum, [et dicitur
linearis, quia unicum habet numerum,] sicut linea tantum habet
unicam dimensionem, scilicet longitudinem sine latitudine. (134)
395   Numerus superficialis est qui provenit ex ductu numeri in numerum,
unde dicitur superficialis, quoniam duos habet numeros denotantes
sive mensurantes ipsum, sicut superficies duas habet dimensiones,
scilicet longitudinem et latitudinem.

(135) Sed notandum quod dupliciter potest duci numerus in nu-
400   merum, aut enim semel aut bis. (136) Si igitur numerus semel
ducatur in numerum, hoc erit aut in se ipsum aut in alium. Si in se,
fit numerus quadratus; [et dicitur quadratus, quia divisim scriptus
per unitates habebit quattuor latera aequalia ad modum quadran-

KBOX   381-4 item--coniunctum (-tis X): X *quem secutus sum,* B; *om. cett.*
387 radicem: numeri quadrati *add.* BO; numeri *add.* X   389 alius quadratus--
sive (alius X) solidus: *om.* Ka.c., O; alius solidus B   392-3 et dicitur--numerum:
Cu; *om.* KBOX; *ex* Q *inserui*   396 duos h.n.: h.d.n. K; h.n.d. X   399 sed
notandum quod: sed sciendum quod B; sciendum autem quod X; sed quoniam
O   duci numerus: n.d. BX   400-1 si igitur--numerum: in se vel in alium.
sciendum quod si ducatur numerus semel in numerum K   400 semel$_2$: *post*
numerum O; *alia* K   401 se$_2$: ipsum *add.* BO   402-3 et dicitur--quadran-
guli: *hic habent* BO, *infra* (*l.*373-5) KX   405 scilicet primum: p. X; *om.* BO

guli.] Si ducatur in alium, fit numerus superficialis et non quadratus,
405 ut binarius ductus in ternarium constituit senarium, scilicet primum
numerum superficialem et non quadratum; unde patet quod omnis
numerus quadratus est superficialis, et non convertitur. (137) Radix
autem numeri quadrati est ille numerus, qui ita ducitur in se, ut bis 2
sunt 4: quaternarius igitur est primus numerus quadratus, et binarius

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408 2: et *add.* K   **409** binarius est (*om.* K) ei.ra.: ei.ra. est b. O; b. est r.ei. X

Totius progressionis regulae sub hac comprehenduntur maxima: Per medie-
tatem numeri positionum multiplicentur extrema coniuncta; vel e converso,
scilicet: Per medietatem extremorum coniunctorum multiplicetur numerus
155* positionum. Et haec regula est universalis pro qualibet progressione. Et quia
regulae positae in littera non sunt penitus universales, sicut nec definitio, et
haec regula est universalis, ideo haec erit progressionis universalis definitio:
Progressio est numerorum secundum aequales excessus sumptorum aggre-
gatio.
160* [(*X:*) Cum volueris scire combinationes aliquarum rerum, accipe tot nume-
ros pariter pares, incipiendo ab unitate, quot fuerint res, et ultimum
numerum dupla, et eo duplato remove unitatem et numerum rerum, et
residuum ostendet tibi propositum.]

(131) Sequitur de nona specie huius artis, scilicet de radicum extractione in
165* numeris quadratis et cubicis; et quia ad hoc sciendum necessarium est scire
quid sint, et cum de ratione magnitudinis sint, praemittitur primo capitulum,
in quo agitur de numero relato ad geometricas figuras, secundo de radicum
extractione, *Radicem numeri* (*155*). Adhuc primo dat intentum suum, secundo
prosequitur, *Praenotanda tamen* (132); et hic primo facit quod dictum est,
170* secundo de 9 limitibus, *Cum igitur ultra* (*150*). Primo ponit divisionem numeri
relati ad geometricas figuras; secundo membra declarat, ibi *Linearis est* (133);
et in hac primo de lineari, secundo de superficiali, *Numerus superficialis* (*134*). –
(134) Secundo de superficiali, et primo quid sit in generali, – (135) secundo
in speciali; et primo distinguit superficialem et solidum, secundo declarat, *Si*
175* *igitur numerus* (136); et in hac, primo de superficiali, secundo de solido, *Si*
autem numerus (*138*). Adhuc primo, quid quadratus; secundo, quid superficia-
lis, *Si in alium* (*136*); tertio dat convenientiam eorum, *Unde patet* (*136*); quarto
redit, super quadratum ponendo exemplum, *Radix autem* (137). Et primo
ponit exemplum, ut ostendat quid quadratus et quid radix; secundo reddit

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171* est: *om.* GO
176* numerus: -ros X; *def.* O

410 est eius radix [; et dicitur quadratus, quia divisim scriptus per unitates
     habebit quattuor latera aequalia ad modum quadranguli].◦
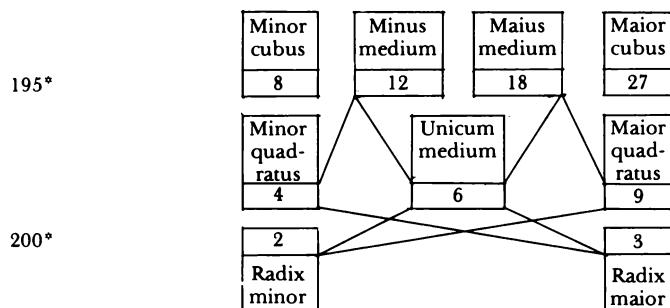
     (138) Si autem numerus bis ducatur in numerum, constituit
     numerum solidum. Numerus solidus est qui provenit ex duplici
     ductu numeri in numerum. **(139)** Et dicitur solidus quoniam, sicut
415 corpus solidum 3 habet dimensiones, scilicet longitudinem, latitudi-
     nem et spissitudinem, ita numerus iste 3 habet numeros producentes
     se. **(140)** Sed numerus potest dupliciter bis duci in numerum, quia
     aut in se ipsum aut in alium. **(141)** Si igitur numerus bis ducatur in
     se ipsum vel semel in suum quadratum, quod idem valet, fit
420 numerus cubicus; **(142)** et dicitur cubicus ab hoc nomine 'cubus,
     cubi', quod est 'solidum'. Est autem cubus corpus quoddam 6
     habens superficies, 8 angulos et 12 latera. **(143)** Si vero aliquis
     numerus bis ducatur in alium, fit numerus solidus et non cubicus, ut
     bis 3 bis constituunt 12; **(144)** unde patet quod omnis numerus cubi-
425 cus est solidus, et non convertitur[; omnis etiam solidus est superfici-
     alis, et non convertitur]. **(145)** Ex praedictis etiam patet quod idem
     numerus est radix quadrati et cubici; non tamen illius radicis idem
     [est] quadratus et cubicus. **(146)** Patet etiam quod omnis numerus
     potest esse radix quadrati et cubici, sed non omnis numerus qua-
430 dratus vel cubicus. **(147)** Cum igitur ex ductu unitatis in se semel vel
     bis nihil proveniat nisi unitas, dicit Boethius in Arismetica quod
     unitas potentialiter est omnis numerus, nullus tamen actu.

     (148) Notandum etiam quod inter quoslibet duos quadratos
     proximos est unicum medium proportionale, quod provenit ex ductu
435 radicis unius quadrati in radicem alterius. **(149)** Inter duos cubicos
     quoslibet proximos est duplex medium proportionale, scilicet minus
     medium et maius. Minus medium provenit ex ductu radicis maioris

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410-1 et dicitur--quadranguli: *v.s. ad 402-3*   **412** constituit: constituet BO
413-4 numerus--numerum: *om.* X   **414** quoniam: quia K   **415** corpus
solidum: s. quod est c. B; s.c. O; c. X   **416** 3 habet: h. 3 BX   **419** valet: *ex
est currente calamo corr.* K   **421** cubi: 'bi' BO   quoddam: *om.* OX; solidum
add. K   **423** bis duc.: d.b. K   alium: numerum *add.* K   **425-6** omnis--
convertitur *om.* O   **426** etiam patet: p. KX   **427** radix: numeri *add.*
OX   illius rad. id. est: id. [[illius rad.]] O; rad. illius est id. X; *alia* B   **429**
potest esse radix: r.p.e. K   **430** vel: est OX, K*p.c.*   **431-2** *cf.* Inst. Arithm.
I,20 (44,16 Friedlein); II,8 (93,6 F.)   **433** duos: *om.* OX   **434** ductu: ductione
BO   **435** duos: *om.* K   **440** igitur: itaque OX   **441** proprie num. lim.:

cubici in quadratum minoris; maius, si ducatur radix minoris cubici
in quadratum maioris.

180* rationem quare dicatur quadratus, *Et dicitur quadratus (137)*. [- *(137)* *(X:)*
Quarto redit, supra quadratum ponendo exemplum, ut ostendat quid quadra-
tum et quid radix; secundo reddit rationem quare dicatur quadratus, *Et dicitur
quadratus (137)*.] - **(138)** Secundo de numero solido. Et primo, quid sit in
generali; secundo distinguit ipsum, *Sed numerus potest* **(140)**; tertio declarat, *Si*
185* *ergo numerus (141)*. - Et nota quod omnis numerus cubicus ductus in se semel
producit cubicum simul et quadratum, et e converso omnis quadratus in se
ductus cubice cubicum pariter et quadratum constituit. ⟨- **(141)** *(G:)* Declarat
quid cubicus. - **(143)** *(GO:)* De solido quid sit.⟩ - **(144)** Dat convenientiam et
differentiam cubici et solidi. - **(145)** Dat triplicem convenientiam et differen-
190* tiam quadrati et cubici, et primo primam; secundo secundam, *Patet etiam* **(146)**;
tertio tertiam, *Notandum etiam* **(148)**. [- *(148, ad textum* "provenit ex ductu unius
quadrati":) Et idem resultabit, si ducatur radix unius in radicem alterius.].

195*

200*

Sicut habetur in arismetica: quod aequalium nulla est compositio, sed inae-
qualium, scilicet maioris ad minorem et e converso. Sunt autem huius inae-
205* qualitatis 5 species, 3 simplices et duae compositae. Aut enim quantitas maior
continet minorem pluries quam semel, et haec dicitur multiplex, cuius species
sunt duplum, triplum et sic in infinitum. Aut continet ipsam semel et aliquam
partem eius, et dicitur superparticularis, cuius species sunt sexquialtera,
sexquitertia et sic deinceps; et dicitur sexquialtera a 'sexqui', quod est totum,
210* et altera, quasi continens totum et alteram partem, id est medietatem. Aut
continet aliam semel et aliquas partes eius, et dicitur superpartiens, cuius

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188* de solido q.s.: declarat quid sit solidus numerus O; *def.* X
192* et idem--alterius: *om.* O; *pauca add.* G

440   **(150)** Cum igitur ultra summam numerorum solidorum in arte praesenti non fiat processus, tantum 9 proprie numerorum limites distinguuntur. **(151)** Est enim limes numerorum eiusdem naturae extremis contentorum terminis continua ordinatio. **(152)** Unde primus limes est 9 digitorum continua progressio; secundus vero 9
445   articulorum principalium; tertius centenariorum; quartus millenariorum. **(153)** Tres etiam resultant in compositis per digitorum appositionem supra quemcumque articulorum trium praedictorum, et si alter alteri praeponatur. **(154)** Sed per finalis termini rationem ex millenarii receptione supra se semel per modum quadratorum aut bis
450   per modum solidorum, quocumque alio praecedente, resultat paenultimus limes et ultimus.

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(155) Radicem numeri quadrati extrahere est, proposito aliquo numero, radicem eius quadratam invenire, si numerus propositus fuerit quadratus; si vero non sit quadratus, radicem maximi quadrati
455   sub numero proposito contenti invenire.

(156) Si velis igitur radicem alicuius numeri quadrati extrahere, scribe numerum illum per suas differentias, et computa numerum figurarum utrum sit par vel impar. Si par, incipiendum est operari sub paenultima; si impar, ab ultima; et ut breviter dicatur, semper ab
460   ultima impari incipiendum est.

(157) Sub ultima igitur figura in impari loco posita inveniendus est quidam digitus, qui ductus in se deleat totum suprapositum sibi respectu sui, vel in quantum vicinius potest. Tali autem digito invento et a superiori subtracto, duplandus est ille digitus, et duplatum
465   ponendum est sub proxima figura anteriori versus dextram, et eius subduplum sub illo. **(158)** Quo facto inveniendus est quidam digitus sub proxima figura ante duplatum, qui ductus in duplatum deleat totum suprapositum respectu duplati, deinde ductus in se deleat totum suprapositum respectu sui, vel in quantum vicinius potest.

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n.p.1. B; 1.n. O; p.1. X   **446** etiam: autem K   compositis: numeris c. K
447 supra: super BX   **448** finalis: finalem K   **449** aut: vel K   **451** limes et: et 1. KX   **454** fuerit: sit BX   **456** extrahere: invenire BX   **459** impar ab: impar sub K   **461** in impari: imp. BO   **463** respectu sui: *om.* K   in quantum: quanto K; in quanto X   autem: igitur K   invento: et ducto in se *add. Cu*   **466** illo: eo BO   quo: hoc BX   **471** vel: in *add.* K   et

species sunt superbipartiens tertias, supertripartiens quartas, et cetera. Aut continet ipsam pluries et aliquam partem eius, et dicitur multiplex superparticularis. Aut continet ipsam pluries quam semel et aliquas partes eius, et
215* dicitur multiplex superpartiens. – Et nota quod 3 sunt medietates famosae et primae, scilicet arismetica, geometrica et musica. Arismetica considerat identitatem excessus et non identitatem proportionis, ut 1,2,3. Geometrica considerat identitatem proportionum et non excessus, ut 2,4,8. Musica est quae nec hoc nec illud considerat, sed quae est proportio terminorum extremorum,
220* eadem est et differentiarum, ut 6³3¹2. Geometrica proprie medietas dicitur medietas; *unum medium proportionale (148)*, intellege geometricum.

(150) Hic ⟨secundo⟩ determinat de 9 limitibus, et primo, quid sit limes in genere et quot; secundo quorum sint enumerat. Et primo primum, *Unde primus* (152); postea de secundo limite, *Secundus vero etc. (152)*; postea de tertio,
225* quarto et 3 compositis, ibi *Tertius centenariorum (152)*; ultimo de 7. et 8. limitibus, ibi *Sed per finalis* (154).

TABULA NOVEM LIMITUM

	Minimi								Maximi
Primus limes, 230* 9 digitorum	1	2	3	4	5	6	7	8	9
Secundus, 9 denariorum	10	20	30	40	50	60	70	80	90
Tertius, 9 centenariorum	100	200	300	400	500	600	700	800	900
235* Quartus, 9 millenariorum	1000	2000	3000	4000	5000	6000	7000	8000	9000
Quintus, ex primo et secundo compositus	11	22	33	44	55	66	77	88	99
Sextus, ex primo et 240* tertio compositus	101	202	303	404	505	606	707	808	909
Septimus, ex primo et quarto compositus	1001	2002	3003	4004	5005	6006	7007	8008	9009
Octavus, ex replicatione millenarii semel	1000000		3000000		5000000		7000000		9000000
245*		2000000		4000000		6000000		8000000	
Nonus, ex replicatione millenarii cubice	1000000000		3000000000		5000000000		7000000000		9000000000
		2000000000		4000000000		6000000000		8000000000	
	Minimi								Maximi

250* (155) De radicum extractione, et primo in quadratis; secundo in cubicis, *Sequitur de (164)*. Adhuc primo quid sit extrahere; secundo docet extrahere, *Si igitur radicem* (156); et ibi primo ordinat figuras, et ubi incipiendum sit; secundo de operatione, *Sub figura igitur (157)*. – (157) Secundo de operatione,

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213* ipsam: ipsum XG   **215*** medietates: identitates XG   **218*** identitatem: -tes X
222* secundo: *om.* X

470   **(159)** Vel potest ita subtrahi digitus inventus, ut ducatur in duplatum
vel duplata et postea in se, deinde illa duo producta simul addantur,
ita quod prima figura ultimi producti addatur ante primam primi
producti, secunda primae, et ita deinceps, et simul subtrahantur a
totali numero respectu digiti inventi. **(160)** Si autem contingat quod
475   non possit aliquis digitus inveniri, tunc ponenda est cifra sub cifra
sub tertia figura anteriori, et anteriorandum est primum duplatum
cum suo subduplo. **(161)** Nec cessandum est a tali digiti inventione,
nec a digiti inventi duplatione, nec a duplatorum anterioratione, nec
etiam a subdupli sub duplo positione, donec sub prima figura
480   inventus fuerit quidam digitus, qui ductus in omnes duplatos deleat
totum suprapositum respectu duplatorum, deinde ductus in se deleat
totum suprapositum respectu sui, vel in quantum vicinius potest.

    (162) Quo facto aut aliquid erit residuum aut nihil. Si nihil, constat
quod numerus propositus fuit quadratus, et eius radix est digitus
485   ultimo inventus cum subduplo vel subduplis, ita quod praeponatur. Si
vero aliquid fuerit residuum, constat quod numerus propositus non
fuit quadratus, sed digitus ultimo inventus (praepositus subduplo vel
subduplis) est radix maximi quadrati sub numero proposito contenti.

    (163) Si velis igitur probare utrum bene feceris necne, multiplica
490   digitum ultimo inventum cum subduplo vel subduplis per eundem
digitum cum subduplo vel subduplis, et redibunt eaedem figurae
quas prius habuisti, si nihil fuerit residuum; sed si aliquid fuerit
residuum, tunc cum additione illius residui redibunt eaedem figurae
quae prius fuerunt.

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495   **(164)** Sequitur de radicum extractione in numeris cubicis. Unde
videndum est, quid sit numerus cubicus, et quae sit eius radix, et
quid sit radicem cubicam extrahere.

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postea: p. OX   duo: *om.* BX   **472** addatur: ponatur *Cu*   **473** ita: sic
K   subtrahantur: -atur KX   **476** est: *om.* K   **477** tali: talis BX   **478**
duplatorum: -tionis K   **479** etiam: *om.* OX   **480** quidam: *om.* K   omnes
duplatos: omnia duplata *Cu*   **482** suprapositum: *om.* BOX   **487-8** ultimo--
subduplis: ultimo scilicet inventus K; etc. BX   **488** maximi quadrati: m. numeri
q. O; numeri q. proximi B   **494** quae prius fuerunt: quas prius habuisti K
496 eius radix: r.e. K; r. numeri cubici X   **498** numerus cubicus: c.n. K

(165) Est igitur numerus cubicus, sicut patet ex praedictis, qui
provenit ex ductu alicuius numeri bis in se vel semel in suum qua-
500   dratum. (166) Radix numeri cubici est ille numerus qui ita bis duci-
tur in se vel semel in suum quadratum; unde patet quod numerus
cubicus et quadratus eandem habent radicem, sicut superius dictum
est. (167) Radicem autem cubicam extrahere est numeri proposili
radicem cubicam invenire, si numerus propositus fuerit cubicus; si
505   vero non fuerit cubicus, tunc radicem cubici extrahere est maximi
cubici sub numero proposito contenti radicem cubicam invenire.

(168) Proposito igitur aliquo numero, cuius radicem cubicam velis
extrahere, primo computandae sunt figurae per quartas sive per loca
millenariorum, (169) et sub loco ultimi millenarii inveniendus est
510   quidam digitus, qui ductus in se cubice deleat totum suprapositum
respectu sui, vel in quantum vicinius potest. (170) Quo facto
triplandus est ille digitus, et triplatum ponendum est sub proxima
figura tertia versus dextram, et subtriplum sub triplo. (171) Deinde

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499 alicuius numeri: n. O; *om.* K   **501** in suum quadratum: etc. BOX
502 et: est K*a.c.*   **504** radicem c.i.: c.r.i. B; r.i. OX   fuerit: sit BO   **505**
fuerit: sit BO   **506** cubicam: *om.* BO; *om. & ins.* K   **513-4** tertia--figura: *om.*
& in mg. similia ins. K (=K$_2$)   **512** proxima f.t.: p.f. K; t.f.p. K *cum* K$_2$ **513**
subtriplum s.t.: eius subtr. sub eo (triplo K$_2$*a.c.*) K$_2$X   deinde: et postea K$_2$

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et primo de primi digiti inventione et condicionibus eius, - (158) secundo de
255*   secundi digiti inventione et eius condicionibus, et primo, si possit inveniri, -
(160) secundo, si non possit digitus inveniri, quid sit agendum, - (161) tertio,
idem concludendo in omnibus, de ultimi digiti inventione sub prima figura. -
(162) Secundo de operis consideratione. - (*Si vero*) Tertio de operis pro-
batione.

260*   (164) Primo dat intentum de radicum extractione in numeris cubicis; secundo
dat modum prosequendi intentum, *Unde videndum* (*164*); tertio prosequitur, ibi
Est igitur (165); et primo, quid cubicus, secundo, quid radix cubica, ibi *Radix*
autem (166), - (167) (*GO:*) tertio de radicum extractione, et primo quid sit, -
(168) secundo de figurarum ordinatione et operis inceptione, - (169) tertio
265*   de ipsa operatione. Et primo de primi digiti inventione et eius expeditione, -

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260* intentum: intentionem suam X; intentum O *et desinit*   **262*** ibi radix autem:
i. radicem a. X; ibi "radix" O *versio secunda*; *om.* G, O *versio prima*   **263*** tertio
(*om.* O)--quid sit: G, O *vers.pr.*; *om.* X; alia O *vers.sec.*

inveniendus est quidam digitus sub proxima figura ante triplatum,
515 qui cum subtriplo ductus in triplatum, postea sine subtriplo ductus
in productum, deleat totum suprapositum respectu triplati, deinde
ductus in se cubice deleat totum suprapositum respectu sui, vel in
quantum vicinius potest. Hoc autem facto triplandus est ille digitus
iterum, et triplatum ponendum est sub proxima figura tertia ut prius,
520 et eius subtriplum sub eo. Postea anteriorandum est primum tripla-
tum cum suo subtriplo per duas differentias. **(172)** Deinde invenien-
dus est quidam digitus sub proxima figura ante triplata, qui cum
subtriplis ductus in triplata, et cetera. **(173)** Nec, cessandum est a talis
digiti inventione, nec a digiti inventi triplatione, nec a triplati anterio-
525 ratione per duas differentias, nec a subtripli sub triplo positione, nec
a tali multiplicatione, nec a tali subtractione, donec perventum sit ad
primam figuram, sub qua inveniendus est quidam digitus, qui cum
subtriplis (ductus in triplata, postea sine subtriplis ductus in produc-
tum deleat totum suprapositum respectu triplatorum), deinde ductus
530 in se cubice (deleat totum suprapositum respectu sui, vel in quantum
vicinius potest). **(174)** Notandum etiam quod productum proveniens
ex ductu digiti inventi cum subtriplo vel subtriplis in triplata et
postea sine subtriplo vel subtriplis in productum, et iterum produc-
tum proveniens ex ductu digiti inventi in se cubice, possunt addi et
535 simul subtrahi a totali numero suprapositio respectu digiti inventi, et
idem est ac si fiat divisim, ut iam patefactum est.

　　(175) Hoc facto aut aliquid erit residuum aut nihil. Si nihil, constat
quod numerus propositus fuit cubicus, et eius radix est digitus ultimo
inventus praepositus subtriplo vel subtriplis; quae radix si ducatur in
540 se et postea in productum, erunt eaedem figurae quae prius. Si vero
aliquid fuerit residuum, reservetur illud exterius in tabula; et constat
quod numerus propositus non fuit cubicus, sed digitus ultimo

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514 sub: *n.l.* K$_2$; ponendus ante triplatum *add. & del.* K$_2$ **515** postea: deinde
K   **521** duas: suas KX   **525** duas: suas K   **526** perventum sit:
perveniatur K; p. fuerit X   **527** inveniendus est: e.i. K   **528-9** ductus--
triplatorum: etc. KX   **529-30** triplatorum--respectu: *om.* B; *partim def.* KX
530-1 deleat--potest: etc. KX; *partim def.* B   **534** et: vel KB   **535** supra-
posito: *om.* K   **536** ut--est: *om.* OX   **537** hoc: hoc autem BO   **540** si
vero: si autem BO; sed si X   **541** reservetur--tabula et: *om.* BOX   et constat:
vacat K *et ins.* et illud ostendat   **542** numerus propositus: n. ille B; ille n. OX

inventus cum subtriplo vel subtriplis est radix maximi cubici sub numero proposito contenti, quae radix si ducatur in se et postea in
545 productum, emerget ille cubicus maximus sub numero proposito contentus; et si illi cubico addatur residuum reservatum in tabula, erunt eaedem figurae quae prius fuerunt.

(176) Si autem aliquis digitus post anteriorationem inveniri non possit, ponenda est cifra sub cifra sub quarta figura versus dextram,
550 et anteriorandae sunt figurae ut prius.

(177) Notandum etiam quod, si in numero proposito non sit aliquis locus millenarii, incipiendum est operari sub prima figura.

(178) In hac autem radice extrahenda solent quidam distinguere numerum propositum per ternarios et semper incipere operari sub
555 prima figura ultimi ternarii, sive completi sive incompleti; qui modus operandi idem est cum praedicto.

(179) Et haec de radicum extractione sufficiant, tam in numeris quadratis quam cubicis.

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543 subtriplo vel: *om.* BOX   **545** cubicus maximus: m.c. K   **546** illi: illo BO
547 fuerunt: *om.* OX   **549** ponenda: tunc ponenda K   quarta: 3ᵃ B
550 ut prius: sicut p. B; per duas differentias X; *om.* K   **553** solent: solebant K
557 extractione: dicta *add.* OX   **558** cubicis: in c. B; *def.* X

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(171) secundo de secundi digiti inventione et eius expeditione, – (*Hoc*) secundo de secunda triplatione et anterioratione, – (172) tertio, concludendo eundem modum in omnibus aliis, agit de ultimi digiti inventione sub prima figura et eius expeditione. – (174) Ponit notabile. – (175) Secundo de operis
270* consideratione et probatione. – (176) Tertio ponit tria notabilia. – (177) Secundum notabile. – (178) Tertium notabile. – (179) (*X:*) Epilogat.

Kalendarium

et

Tabula de loco lunae inveniendo. . .

(CALENDAR)

References to the earlier literature, and remarks on the limitations of the present edition, can be found in the *Introduction*, §3b-c, and in the preamble to §2b below.

Table of Contents.

§1. *Sketch of the edition.*

The *Preface,* referred to by "§", presents the manuscript evidence accessible to me (§2). A set of reference manuscripts for the *Calendar* is selected (§3-5) and used in discussing the evidence for the text edited (§6-22, including apparatuses where necessary). The rest of the manuscripts are adduced occasionally, in order to indicate the later tradition of the texts in question.

The *Text* aims to show the *Calendar* in a frame-work suitable for simulating its use and for comparison with fresh witnesses. In particular, the odd-numbered month-pages present some calendarial sub-tables which are probably all inauthentic but frequent in the manuscripts.

The *Appendices,* referred to by "App.", contain sources, testimonies, and derivates of the texts edited, as well as specifications on some further texts frequently found in the manuscripts and only summarily registered in §2. A certain amount of cross-references to other salient items in §2 have also been included, without extensive discussion.

§2a. *List of manuscripts.*

In the datings, "[1,2]" denote half centuries, and "p,m,f", beginning, middle and end of a century. In the locations, "Germ." may include Austria. Suggestions for closer datings and locations can often be found in §2b.

The inventories only show a selection of commonly occurring features as specified below. Manuscript entries have been bisected in a few notable cases, to point out different hands and/or different parts of a manuscript.

Symbols used in the list:
Underscored: item carrying references (including ascriptions) to Peter of Dacia.
x: a noteworthy item which does not fall under any of the alternatives offered under the heading.
apostrophe: item abbreviated or otherwise modified.
&: conflation of two items or classes.

Single headings. See Table of Contents and §1 for names not explained below.
Cycl:
      k,a1,. . .,d: class symbols according to § 4a.
Alts,Qdie,Grad,Decl:
      +:   values like those printed, cf.§§15-18.
      !:   table separate from Calendar.
Kal.canon:
      A: Kal.canon A.

Ba...Bc: Kal.canon B, collatable with the text printed at p.334; class
symbol a...c according to §8.

d1...l2: references to App.2. Thus, "d1" denotes the "Kal.canon
B(d1)" of §2b.

T.L.: Right entrance column (cf.§22)

a: as printed

b: beginning with 13°

c: in degrees and minutes

d: split into several columns of degrees

+: not seen.

T.L.canon:

Aa...Ad: text collatable with the one printed at p.333; class symbol
a...d according to §9.

a1...g: references to App.3. Thus, "a1" denotes the "T.L.canon(a1)"
of §2b.

various:

a...d: references to App.1.

q: App.5(h1).

computus:

a,b,c1: references to App.5.

d: item(s) under any of the headings App.5(d1-3).

lunar tables:

a,b,c,e: references to App.4.

planet tables:

App.6(c), number of rows.

+: present; information insufficient.

astrology:

a,b,d1...d9: references to App.6.

+: other notable pieces.

other calendars etc.: whole calendars or elements of them, such as eclipse tables.
References to sections of App.5(j).

vicinity: salient items only.

liturg.(cal.): notes in calendar indicating a liturgical use.

none: manuscript apparently independent of surroundings.

blank: no definite information.

	manuscript	CALENDAR: Cycl(§5) Alts Qdie Grad Decl	Kal.canon (A/B-/App.2(-))	T.L.	T.L.canon (A-/App.3(-))	various (g/App.1(-))	computus (App.5(-))	lunar tab. (App.4(-))	planet tab. (App.6(c))	astrology (App.6(-))	other calendars or eclipse lists (App.5(j-))	vicinity
A	London Coll. Arms, Ar.20 14^L Engl.	d + x	Bc	a	Ab				24	d7		liturg. (cal.)
B	Oxford BL, Ashm.1522 14p.	al + +	A	ax	Aa		a					Sacrob.Alg.
Ba	Bamberg SB, msc.astr.4 14-15	+!+!		a					7		2	
Bf	Basel OeBU, F.I.23 15 Germ.		Bb	a •		q	b b'	el e2	7	d7 +	9	
Bo	Boston Med.L., 20 15p. Engl.	x x x	hl								7	
Bs	Bamberg SB, R.B.msc.176 15p. Germ.	c' + + +	x h3	b		c		el	24	dl + d6	2	liturg.
Bu	Basel OeBU, F.V.15 15p. Germ.						b'	e2	a	+	9	theology
Bv	Bern, 524 15^L Switz.	c' + +	h2	b	a3		b		+	a +		liturg.
Bx	Bruxelles BR, 4622 14f. Fr.			b	c4					+		none
C	Cambr. CCC, 347 14 Engl.	a3 + +	A Ba	a	Aa		a				5-6	
Ca	Cambr. UL, add.6860 14 Engl.	a3 x x	Ba	a	Ad						x	
Cd	Cambr. UL, Dd.6.29 15 Engl.		+				b		d8		7	
Cj	Cambr. UL, Ji.3.3 13-14	al x	x A'			d	a				2 1	Balduinus
D	Paris BN, nal 375 14	k? + + + +	jl	a			b,d c1		12	+		none
Da	Darmstadt HLHB, 765 14m.	bl + +	12									Profat.Alm.
E	Modena, Est.lat.14 14	bl	Bb									none?
Ef	Erfurt WAb, 2° 267 14m.		Bb			q	a		+	+		
Ew	Erfurt WAb, 4° 351 14m.			cd					24	+		Sacrob.Alg.
E2	Erfurt WAb, 4° 362 14m.			+	Ab		b		14	+	4,6	none
E7	Erfurt WAb, 4° 387 14m. Germ.			a	Ab							mathem.
F	Firenze BNC, II.III.24 14p.	al x +	A Ba	a	Aa	b	a					astron.
Fl	Firenze BML, c.sopp.174 14	d + +	Bb	a								Profat.Alm.
Fp	Firenze BML, pl.18 s.6 14^L	k	A		Aa		a					Balduinus
				a	dl	a				+		Sacrob.Alg.
G	Glasgow UL, Hunter 444 13-14	al + + +	A	a	Aa		a					
H	London BL, Harl.3647 14p.	al	A		Aa		a					Balduinus Sacrob.Alg.
K	København KB, Add.447 2° 13-14 Fr.	k	A Ba				a,d b d					Theor.Plan. Sacrob.Cmp.
Kh	København KB, Th.825 4° 15m. Germ.			ab x a				e2 e2	14 14	d6 + +	9'	Comp.Chir.
Kr	Kraków BJ, 562 14f. Poland	k +					cl a d					Sacrob.Alg.
Kt	København KB, Th.240 2° 15f. Fr.	d + +	k				b	e2		dl + d7'		none
L	Leipzig UB, 1487 14m. Prague?	k& + + + b2	dl	a				a		d6 d3		

ID	MS	Cycl	Alts	Qdie	Grad	Decl	Kal.canon	T.L.	T.L.canon	various	computus	lunar tab.	planet tab.	astrology	other cals. or ecl.	vicinity
La	London BL, add.35317 15f.							a							?	liturg.
Lh	London BL, Harl.267 14 Flanders							a	Aa	a						Profat.Alm.
Le	London BL, Eg.847 14²							d	a2				24 d1&2 d8	+		astrol.
Ln	London BL, Harl.1811 14f.							c					+		8	Cal. Nic.Lynn
Lo	London BL, Eg.831 14 Engl.							c	al				7 b		6	Cal. Elvedene
Lp	Lyon BV, P.A.45 14							a	Ad							"Almanach"
Lr	London BL, Ar.207 14-15							c					24		8	Cal. Nic.Lynn
Ly	Lyon BV, 1649 14m. Fr.	d	x	+			Bc				b					none
M	Metz BM, 464 14¹ Switz.(cal.)	bl	+	+			Bb	a	Ac	q	b					liturg. (cal.)
Ma	Madrid BN, 17961 14¹ Spain	bl	x	+	+		Bb	a	Ab		b			+		
Md	München BSb, Clm 5640 14² Germ.	bl	+	+		&b2	g	ab			b	b' a cl	24	+	6'	astron.
Mf	München BSb, Clm 5963 14-15 Germ.	b2					d1				d					Sacrob.Cmp.
Mg	München BSb, Clm 14270 14² Germ.	b2					d2								x	sermons
Mj	Milano BA, N.55.sup. 14m. Paris(cal.)	d	x	+			Bc	a	Ab	q	b		24 d7 d4	+	6	none
Mk	München BSb, Clm 22049 14-15 Switz.(cal.)	c'	+	+			h2	b	a3		b			a		
Ml	München BSb, Clm 24514 14² Germ.	bl	+	+			B'	ab			cl		24	+	6'	astron.
Mt	Monte Cassino, 193 16?	c	+	+	+		Bc &hl				b					
Mz	Mainz UB, 562 15 Germ.							c	f			e2			9	
M8	München BSb, Clm 5538 14¹							a	Ac		d a				1 / 2	astron.
N	Paris BN, lat.7420A 14¹ Fr.	k?	+ x	+	+	+	e jl	a	b2 d1,4		c		+ d5	+	3,x	astron.
Ny	New York PML, Bühler 12 15¹ Engl.							cd cl	g		b		24 d1		7,8	
O	Wien OeNB, 1728 14m. Vienna	bl					g				a					
Oa	Oxford BL, Ashm.360 14¹ Italy	d'	x x	x	+	+	f2 x	ax	Aa e		a	a'	d7 dl	+		none lit.(cal.)
Oc	Oxford BL, Can.misc.161 14¹ Germ.	a2	+	+	+	+		a							2	Sacrob.Cmp.
Od	Oxford BL, Ashm.191 15m. Engl.							x c	cl a2				b b	+ +		Will.Reed
Om	Oxford BL, Can.misc.248 14							a			a d		24 d7			none
Or	Oxford BL, Rawl.C 117 14	al	+				Bb	a	dl		a					Profat.Alm.
Ow	Oxford BL, Wood D.8 15f. Engl.							d	a2							Will.Reed
O4	Oxford BL, Bodl.464 14¹ Engl.						Bc'	a	Ab		x		24		3	Profat.Alm.
O5	Oxford BL, Bodl.551 15p. Fr.							a		q			12 d7'	+		saints' lives
P	Paris BN, lat.7298 13-14	al					A B'	a			a					Balduinus
Pc	Paris BN, lat.7286C 14							a			d		x			Jo.Liner.
Pd	Paris BN, lat.7349 15	k?				x	Bc 11	a	c5	x	b'		14 d1 &d2	+	6	

Columns under **CALENDAR** group: Cycl, Alts, Qdie, Grad, Decl, Kal.canon

		Cycl	Alts	Qdie	Grad	Decl	Kal.canon	T.L.	T.L.canon	various	computus	lunar tab.	planet tab.	astrology	other cals. or ecl.	vicinity
Pe	Paris BN, lat.16650 16m. Fr.	c'	+	+			hl	b	cl	qx	a	e2'	14	+		astron.
Pf	Paris BN, lat.18505 15m. Germ.							b				d	x	+	9?	
Pi	Paris BN, lat.11252 15f. Fr.							c						+	x	
Pl	Paris BN, lat.15125 14m. Fr.	bl &d	+	+			Bb	a	bl	q	a d		24	d5 d6	2 5-6	
Pn	Paris BN, lat.7351 14 Fr.							 b	c3 c3					d6 +		
Pr	Paris BN, lat 14068 15m. Fr.	c	+	+	+		hl B'	b ad b	 g	x	 a cl?		14	+	7-8 6,1	astron.
P3	Paris B.Maz., 3599 13-14							a	dl Aa					dl d9		medical
Q	Paris BN, nal 1893 14½	al					A	a	Aa		a					Sacrob.Alg.
R	London BL, Roy.12.C.xvii 14p.	al	+				A	a	Aa		a					Sacrob.Alg.
Re	Rennes BM, 593 14p. Fr.	bl	+	+		+	j2	a	b3		b		12		2	Profat.Alm.
Ro	Rouen BM, I 55 15 Fr.							a	j3		a'				2	
S	Salzburg St.P., b.IX.14 15½	k	+			+!	Ba	a	dl		a'		7			Sacr.Comp.
Sc	Leiden BR, Scal.66 14½	k					A,A Bb									none
Sf	Sankt Florian Sb, XI 432 15 Austria?	a2 &d	+	+			Ba &hl									Sacr.Comp.
Sg	Sankt Gallen Sb, 610 15					+!	h'				b'	e2		+	9	
So	Solothurn Zb, S I 167 14f. Germ./Sw.	c'	+	+			h2	b a	d3 Ac	c	b			a +		Sacrob.Alg. Comp.Chir.
St	Solothurn Zb, S 208 15 Switz.						g									liturg.
Sx	Stockholm KB, X 773 15							a	c2	.				d9		
T	München BSb, Clm 19414 14m. Germ.	a2	+	+			Ba				b			d7 d2		
Tr	Trier Stb, 718 14m.						Bb			q					6	theol.
V	Vatic. BAV, Vat.lat.3114 14p.	k		+	+		x	a	d5		cl a				x	astron.
Vp	Vatic. BAV, Pal.lat.1381 15m.							ab'				a			x	astron.
W	Erfurt WAB, 2° 263 14m. Germ.	a2	+	+			Ba	a	Aa	q	a b	 a	12 14	d2,4 d3 +	6	
Wi	Wien OeNB, 5509 15m.							b	c2					+		astrol.
Wu	Würzburg UB, M.p.j.f.11 14	b2					d3'									none lit.(cal.)
X	Oxford BL, Savile 17 15½ Engl.	bl	+	+			fl	b	d2		b		24			Messehallah
Y	München BSb, Clm 3512 14p.? Germ.	a2			+	+	A Ba	a	Aa	a				dl		medical

Z = Bv Mk So Bs, cf. §3

§2b. *Descriptions of manuscripts.*

See generally the section *Editorial Conventions.*

In the heading of each description it is stated what parts of the manuscript I have had access to. Supplementary information has been taken from catalogues where they were available.

Manuscripts of the 15th century or later, and those which only contain the *T.L.* and lack ascriptions to Peter of Dacia, have mostly been perfunctorily registered. Notes later than the 16th century, and texts which are not computistical, astronomical or astrological, have been disregarded everywhere.

Feast-days, in the paragraphs concluding some of the descriptions, have been excerpted only in calendars containing Peter's table of conjunctions (*Cycl*), and only from the sub-table *Dfes*. They are cited in selection, in order to locate liturgically used calendars approximately. Rubricated feasts, where discernible in the reproductions, have been marked with an "R" before the date.

The inventories have only been broken into paragraphs in order to draw attention to important items.

Besides the names listed in the Table of Contents, the following notation is used in this section:

"(CALENDAR(sub-tables in their order): remarks on sub-tables)
    (:*Hdgs.*: Cycl,. . . Dfes,. . . Comp,. . .)
    (:*Additions*:. . .)"

contains the description of the 12 month-pages of the Calendar. The sub-tables are usually those described in §3 and §10-19; other sub-tables are given an ad-hoc symbol and are always remarked upon. "(:*Hdgs.*:. . .)" is a list of headings to the sub-tables in §12-14, and occasionally to others. As for the headings to *Dfes* (§13), the names "number of days", etc., mean that the numbers in question are present, but do not show how they are in fact labelled or ordered. "(:*Additions*:. . .)", in this connexion, comprises items occurring strictly on the month-pages, other than calendarial sub-tables or headings to them; examples in §20b.

    "KAL.CANON B(x)" refers to App.2, section x.
    "T.L.CANON(x)" refers to App.3, section x.
    "Letter table" is the *parva tabula* of Kal.canon B.
    "tabular letters" denotes just the set of 35 letters "b˙,. . .u˙,˙a,
. . .;q". In citing incipits of tables, any dots have been ignored.

Bs Bamberg, Staatliche Bibl., R.B.msc.176. Paper, 29½ × 20½, ff.18 + 286 + 173, ca.A.D.1400. Several hands. Photographs 1r-18r. Leitschuh/Fischer III,90. Zinner 1936 no.37; p.326. OP 4.1;5.1.

1r-v (a document, Würzburg, Sep.15, 1450. Prayers.)   **2r-3v** (incomplete drafts for 5v-6v, written over with pen-tests. Proverbs and other notes.)   **4r-5r** (9 verses, App.6(d10):) Luna vetus veteres, iuvenes nova luna requirit... ¶(App.6(d6):) Nil capiti facies... (:Gloss, akin to App.6(d1); Aries:) Bonum est ire versus orientem et versus ⟨illam⟩ partem ad mercandum... ¶(8 verses, temperaments, cf. App.6(f), Walther 20261:) Versutus fallax... ¶(5 verses, weather, cf.App.6(f), Walther 2827:) Clara dies Pauli largas... ¶(Medical, Walther 20242:) Versiculos signa quibus cernes experimenta... ¶(Margin of 4v, itinerary mentioning Heiligental etc.; margin of 5r, notes on weather for the years 1410-12.)   **5v-6r** (list of first conjunctions in March, 1390-1465, cf.App.5(j10), value 14^d22^h;12 for 1390. Hdg.:) Tabula cycli lunaris magni sive secundum annos domini. (:canon:) Nota, in tabula praesenti habentur radices lunationum quae sunt in Martio... **6r** (List of letters for Peter's Calendar,1392-1467, hdg.:) Tabula ad sciendum litteram coniunctionis solis et lunae per annos domini, et durat per 76 annos.

6r (on Calendar; text,App.1(c2):) Notandum est quod magister Petrus de Dacia fecit tabulam sequentem anno domini 1292...anno domini 1444. ¶(Table with values for 12 months. Values repeated in Calendar as "horae/minuta quae debent addi ad radices cycli perfecti". 7^h;20 for January. Cf.to f.12v.)

6v-12r   (CALENDAR(L,Cycl,Naur,Dmen,Lfer,Y,Dfes+Comp,   Qdie, Qnoc,Alts,Decl,C): *L,* lunar letters A-O, cf. App.4(el). *Cycl,* "s8,-,s17,s9" for Jan.1: table renewed for the years 1369+, cf. §3. *Naur,* "19,8,-, 16,..." for March, cf. to 12v. *Y,* "lunationes secundum aequationem Iudaicam", beginning: Jan.1, "*m* 5^h1005^{pc}"; Jan.2,"*a* 18^h626^{pc}"; cf.App. 5(j10). *Dfes* includes eclipse predictions 1410-1462, App.5(j8). *C,* syllables of Cisiojanus.) (:*Hdgs.*: Upper mgs., number of days. Cycl,bottom, "Lineae primationum secundum magistrum Pe.de Dacia / Lunationes magistri (/secundum magistrum) Pe.de Dacia". Naur,bottom, "Novus aureus numerus".) (:*Additions*: "Quantitas crepusculi", cf. §20, two values for each month. "Horae (/minuta) quae debent addi ad r(adices) cycli perfecti", each month, cf. table at 6r. Dietary verses and rules, cf.App. 6(f): "Ante cibum vina tibi sumas...", "Nota, vinum album competit...")

12v (Canon to the Calendar, in parts adapted from William of St.Cloud, Harper 1966,96-100; cf.App.5(j2). Hdg.:) Canon kalendarii praecedentis. (:Txt:) Sciendum igitur primo quod quilibet mensis divisus est in 14 columnas, quarum prima continet aequationes lunationum secundum magistrum Petrum de Dacia cum horis et punctis, quae aequatio durabit usque ad annum domini 1444. In secunda vero columna positus est

aureus ⟨numerus⟩ novus, non ille qui positus est in kalendario communi
. . .Posui etiam in pagina cuiuslibet mensis in margine superiori horas
quasdam et minuta lunationum, quae addi debent ad radices lunationum
cycli perfecti (5v-6r). . .Crepusculum vespertinum est tempus quod est ab
occasu solis usque initium noctis; et ista duo tempora in eodem die sunt
aequalia, propter quod, scito uno, scitur et reliquus.

12v (KAL.CANON B(h3), hdg.:) Incipit canon de usu et utilitate kalen-
darii. (:Txt:) Si igitur vis scire coniunctionem solis et lunae secundum
aequationem magistri Petri de Dacia. . .praecedente diem.   **12v-13r**
(canons to other tables of Calendar, including one for "cyclum lunarem
perfectum", which ends:). . .et incipit dies a media nocte sicut in (s.i.: ?
ms.) aequationibus lunationum magistri Petri de Dacia. . .   **13v-14r**
(list of common computistical variables, 1393-1500, cf.App.5(e2).   **14v**
(list giving letters A-T, 1392(= "S")-1437, cf.App.5(j10). Hdg.:) Tabula ad
sciendum litteram coniunctionis secundum aequationem Iudaicam. . .
¶(Table giving moon's elongation from its age, values as in William,
App.4(d).)   ¶(Table for 30 days, max. $12^h;20$, App.4(g). Hdg.:) Tabula
ad sciendum quot horas luna luceat singulis noctibus per eius aetatem.
¶(Table, 1296-1446, like William, App.5(g3). Hdg.:) Tabula perpetuae
aequationis introitus solis in signa.   **15r** (Table 27 × 19, with lunar
letters A-O, App.4(e1).)   **15v** (scrawls in German.)

16r (T.L., 14 × 12. Hdg.:) Tabula ad sciendum in quo signo sit luna per
signum solis, aequando aetatem lunae cum signo solis. (: Left entr. nor-
mal, hdg. "Aetas lunae"; right entr. "13,26,. . .,5", no hdg.)   ¶(Table
with values as in William; App.5(g3). Subscr.:) Tabula ad sciendum
mensem diem et horam introitus solis in quodlibet signum, verificata
anno domini 1296, et nunc verificatur per tabulam praescriptam quae
intitulatur tabula perpetuae aequationis.   ¶(Duration of half and whole
lunation, latter = $29^d12^h;44,2,49,12$.)   **16v** (Planet table, 24 rows,
App.6(c). Subscr.:) Tabula de dominiis planetarum singulis horis.   ¶
(Table, 19 × 7, intervals Christmas-Invocavit, App.5(d5), with subscr.)
¶(4 verses:) Pausatim timidi vilescunt tempora mundi. . .   **17r-v** (Model
of astrolabe, with moveable parts.)   **18r** (musical score, then index to
the next part of the manuscript, mentioning a breviary etc.).

The text-hand does not appear to show any distinctive feasts. A
secondary hand has entered Heinrici, Mar.12, and Isaac monachi, Apr.9,
both of them pointing to Bamberg itself.

Ba Bamberg, Staatliche Bibliothek, msc.astr.4. Paper, 22 × 14½,
ff.215, 14th c.(after 1350: 148v). Some pages upside-down, e.g.
148v-149r and 151v, but not 149v-151r; 148r has writing either
way, in the same or in contemporary hands. Photographs 147v-
154r.

Leitschuh/Fischer I,2 p.489. Zinner 1925 no.2078; 1936 no.38. OP 5.2.

147v (list of books from some library)   **148r** (Table, day-by-day for a
year, starting Cap 19° at Jan.1. App.5(g1). Hdg.:) Tabula ad sciendum in
quo signo et in quo gradu sit qualibet die sol.   ¶(Table, values as in
William of St.Cloud, App.5(g3). Hdg.:) Tabula ad inveniendum mensem
diem et horam et introitum solis in quodlibet signum.   **148v** (Planet
table, 7 rows, 21ʰ, App.6(c). Hdg.:) Tabula ad sciendum quis planetarum
regnat in qualibet hora diei et noctis. (:canon:) In qualibet die naturali
sunt xxiiiiᵒʳ horae. . .usque ad dictas xxiiiiᵒʳ horas completas.   ¶(List of
computistical variables, 1350-75, cf. App.5(e2).)   ¶(Table giving hour-
of-day from length of shadow: numbers not unlike Palladius, de agr.II.
App.5(h2). Canon:) Haec est horologica ratio quae inventa est ab
Emiliano que dicitur de agri cultura. Quicumque curiosus horam diei
scire voluerit, in die sereno vertat spatulas suas ad solem, et erecto
vertice consideret ubi umbra sua attingat, quam alterno vestigio metiri
debet fideliter per planitiem terrae, et sic poterit scire quae hora sit diei
in quolibet anni mense.   .**149r** (Table starting Cap 19°;47 at Jan.1.
App.5(g1). Hdg.:) Tabula ad sciendum locum solis in qualibet die in
signo gradu et minuto, secundum magistrum Jo.de Muris.

149v (Table, values as *Alts.* App.5(g2). Hdg.:) Tabula graduum altitu-
dinis solis et minutorum eius in meridie cuiuslibet diei secundum P.de
Dacia.   ¶(Table, 12 × 7, cf. App.6(d10). First row, for Aries, has the
values: Saturn,"2"; Jupiter,"3,2"; Mars,"5,2,1", etc. Canon:) Haec est
tabula dignitatum 7 planetarum. Et nota quod hi 7 planetae in 12 signis
5 dignitates habent, quae sunt domus, exaltatio, triplicitas, terminus et
facies. Et habet dominus domus pro domo 5 dignitates, dominus exalta-
tionis 4, dominus triplicitatis 3, dominus termini 2, et dominus faciei 1,
ut patet hic. (:Note added:) Ubique loco 'dominus' ordo(?) debet esse
'domus'.   **150r** (Table, values mostly at 10-day intervals, max. 16ʰ;0.
Subscr.:) Quantitas diei artificialis simul et noctis, secundum magistrum
Jo.de Muris. . .horae aequales. . .ad Parisius ordinatae per locum solis
verum.

150r (Table, 3-4 items for each month, values as *Qdie.* Subscr.:) Quantitas
diei artificialis secundum magistrum Petrum de Dacia.   **150r-151r** (List
of conjunction times for each month of the years 1350-96, 15ᵈ3ʰ;4 for
Jan.1363. Cf. App.5(j10). Canon,hdg.:) Rubrica sive canon supra con-
iunctiones solis et lunae editas a magistro Johanne de Lineriis Ambianen-
sis dioecesis supra meridianum Avinionensem. (:Txt:) Si vis habere doc-
trinam. . .(:day starts "a meridie diei praesentis".)

151v (T.L., 14 × 12. Hdg.:) Tabula Petri de Dacia ad sciendum in quo
signo et in quo gradu illius signi sit qualibet die sol(!) (: left and right
entr. normal, hdgs. "Aetas lunae/Gradus lunae". Upper entrance with
month-names Mar-Feb.)

152r (Hdg.:) Tabula introitus solis in principio 12 signorum anno in-
carnationis domini 1330 super Parisius. (: to a table for 1 year, first value

March 12^{d}0^{h};33,48,. . ., App.5(g3), with a canon mentioning the Alfonsine
Tables.)   **152v+** (astrological table. 154r blank.)

Bf Basel, Oeffentliche Bibl. der Univ., F.I.23. Vellum, 34½ × 24,
ff.24, 15th c. Microfilm of whole ms.

Hand-written catalogue, film furnished by library. Zinner 1925 no.2076;
1936 no.12. OP 4.2. T&K 1191,685.

2r-3v (a calendar with Sunday letters plus a conjunction table containing
4 cycles with letters and hour-values. Extract: Jan.1, "t17,-,-,-"; Jan.2,
"-,t1,t8,t9"; Dec.30, "-,b0,b8,-"; Dec.31, "k12,k20,k21,k4". Cf.App.5(j9).
The conjunction table has the same outer form as in Grosseteste's or
Peter's calendars, but is not an obvious transform from either.)

4r + 5r (KAL.CANON B. Hdg.:) In ista parva. . .per annos domini.
(:Letter table 1292(1291 *ms.*)-1653, number column dislodged.) (Hdg.:)
Canon supra kalendarium magistri Petri de Dacia. (:Txt:) Quaere inter
numeros. . .media nocte praecedente. (:parts of lines displaced, due to
mistaken division into columns.)   **4r** (Table, 35 rows, giving tabular
letters and intervals Christmas-Invocavit from golden number + Sunday
letter, cf. App.5(b).)   **4v-5r** (tables containing the lunar letters A-O, one
of them day-by-day, the other one 27 × 19; see App.4(e1).)   **5v**
(Melothesy, cf.App.6(d7), but longer and without sign-man:) Duodecim
sunt signa. . .   **6r** (blank)   **6v** (T-map of world, cf.App.5(h4); note
on winds; list of properties of planets, cf.App.6(d10).)

7r-12v (a calendar, App.5(j9), one cycle, first value *19* 9^{h};43 for Jan.1;
with a day-length table 8^{h};4-15^{h};56, tables of sunrise and sunset, and of
lunar letters App.4(e2) for table at 13r.)   **13r** (lunar table, 27 × 19,
App.4(e2).)   ¶(note on the zodiacal signs, cf.App.6(d10), starting at 12v:)
Ianuarius luna v vi vii in ariete fortunium. . .

13v (T.L., 14 × 12, no hdg. Left and right entr. normal, hdgs. "Lunaris
numerus / Gradus signorum in quo est luna". Upper entr. with month-
names Mar-Feb, and markings for properties of signs.)   ¶(App.5(h1):) Si
volueris scire horas diei per quadrantem. . .secunda et sic de aliis etc.
14r (Planet table, 7 rows, 21^{h}, App.6(c). Hdg.:) Tabula ad sciendum quis
planetarum regnat in qualibet hora diei.   ¶(Verses on planets, in-
cluding:) Jupiter atque Venus. . .Frigidus et siccus Satur[nus]. . .
¶(Table, 19 × 7, containing numbers 5-10 for interval Christmas-
Estomihi, App.5(d5), with a canon.)   ¶(List of computistical variables,
years 1446-1464, cf.App.5(e2).)   **14v** (Table, 35 rows, App.5(b), with
short hdgs.)

14v (Canon to calendar at 7r+:) Item nota, inventio novilunii secundum
practicam illius calendarii sine aliqua subtractione. . .(:mentioning A.D.
1425.)   ¶(A canon on indiction.)   **15r** (3 rotae (19;28;15), first two
beginning 1425, with canons, e.g.:) Si litteram dominicalem scire volue-

ris, tunc ab annis domini subtrahe 1425. . .   ¶(canon, for table at 14v?:)
Si vis scire quinque festa mobilia, scilicet 70ae. . ., vide quae sit clavis
illius anni. . .   ¶(a "tabula continuationis", 1425(19)1501.)

15v (Calendar ⟨by John of Gmunden⟩, App.5(j9), 4 cycles of conjunc-
tions and oppositions, beginning in 1439; first value ♄ 10ʰ;24 for Jan.2.
Followed by several canons.)

Bu Basel, Oeffentliche Bibl. der Univ., F.V.15. Paper, 30 × 21½,
ff.122, early 15th c. Formerly at Carthusian monastery of Basle.
Microfilm 1r-24v.

Hand-written catalogue, film furnished by library. Zinner 1925 no.5484
and p.449. OP 4.3.

1r-v (index, 15th c., starting:) Liber Cartus.Bas. in quo continentur, De
xii signis zodiaci et de planetis vii etc.; Kalendarium bonum cum prac-
tica novilunii etc. . .(then theological fragments, upside-down.)

2ra-9v (App.6(a):) Omnis creatura et universa quae sunt in mundo. . .
(:"magister Petrus de Dacia" mentioned at 3va; planet table 9r.)
10ra-11ra (a figure of lunar phases, App.4(h), then hdg.:) Incipit pars
huius scientiae, scilicet de pertinentibus cursui lunae. (:Txt, from
Compotus of Sacrobosco, cf. T&K 298:) Dum ex motu lunae quemad-
modum et solis. . .mediante embolismo etc.   **11ra-13ra** (Hdg.:) Sequi-
tur de xii signis zodiaci prout appropriantur xii mensibus anni, sole ipsa
percurrente, et quid tunc sit bonum agere vel vitare. (:Txt, App.6(d10):)
Aquarius cum sit signum calidum et humidum, ut hic supra patet de
signis xii zodiaci, est appropriatum Ianuario, quia, ut dicit kalendarium,
sol tunc intrat aquarium. . .Aries cum sit signum calidum et siccum,
mensi Martio est appropriatum, et hoc propter tres rationes seu causas:
primo, sicut aries inter omnia animalia. . .In Martio cibaria dulcia come-
dantur. . .facit in homine vel in corde hominis xii signa, id est xii
articulos katholicae fidei.   **13ra-b** (Hdg.:) Sequitur de minutione in
speciali. (:Txt, cf.App.6(f):) Nunc est notandum quod magistri scribunt
quod minutio. . .("magistri" unidentified). . .et sanam vitam confert.
¶(Hdg.:) Sequitur de quattuor complexionibus hominis. (:Txt, cf.
App.6(f):) Sanguineus est mitis. . .et modicum potest.   **13v** (blank)

14r (two rotae, 28 and 19, with short inscriptions, first one "In hac
figura invenies litteram dominicalem et cum hoc bissextum aeterna-
liter".)   **14v** (list of computistical variables for the year "4000"(=
1400?) and the next 57 years. Cf.App.5(e2).)   **15r** (Table, 35 rows, with
part of a saints' calendar starting March 21, and giving intervals of 6ʷ3ᵈ-
11ʷ2ᵈ, i.e. Christmas-Invocavit; entrance with golden number+Sunday
letter, cf.App.5(b). Canon :) Lieber freund mit diensten. . .   **15v** (Table,
27 × 19, containing lunar letters with period 27. Cf.App.4(e2). Hdg.:)
Quando sit bonum minuere. . .

16r-21v (a calendar dated 1401, with one cycle, first value *19* 18ʰ;9 for Jan.1. Cf.App.5(j9). Also containing, i.a., day-by-day tables of lunar letters App.4(e2), for the table at 15v, and *Qdie* and *Alts.* Zinner's statement "mit Angabe des Tagesdauer und Sonnenhöhe gemäss Petrus von Dänemark" (*l.c.*) apparently envisages these tables, but I have found no ascription.)   **22r+** (theology.)

Bv   Bern, Burgerbibl., 524. Vellum, 20 × 14, ff.452, first half of 15th c. Very similar to München Clm 22049 (=Mk) in contents and execution. Microfilm 1r-19r.

Hagen 1875,439. Eneström (1885,3)22 no.5. Jørgensen 1910,256 n.1. Zinner 1925 no.2069; 1936 no.13. Thorndike, Osiris 8(1948)53 ("Bern 524A"). OP 4.5;5.5. T&K 1693. Reproductions in Bruckner, Scriptoria medii aevi Helvetica XI, 1967, Taf.XXXVI*a,b,d*;XXXVII*b* (=2r,7r,17v,18r); description, *ibid.*p.107 (ref. from librarian).

1ra-9vb (App.6(a):) Omnis creatura et universa quae sunt in mundo. . . ("magister Petrus de Datio" mentioned at 1vb; sign-man 2r; figure of spheres 7r; planet table (cf.App.6(c)) 9r. Explicit:). . .sive breves dies et nox. Expliciunt electiones de horis planetarum.

10r (T.L.CANON(a3). Hdg.:) Ad locum lunae habendum quolibet die (:Txt:) videas igitur. . .ad quamcumque horam diei volueris.   ¶(T.L., 14 × 12. Subscr.:) Tabula ad sciendum in quo signo sit luna et in quoto gradu eiusdem signi quolibet die, et hoc secundum eius (est *ms.*) medium motum qui positus est quo ad gradus. (:left entr.normal, right entr. "13,26,. . .,5", hdgs."aetas lunae/gradus lunae".)

10v (KAL.CANON B(h2). Hdg.:) Per annos domini. . .mensibus. (:Letter table 1368-1577.) (:Hdg.:) In ista parva tabula. . .in kalendario sequenti. (Hdg.:) Canon super kalendarium magistri Petri de Datio. (:Txt:) Si igitur litteram. . .Transactis autem 76 annis a compositione huius kalendarii, quod compositum fuit anno domini 1292, demantur de horis 6. . . usque in infinitum. (:Subscr.:) Explicit canon super kalendarium magistri Petri de Datia, compositum ad meridianum Parysiensem.

11r-16v (CALENDAR(Cycl,Naur,D,Dfes,Qdie,Alts): *Cycl,* "s8,s1,s17,s9" for Jan.1; calendar renewed for 1369+. *Dfes* with notes on liturgy.) (:*Hdgs.*: Cycl,"Quatuor lineae primationis". Dfes, number of days,"luna".) (:*Additions*: "nox habet horas. ., dies. .", each month.)

17r (Table,35 rows, App.5(b). Canon, App.5(b1), hdg.:) Ad sciendum quinque festa mobilia per numerum aureum et per litteram dominicalem. (:Txt:) Nota circa. . .tabulae supradictae.   **17v** (Computistical rota (28;19; 15), App.5(b), starting 1368. Canon:) Nota, haec rotula continet in extremo. . .invenies modo supradicto.   **18r** (List of elections according to the zodiacal signs, cf.App.6(d10), "Ab⟨act⟩atio pueri" etc. Hdg.:) Tabula de electionibus communibus.   **18v** (blank.)   **19r** (rota (24) for

planetary domination in hours, cf.App.6(c), with verses:) Jupiter atque
Venus. . .Annis triginta per signa meatque Saturnus. . .(:App.6(a) §48.)
20+ (breviary.)

The calendar is Swiss, as is shown by some of the following feasts, the
greater part of which also occur in the mss. Mk and M: Anthidii ep.,
Jun.17; Theodoli ep., Aug. 16; Dedic.eccl.Lausann., Oct.20; Florentii ep.,
Nov.7; Himerii cf., Nov.12; Rufi ep., Nov.14; Elizabeth Lantgravie,
Nov.18; Adelheidis imperatricis, Dec.16. The feast Oct.Augustini, Sep.4,
which is also found in M Ma, may indicate influence from some order.
Individually, Bv has Dedic.eccl.Interlacensis, Oct.16 + Oct.dedic., Oct.23;
Dedic.super capella S.Katherine, Nov.16.

Bo Boston (Massachusetts), Boston Medical Libr., 20(Ballard Cat.).
Vellum, 18 × 12, ff.193, 15th c., English. Photographs 167v-174r.
Census p.914.

167v (Hdgs.:) Kalendarium magistri Petri de Dacia. Canon super
coniunctiones· magistri Petri de Dacia. (KAL.CANON B(h1). Hdg.:) Hic
sunt anni domini. . .omni anno. (:Letter table 1292-1672(for 1653).)
(:Txt:) In capite istius tabulae. . .et habebis intentum.

168r-173v (a calendar containing: some cols. of astrology; a cycle of the
calendar App.5(j7), first value *19* 14^h;27 at Jan.2; D; Dfes with some
astrology; Qdie, max.16^h;40; Grad, Cap 19°;10 at Jan.1; Alts, "Altitudo
solis in meridie ad ?Oxonias" 14°;36-61°;32(or 61;40?), thus for latitude
51°;56. No rest of Peter's table of conjunctions.)   **174r+** (arithmetic.)

Bx Bruxelles, Bibl.Royale, 4622. 13½ × 8, ff.19, late 14th c. Some
leaves misplaced; the order followed below is arbitrary. A photo
of the ms. is in København, Kgl.Bibl., shelf-mark Add.377,8°.
Microfilm of whole ms.

Cat. des ms. des ducs de Bourgogne, I p.93. Eneström(1885,3)25 no.16;
(1886,3)57-8. Zinner 1936 no.28. OP 5.6.

8r-v (blank.)   **9r-v** (T.L.CANON(c4). Hdg.:) Quiconques vaura scauoir
en quel signe le lune demeure et en quel degre du signe elle est cascun
jour et chascune heure (:Txt:) premierement deues sauoir. . .et a cascune
heure du jour. S'ensieut le taule de le lune et cetera.

1r (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia ad sciendum
signum et gradum lunae. (:left entr.normal, right entr."13,26,. . .,5",
hdgs."Eage de le lune / degres de le lune". Upper entr. with month-
names Mars-Freuier.)   **1v** (blank.)

2r-7v and **10r-18v** (moon-book, App.6(d10), Aries-Virgo only. Be-
ginning of Aries:) Vous deues scauoir que le signe d'Aries est caulx et ses,
plain de feu, colericque muable masculin, de le partie d'orient. Et si
regarde le chief de l'omme et de le femme. Quant la lune est v signe du

mouton ches aries y fait bon saingnier, et s'aucuns prent adont maladie,
li maladie sera muable et tost terminera, ou est bun ou est mal. Bon fait
commenchier voiages et aler de lieu en lieu. Bon fait aler en marchan-
dise vers les parties de orient et y marchander. . .

Ca Cambridge, Univ.Libr., Add.6860. Vellum, 20 × 15½, 14th c.
Microfilm 38v-42r; 87v-89r; 147v-150r.

OP 4.8. T&K 1191;1693.

38v (KAL.CANON B:) (Letter table 1292-1653.) (:Txt:) Quaere inter
numeros. . .nocte praecedente.

39r-41v (CALENDAR(N,Cycl,Naur,D,Dfes,Qdie,Alts,Dmen): *N,* golden
numbers, "19,-,8,16,. . ."(March). *Qdie,* max.16^h;38. *Alts* only for Jan.-May
and some of Aug.; values 3°;30 lower than standard, i.e. for latitude
52°;20, probably Cambridge.) (:*Hdgs*.: short, none to Cycl nor Dfes.)
(:*Additions*: "Prima dies mensis. . .", App.5(f1), for Jan.-Apr.)   **42r**
(Table, 19 × 12, containing numbers up to 25 denoting the dates Mar.22-
Apr.25. Cf.App.5(d6). With short canon.)

88r (Small table of ascensions, as *Quadrans 2* §20.)   ¶(Canon to table
of Gerland, App.5(a1):) Quaere inter numeros. . .multa intra reperies. . .
quae postea sequitur. Require tabulam per aliam partem.   **88v-89r**
(Table(28,1044-1548), App.5(a). Subscription in 2nd hand:) Tabula Ger-
landi principalis continens cyclos sol(aris) et 19-l(is) et litteras tabulares.
¶(Table, 35 rows, App.5(a). Subscr. in 2nd hand:) Contratabula Gerlandi.

-147v (some calendar ending in February.)   **148r** (table, 19 × 7,
containing dates, first one Apr.7. Cf.App.5(d6).)   ¶(Table of mean
motion of moon, single days: 1^{s}5°;17,31 for day 30. App.4(d). Secondary
hand.)

148v (T.L., 14 × 12. Hdg:) Tabula de loco lunae inveniendo quolibet
die anni a media nocte sui incepto. (:left and right entrances normal,
hdgs. "Dieta(!) / Gradus signorum". Upper entrance with month-names
Mar-Feb. Melothesy for each sign, in margin.)   ¶(T.L.CANON:) Vide
quota est dies coniunctionis. . .et gradum lunae habebis ad locum ˙p˙da˙
¶(note, cf.App.6 (d10):) Cum luna fuerit in ariete / in libra / in sagitt. / in
aquario, bona est minutio.   **149r+** (Calendar of Grosseteste).

The calendar is English, as is seen from the following feasts, also found in
either or both of C and A: Vulstani, Jan.19; (Passio) Willelmi, Mar.24;
(Passio) Elphegi, Apr.19; Dunstani (ep.), Mai.19; Trl.Edmundi, Jun.9.

C Cambridge, (Univ.Libr.) Corpus Christi Coll., 347. Vellum,
31½ × 20, pp.163, 14th c. From Norwich Cath. Priory (James,
below). Microfilm p.145-63.

James II,1912,181-2. Jørgensen 1910,253; 1933,193 n.5,194 n.1. Thorn-
dike 1934,674 n.4. OP 4.6;5.8. T&K 53,680.

145 (blank (cat.).)   **146** (KAL.CANON A:) In hoc primationum
cyclo. . .current primationes sicut prius.

147-158   (CALENDAR(Cycl,Dann,Naur,D,Dfes+Comp,Qdie,Alts,
Qnoc,X): *Dfes* with notes on liturgy and vestment. *Comp* indented. *X,*
another hand in outer margins: 3 conjunction cycles (Walter of Elvedene,
App.5(j5)), first value *19* 3^h;56 at Jan.2; and at tops of pages, eclipses
1348-1386, App.5(j6).) (:*Hdgs.*: Cycl, "Quatuor cycli naturalis compoti /
Q.c.lunares / Q.c.primationum lunae / Cyclus cyclorum lunae". Dfes,
number of days, lunationes,reg.sol.,reg.lun.) (:*Additions,* bottom of pages,
some months only: "nox habet horas. ., dies. .". To the conjunction
cycles (*X* above), January: "Secundus cyclus incipiet ab anno domini
1349, tertius ab anno 1368 etc.")

159 (T.L., 14 × 12, hdg.:) Tabula magistri Petri de Dacia dicti Philomena.
(:Left and right entr.normal, no hdgs.)   ¶(T.L.CANON:) Ad locum etiam
lunae habendum. . .centri epicycli lunae.

160-1 (Table (28,1044-1548), and table (35 rows), App.5(a), no hdgs.)
160 (canon to Tab.Gerlandi, App.5(a1): Quaere inter numeros. . .quae
postea sequitur.   ·

162 (KAL.CANON B:) (Letter table 1292-1653. Txt:) Quaere inter
numeros. . .nocte praecedente.   **163** (cursive, 1 page of notes on
astrological terms by a monk of Norwich.)

Calendar of *Norwich.* It has the feasts at Mar.24 and Mai.19 as under Ca
above. Further, Swithini (ep.), Jul.2; Neoti, Jul.31; Ord.Gregorii (pp.),
Sep.3; Osithe v., Oct.7; all of these also occur in ms.A. Feasts specific for
this calendar are, e.g., Trl.reliquiarum, R Sep.16; Dedic.eccl.Norwic., R
Sep.24.

Cd Cambridge, Univ.Libr., Dd.6.29. Vellum, 17 × 11, ff.90, 15th c.
Microfilm 1r-14v.

Jørgensen 1910,259; from Halliwell, The manuscript rarities. . .,1841 p.
48.

1r (Sign-man, with canon as App.6(d8):) Aries. Cave ab incisione in
capite. . .

1v (T.L., 14 × 12, no hdg. Left entr.normal, hdg."Aetas lunae"; right
entr. not in photo. Upper entr. with month-names Mar-Feb.)   **2r**
(blank, with some recipe in a cursive.)

2v-13r (a calendar, App.5(j7), 4 cycles of conjunctions+oppositions, first
value *19* 14^h;27 at Jan.2.)   **13v-14r** (List of Sunday-letters and golden
numbers for 280 years. Undated, but a secondary marking "1441" is so
placed as to make it start in 1420. Cf.App.5(e2).)   **14r** (Table, 35 rows,
App.5(b), with sub-headings only.)   **14v** (cursive recipes in English and
Latin.)

Cj Cambridge, Univ.Libr., Ji.3.3. Vellum, 24½ × 17½, ff.283, 13th-
14th c. Microfilm 3v-12r.

Catalogue III p.404ff. OP 4.7.

3v (fly-leaf: frgt. of the sequence "Dulce nomen Ihesu Christi" with
music. Ref.from J.Raasted.)

4r (Hdg.:) Canon super 4 cyclis verae primationis lunae. (Txt, canon to
Grosseteste's calendar, see App.1(d), with secondary adaptations to
Peter's Calendar, but lacking refs.to the quarter-values of the latter:)
Ad notitiam huius kalendarii habendam... (:Addition from KAL.
CANON A, and a note on William's Calendar.)

4v-10r (CALENDAR(GG,Cycl,D,Dfes,Comp,Dmen,X): *GG*, letters and
hour-values from William of St.Cloud's Kalendarium reginae, App.5(j2),
cf.note at 4r. *X*, "Altitudo meridiana", secondary: max.61°;43, but
numbers mostly ca.2°;25 less than in Alts, and missing from Sept. on.)
(:*Hdgs.*: Cycl, "Quatuor cycli naturalis compoti". Dfes, number of days,
lunationes, reg.sol., reg.lun. Comp, "hic incipiunt regulares solares et
concurrentes" (March; further such hdgs. for other months). GG,
"litterae aurei numeri / horae primationum".)

10v-11r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Ger-
landi, continens cyclos solares et decemnonales, concurrentes, notas bis-
sextiles, litteras tabulares et dominicales, cyclum indictionis et cyclum
lunarem etc.   ¶(Table, 35 rows, App.5(a). Hdg.:) Contratabula Gerlandi.
(:bottom of 10v: verses "Rex furit" (App.5(f1)), and note on tabular
letters, cf.App.5(a), "Duo sunt alphabeta...aliae autem omnes primo
alphabeto".)   **11v-12r** (Hdg.:) Compositio 2 tabularum Gerlandi, et
primo tabulae principalis. (:Txt, App.5(a2):) Ad compositionem...litte-
ram dominicalem reperies.   **12r+** (Balduinus, Compotus manualis.)

The calendar is connected to the larger of the Northern French groups
specified under ms.R below. Of the feasts there mentioned, Cj contains
those of Mar.19,28; Apr.5,15,18,20. In common with various other mss.,
Cj also has: Johannis pp.m., Mai.18; Nicostrati et Symphoriani, Jul.7;
Marcelli ep., Jul.26; Lupi ep., Sep.1; Juliane v., Dec.10; these also mostly
indicate a location between Flanders and Paris. Cj alone has Firmini, R
Jan. 10 (Jan. 13 at Amiens, cf.under R). The adjuncts "papa" have been
erased, as was done in England after 1534 (Wordsworth 1904,p.11).

Da Darmstadt, Hessische Landes- und Hochschulbibl., 765. 27 ×
19½, middle of 14th c. Microfilm 173v-174v.

Zinner 1925 no.2068; 1936 no.9. OP 4.9.

-173r (Almanach of Profatius (librarian).)

173v (KAL.CANON B(l2):) (Letter table 1292-1653, hdg.:) Tabula ad
inveniendum litteram imprimationis lunae. (:Txt:) Accipe numerum pro-
pinquiorem...verbi gratia, si habes 1340...litteram K.

173va-174re (CALENDAR(Cycl,Naur,Dann).) (:*Hdgs.*: Cycl, "Januarius. colt(?) cycli coniunctionis mediae lunae et solis hic est".) **174re** (CALENDAR(Qdie,Alts): to fill out page, only some 30 dates given.)

174v (astrological notes on moon's position, faint: Zinner 1925 no. 11916.)

W   Erfurt, Wissenschaftliche Allgemeinbibl., 2° 263. Paper, ff.123, A.D.1349 or later (cf.74r). From Aachen (Schum, below). Several hands. Microfilm 56v-74r.

Schum p.171. Zinner 1925 no.2067; 1936 no.33. OP 4.11.

57r (top, "Assit principio...".)   ¶(Elections, cf. App.6(d10), not in T&K:) Nota quod luna 4ᵃ...   ¶(Two rotae (28;19), App.5(b), beginning in 1300, secondarily marked 1359, with short canons, of which the first one runs:) Ad inveniendum litteram dominicalem et bisextilem per annos domini 《subtrahendo ab annis domini 1440, residuum numerando in circulo ab A 〈.〉a》.   ¶(Rota (23), App.6(e1), with canon:) Si vis scire utrum aegritudo sit periculosa an non, pone feriam diei...(:5 verses:) Collige per numerum quidquid cupis esse probandum...   **57v** (Planet table, 12 rows, 12ʰ, App.6(c). Hdg.:) Tabula ad sciendum quis planetarum regnet in qualibet hora diei. (:Subscr.:) Jupiter et Venus...   ¶(computistical verses, v.Wijk 87:) Ternus unden...   **58r** (Table, 35 rows, App.5(b). Hdg.:) Tabula ad sciendum quinque festa mobilia supponendo aureum numerum et litteram dominicalem.   **58v-59r** (astrology, App.6(d2):) Aquarius est signum firmum...   **59r** (App.5(h1):) Si volueris scire horas diei per quadrantem...secunda et sic de aliis.   ¶(Short note on time-units.)

59v (T.L., 14 × 12. Hdg.:) Tabula signorum ad sciendum in quo signo sit luna et in quo gradu illius signi. (:left and right entr. normal, hdgs. "Dies perfecti aetatis lunae / Gradus signi in quo est luna". Lower entr. with pairs of month-names, (Mar,Apr),...,(Feb,Mar).)   **60r** (T.L.CANON:) Ad locum lunae habendum...die incepta.   ¶(Rota(28,19,15), cf.App. 5(b). Canon:) Nota quod cyclus iste coepit anno D.(1324)...   **60v** (Table (19 × 7), with symbols for intervals Christmas-Invocavit, App.5(d5); cf. Bischoff, Mittelalterliche Studien II,1967,p.204. Canon:) Nota ad intelligentiam numeri subscripti quod quilibet circulus valet 6 ebdomadas, et quaelibet virgula adhaerens circulo 1 ebdomadam, et quilibet punctus super circulum positus valet 1 diem...

61r (KAL.CANON B:) (Letter table 1292-1729.) (:Txt:) In ista parva tabula...per annos domini. Incipit canon super kalendarium magistri Petri. Quaere inter mumeros...nocte praecedente.   ¶(Lower margin: syllables for finding sun's entrance into signs, "Gre at ser ni a...", with a note. Below letter table: verses for unlucky days, "Mefalus..."(v.Wijk 97), with a note.)

61v-67r   (CALENDAR(Naur,Cycl,N,D,Dfes+Comp,Dmen,Qdie,Alts, Dann): .*N*, "numerus novus aureus", values "19,8,-,16" for March.) (:*Hdgs.*: Cycl, "Cycli primationum lunae". Dfes, number af days, luna-(tio), "sol in .. gradu ..", syllables "Armis...(App.5(f1))".) (:*Additions*: Verses on unlucky days, App.5(f1), "Prima dies mensis...". Dietary notes, cf. App.6(f), "In Ianuario de vino optimo bibe...". A few more computistical verses: "Mensem non sanus(!) Capricornus servat Ia-num...", "Ter 3 lunares Ianus habet...(T&K 1563)".)

67v (Lunar table, 12 × 12, App.4(a), right entr. with degree-values as in T.L., but telescoped. Canon, App.4(a4):) Haec tabula docet in quo signo...unum diem naturalem.   **67v-68r** (moon-book, App.6(d3):) Cum luna est in ariete, bonum est minuere...   **68r** (Rota(12) with threaded volvelles for moon's longitude, with melothesy: App.5(h3).) **68r-v** ("Tabula angeli" (19 × 7), App.5(d4); with a rota(7) to be entered with one of the letters "angelus" and showing the moon's age at the five moveable feasts.)   ¶("Tabula fortune" (19 × 7), App.5(d4); with a rota(7) like that preceding but using the letters "fortuna".)   **68v+70r** (Table(28, 1044-1548), App.5(a). Canon, cf.App.4(a2),App.5(a):) Tabula Gerlandi, cuius longitudo continet 14 distinctiones, quoniam protenditur in tot annis quot cyclus solaris continet; latitudo vero eius in 19 consistit...lit-teras a summo usque deorsum. (:At 70r: table, 35 rows, App.5(a). Conti-nuation of canon:) His itaque determinatis, si 5 festa mobilia invenire volueris, ad tabulam huic ex opposito respondentem, quae contratabula dicitur, eo quod in parte contraria principali respondet...omnia prae-dicta per ordinem inveniuntur.   **69r** (Table (7 × 8), first value 2.Kal. Aug. Upper entrance "Legende" with names Salmon, Iob, etc. App. 5(d6). Verses:) Post festum terne regum lege finit in abdon...   ¶(Planet table, 14 rows, 24^h, App.6(c); no text.)   ¶(Table of sun's entrance into signs, 1 year, App.5(g3), first value March 13^{d}0^h;4.)   ¶(Diagram with 10 lunar phases, App.4(h).)   **69v** (List of solar eclipses 1330-1386, and of lunar eclipses 1341-1386, App.5(j6).)   **70v-74r** (Moon-book, App.6(d4):) Aries est primum signum caeli...Expliciunt dicta(?) et naturae 12 signo-rum, completa Aquis per manus Iohannis de Restail, anno domini 1349 in die sancti Matthaei apostoli et evangelistae.

The calendar is German. It has some feasts, most of them non-local, in common with the calendar in T and occasionally with others, such as: Perpetue et Felicitatis, Mar.6; Conversio Marie Magd., Apr.1; (Dedic.) Marie ad martyres, Mai.13; Wilhelmi cf., Mai 29; Longini militis, Dec.1.

W alone has some feasts which are more specifically Southern German, namely: Helene regine, Apr.15; Timothei et Symphoriani, Aug.21; Corbiniani, Sep.8; and together with a secondary hand in M, Guidonis ab., Mai.4.

Ef   Erfurt, Wissenschaftliche Allgemeinbibl., 2° 267. Vellum, ff.208, middle of 14th c. (ca.1348, Schum; perhaps ca.1340, cf.199r.) Microfilm 196v-200r.

Schum p.177. OP 4.12. T&K 685.

-**197v** (list of herbs.)

198r-v (KAL.CANON B:) (Letter table, 1292-1653. Txt:) In ista parva. . . per annos domini. (:Hdg.:) Canon super kalendarium magistri Petri de Dacia. (:Txt:) Quaere inter numeros. . .nocte praecedente.   ¶(198r, bottom, not text-hand, note on tabular letters for 1332 and 1335.)   **198v** (App.5(h1). Hdg.:) Ad sciendum horas diei per quadrantem. (:Txt:) Si volueris scire horas diei per quadrantem. . .secunda, et sic de aliis.

198v (astrology, App.6(d10):) Cum luna est in ariete, bonum est minuere, et est hoc signum domus et hospitium Martis, et est signum mobile calidum siccum igneum colericum, et moratur in oriente, et habet de membris hominis caput oculos aures et faciem. Non facies medicinam in illa parte. – Signum taurus. . .(:ends at bottom of page with Sagittarius and the note "reverte folium et invenies residuum"; no continuation at 199 or 200r.)   **199r** (lunar table, 12 × 12, App.4(a), no hdg.)   ¶(Verses on intervals Christmas-Invocavit, v.Wijk p.65 and 107, with text-hand's note on A.D.1338-9:) In gravibus kausis. . .   **199v** (Planet table, 7 × 12; each cell contains two planet-names, for hours of day and night. Cf.App.6(c). Hdg.:) Per hanc tabulam scitur quis planetarum regnat qualibet hora cuiuslibet diei, et primo de die Saturni. ¶(Notes on miracles and a prayer, not in text-hand; continuing at 200r.)   **200r** (Verses on zodiacal signs, App.6(d10), T&K 274?:) Credo quod ignoret physicorum tabula bruta. . .   ¶(Other notes:) Getrud Mathei. . . Nota, cum luna fuerit in aquario, in ariete. . . Lunam quando tenet aries toti capiti nil. . .

The ms. contains fragments of a calendar in the binding, which I have not seen.

Ew   Erfurt, Wissenschaftliche Allgemeinbibl., 4° 351. Vellum, ff.183, middle of 14th c., ?English writing. Microfilm 1r-133v.

Schum p. 587-90. Zinner 1936 no.50. OP 11.5. Both the latter concern the New Quadrant elsewhere in the ms.

-**38r** (Petrus Alfonsi, de disciplina clericali (Schum).)   **38v** (Lunar table, 14 × 12. Hdg.:) Tabula ad sciendum in quo signo et gradu signi sit luna omni hora diei secundum ?Li⟨-⟩. (:Left entr. normal, no hdg. In the middle of the table are intercalated 11 columns of degree-values. The first column has "13,26,. . .,5" whereas the following columns augment these values by 3° at a time, *modulo* 30°. Outer right entr. with degrees and minutes, 13°;10. . .5°;17. No hdg.)   **39r-41v** ("Heinricus", theorica planetarum, T&K 1399.)   **42r** (Table, 12 rows, containing names of

planets: on exaltations, triplicities. . . for each zodiacal sign. Cf.App.6(f).)
42v (Planet table, 24 rows, App.6(c); a right entr. with elementary
qualities. Hdg.:) Tabula ad sciendum pro qualibet hora diei vel noctis quis
planeta regnat.   ¶(:short astrological notes, "Jupiter atque Venus", etc.,
and a canon:) Accipias horam et diem, et ubi illa 2 concurrunt, ille planeta
dominatur tali hora.   **43r+** (Sacrobosco, Algorismus.)

The "Kalendarium bonum" on ff.73-78 ("engl.Herkunft", Schum, from
martyrology and writing) has the same values as the calendar in
App.5(j3), ascribed to Roger Bacon.

E2 Erfurt, Wissenschaftliche Allgemeinbibl., 4° 362. Vellum, ff.96,
about middle of first half of 14th c. (Schum), 1330 or later (72r-
v). ff.63-72 are an insertion in smaller format than the rest.
Microfilm 12v-96r.

Schum p.606-7. Zinner 1925 no.5331 with p.445. OP 4.13;5.18.

63r (canon to the calendar at 64r+:) Sciendum quod hoc kalendarium
cepit initium anno domini 1311(:T&K 1397, who only cite this ms.). . .
factum autem fuit anno domini 1313 a quodam sacerdote ordinis Prae-
monstratensis. . .perpetuis temporibus nosci potest.   **63r-v** (canon to
eclipse lists 72r+, cf.App.5(j6):)Eclipses solis invenies cum anno Christi in
quo es. . .usque ad eius finem.

64r (T.L.CANON:) Canon tabulae Petri de Dacia. Et ad locum lunae
habendum. . .voco locum centri.   ¶(canon to table at 70r:) Canon ad
sciendum festa mobilia. Si istam tabulam scire desideras, aureum
numerum et litteram dominicalem. . .omnia festa conservantur.

64r (Table resembling Letter table, 1311-1672(1682 *ms.*) with cycle
numbers 1-19 for the letters A-T.)   **64r-69v** (the calendar App.5(j4),
with 4 cycles, first value ♍ 20ʰ at Jan.2, and some other tables.)   **70r**
(Table, 35 rows, mainly like App.5(b); no text except sub-hdgs.)

70v (T.L., 14 × 12, hdg.:) Haec est tabula medicorum composita a
magistro Petro de Dacia, quae docet invenire in quo signo est luna in
qualibet die anni, incipiendo a media nocte. (:left entr.normal, hdg.
"Dies perfec( ) aetatis lunae"; right entr. not in photo. Upper entr. with
month-names Mar-(Feb).)   **71r** (table of elections, App.6(d10), "ab
hospitio in hospitium. . .", according to the zodiacal signs.)   **71v** (Table,
19 × 7, with numbers 6-11: App.5(d5), intervals Xmas-Invocavit.)
¶(Planet table, 14 rows, App.6(c), no col. of hours. Hdg.:) Haec tabula
est ad sciendum quis planetarum regnat in qualibet hora diei et noctis.
72r-v (Lists of solar and lunar eclipses, 1330-86 and 1340-86 (App.5(j6)).
Short hdgs.)

E7 Erfurt, Wissenschaftliche Allgemeinbibl., 4° 387. Paper, ff.101, beginning of second half of 14th c. (Schum). German (1r). Microfilm 1r.

Schum p.648. Zinner 1925 no.2080; 1936 no.34. Thorndike 1934, 674 n.4. OP 5.19.

1r (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in quo gradu illius signi. (:left entr.normal, right entr. "13(!),27,. . .,23,6", sub-hdgs. "Aetas lunae / Gradus lunae". Upper entr. with month-names Apr-Mar.)   ¶(6 lines with notes on signs, computus, etc.:) Est aries taurus. . . Hoc gero karus. . . Henric gut korne hat. . .(:and some more, all in text-hand.)   ¶(T.L.CANON:) Ad locum etiam lunae habendum. . .unum gradum computabis etc.   **1v+** (Bradwardine etc.; no calendar in the ms.)

F1 Firenze, Bibl. Medicea-Laurenziana, conv.soppr.174. Vellum, 37 × 24½, ff.I+88, 14th c. From monastery of S.Maria de S.Sepulchro, Florence; possibly written at Venice. Cf. McGurk (below) on ff.2r,83r,etc. Microfilm I+1r-18r.

McGurk 1966, 20-22 (ref. from Hill Monastic Ms. Libr.)

1v (KAL.CANON B. Hdg.:) In ista parva. . .per annos domini. (:Letter table 1292-1653.) (:Hdg.:) Incipit canon supra kalendarium. (:Txt:) Quaere inter numeros. . .praecedente.   ¶(List of Easter dates 1340-1360, cf.App.5(e2):) 1340 die 16 intrante Apr. . .

2r-7v (CALENDAR(Cycl,Naur,D,Dfes,Qdie,Decl).) (:*Hdgs.*: Cycl, "Quattuor cycli primationum lunae". Dfes, verses "Prima dies Iani. . .", App.5(f1); number of days; luna(tio).) (:*Additions*: month-names in Hebrew, Greek and Latin; "nox habet horas. . ., dies. ."; notes on solar signs and Biblical events; verses "Nona parit bellum. . .", App.5(f1).)

8r (T.L., 14 × 12. No hdg. Left and right entr.normal, hdgs. "Dies / -". Upper entr. with month-names Mar-Feb.)   **8v** (blank)   **9r+** (canon to Almanach of Profatius.)

The calendar is almost filled out with feasts, most of them non-local. Some of these show a connexion with some order, such as: Cyri et Iohannis m., Jan.31; Guilelmi cf., Feb.10; Trl.Augustini(duplex), Feb.28; Sotheris et Gaii, Apr.22. Some others seem rather to point to Southern France: Maioli abb., Mai 11; Pontiani pp.m., Nov.19; Cypriani abb., Dec.9. Cf. also Heloy(!) ep.cf., Jun.25, with Eligii ep.cf., Dec.1. I cannot identify Columbani abb., Mar.29, nor Trl.S.Christine apud Panormam, Mai 7. On the whole, even when taking into account the uncertainty produced by the richness of the martyrology and the bias of Grotefend, some connexion with France must be considered likely.

Fp Firenze, Bibl. Medicea-Laurenziana, plut.18 sin.6. Vellum, 8°, ff.96, first half of 14th c. Text-hand at 3r-(20+); additional hand 1r-2r and 94r-96v. From Franciscan convent of S.Croce, Florence (16th c. note on 2v). Microfilm 1r-22r; 84v-96v.

Bandini IV,1777,132-3. Eneström(1885,3)24 no.14; (1885,8)67. Zinner 1936 no.27. OP 5.21.

1r ("Ars cylindri", with table of shadow-lengths. Cf.App.5(h2). Txt:) Longitudo baculi qui ponitur in foramine debet esse 45 graduum. . . **1v** (Table, one row for each sign, containing planet-names in 13 cols. under the headings "domus,exaltatio,triplicitas,termini,facies", cf. App. 6(d10).) **2r** (7 tables of shadow-lengths, App.5(h2). Hdg.:) Incipit horologium itinerantium sive viatorum.   **2v** (owner's note, see above.)

3ra-b (KAL.CANON A:) In hoc primationum. . .primationes sicut prius. **3rb** (T.L. CANON:) Ad locum lunae. . .sequentis erit luna. Explicit.

3v-9r (CALENDAR(Naur,Cycl,D,(L),Dfes,Comp): (*L*): "Litterae tabulares ad pascha secundum venerabilem Bedam", for Mar.22-Apr.25.) (:*Hdgs.*: Cycl, "Cyclus cyclorum lunae". Dfes, number of days, lunationes, reg.sol., reg.lun.) (:*Additions*: "Hic renovatur littera dominicalis"(January); other computistical notes occasionally, in text-hand. "Nox habet horas. ., dies. .", in both hands, for some months only.)

9v-10r (Table(28,1044-1548), App.5(a). Hdg.:) Haec est tabula principalis per quam fit tabula cerei paschalis.   ¶(Table, 35 rows, App.5(a). Hdg.:) Contratabula Gerlandi.   **10v-11v** (Hdg.:) Incipit compositio duarum tabularum Gerlandi praecedentium, et primo principalis. (:Txt, App.5(a2):) Ad compositionem. . .   **11v-19v** (Balduinus, Compotus manualis.) **20r+** (Sacrobosco, Algorismus.)

94r-v (Table of zodiacal stars, hdg.:) Tabula stellarum fixarum quae ponuntur in astrolabio, cum gradibus quibus caelum mediant. . . **94v** (Note: 1 lunation = $29^d 12^h$ 793/1080).

95r (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et quolibet die anni a media nocte sui incepto. (:left and right entr.normal, hdgs. "Dies perfecti aetas(!) lunae / Gradus signi in quo est luna". Upper entr. with month-names Mar-Feb.)   **95v-96r** (Hdg.:) Incipit canon ad sciendum dispositionem tabulae Gerlandi principalis. (:Txt, App.5(a3):) Theorica huius tabulae Gerlandi talis est. . . **96r** (T.L.CANON(d1). Hdg.:) Supra tabulam magistri Petri de Dacia. (:Txt:) Cum volueris uti tabula magistri Petri. . .media nocte incipitur. ¶(Hdg.:) Incipit canon ad sciendum declinationem solis et gradus in quolibet die anni. (:Txt, App.1(a1):) Nota quod per hunc kalendarium. . . subtrahenda. Explicit.   **96v** (computistical notes on finding 70ª, 40ª, Easter (App.5(f2)); table of climates, App.5(h4).)

Calendar connected to the Northern French group in some non-local feasts (cf. notes to ms.R; of the feasts there mentioned, Fp lacks Apr.15,

Oct.24, and Nov.16). Fp further has the feast cited under Cj to Jul.7, and that under Or to Jul.26. A later hand has Ludovici O.M.ep.cf., Aug.19 (common; canonized 1317).

F   Firenze, Bibl.Nazionale Centrale, II.III.24. Vellum, 33 × 22½, ff.303, early 14th c. From convent of S.Maria, Florence. Microfilm f.198-249.

Mazzatinti IX,150-1. Thorndike 1959,36-8 (full descr.). OP 4.14;5.22. T&K 680.

-232va (Petrus de S.Audomaro, Semissa, with Toulouse Tables appended.)

232vb-233ra (KAL.CANON A:) In hoc primationum cyclo...primationes sicut prius.   **233ra-b** (T.L.CANON:) Ad locum etiam lunae... centri epicycli lunae.   **233rb** (Canon to Tabula Gerlandi, App.5(a1):) Quaere inter numeros...necessaria reperies.   ¶(:on 233r-v there are several notes and cross-references by another hand.)

233v-239r (CALENDAR(Naur,Cycl,D,Dfes,Comp,Decl,X): X: secondary column of day-length "ad civitatem Neapolis sive ad latitudinem 40 graduum", max. 14^h;51) (:*Hdgs*.: Cycl, "Quattuor cycli naturalis compoti / Q.c.lunares / Q.c.primationum lunae / Cyclus cyclorum lunae". Dfes, number of days, lunationes, reg.sol., reg.lun. Comp, "sol in .. gradu ..".) (:*Additions*: *233v,* in a hand smaller than the text-hand but possibly the same:(KAL.CANON B, hdg.:) In ista parva...domini. (:Letter table 1292-1653.) (:Hdg.:) Canon supra kalendarium magistri Petri de Dacia. (:Txt:) Quaere inter numeros...nocte praecedente. *233v-234r* (secondary notes, see App.1(b).))

239v-240r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Gerlandi, continens in se multa utilia ecclesiae.   ¶(Table, 35 rows, App.5(a). Hdg.:) Contratabula primae Gerlandi.   **239v** (canon to these tables, cf.App.5(a), same hand as notes on 233v-234r:) Com literas tabularias per artem scire desideras...intra in aliud.

240v (upper margin, a secondary hand:) Ista tabula est ad sciendum in quo signo sit luna et in quo gradu illius signi. (:T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die anni a media nocte sui incepto. (:left and right entr.normal, hdgs. "Aetas lunae / Gradus".)

241r-v (Table, hdg.:) Tabula elevationum signorum ad latitudinem 51 graduum...   **242r+** (Canones Azarchelis.)

The calendar belongs to the Northern French group consisting of RBF. Of the feasts cited under ms. R, F lacks Oct.24.

G   Glasgow, Univ.Libr., Hunter 444. Vellum, 25 × 17, ff.48, 13th-14th c. The leaves 1r-8v are unfoliated but paginated 1-17 with the number 10 omitted (librarian). Photocopies 1r-8v.

Young / Aitken 1908, 367-8. OP 4.15;5.23.

1ra-b (KAL.CANON A:) In hoc primationum cyclo. . .primationes sicut prius.   **1rb** (T.L.CANON:) Ad locum etiam lunae. . .epicycli lunae. (:Subscr.:) Explicit canon in kalendarium novum correctum.

1v-7r   (CALENDAR(Naur,Cycl,Qdie,Qnoc,D,Dfes+Comp,Decl,Grad, Dmen,Dann): *Comp* indented.) (:*Hdgs.*: Cycl, "Cyclus primationum lunae / C.cyclorum lunae / C.cyclorum primationis lunae". Dfes, number of days, lunationes, reg.sol.,reg.lun.) (:*Additions*: "Quantitas crepusculi", two values for each month, cf.§20.)

7v-8r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Gelandi, pro tabula paschali.   ¶(Table, 35 rows, App.5(a). Hdg.:) Contratabula Garlandi est haec.

8v (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die anni. (:left and right entr.normal, hdgs. "Aetas lunae / ⟨ ⟩ in quo est luna". A row above the heading shows the month-names Mar-Feb.)   **9r+** ("Jo. de Saxonia, Compotus" (Young / Aitken; ms. not seen).)

Connected to the larger one of the Northern French groups (see notes to R; of the feasts there mentioned, G lacks Oct.24). It further has the Northern French or Flemish feasts cited under Cj to Mai.18, Jul.7, and Dec.10, and the feast cited under Or to Jul.26. A few feasts point to England, notably Edmundi aep., Nov.16; Edmundi regis, Nov.18 (normally Nov.20).

K København, Kgl.Bibl., add.447,2°. Vellum, 26 × 19, ff.150. The relevant part, ff.38-83, is from the 13th-14th c.; some other parts can be dated to the 1370's from notes at 1r and 128v. The leaves 38-83 are all in one text-hand, with notes by various secondary hands, which are here numbered arbitrarily. A few lesser notes, mainly liturgical, have been ignored. An old foliation starts with no.1 at f.38 and vanishes after f.69. Microfilm and inspection of whole ms.

A.Krarup 2,1935,p.117. S.Larsen, =Aarbog for Bogvenner 6(1922)185-6 (ms. just bought by the Copenhagen Univ.Libr. from the firm Levin & Munksgaard; ref. from Mr. P.Aagaard Christiansen). OP 4.16;5.28.

1v (index in a writing from the late 14th c., covering ff.38-144:) Haec opuscula continentur in hoc volumine: Primo kalendarium Petri de Dacia cum tabula terminorum et tabula Gerlandi p(ri)n(cipa)l(i) et contratabula Gerlandi. Item iiii tabulae solis ad inveniendum eius verum locum in signis, cum tabula declinationis eiusdem. Item theorica planetarum. Item tabula lunae ad inveniendum eius verum locum etc. . .

38r (top, hand 5:) me(co)(?) h(abe)re(?) Kl. noviter factum Parisius. *p.11*
¶(KAL.CANON A. Hdg.:) Ars istius kalendarii facti per magistrum

Petrum Philomenam de Dacia. (:Txt:) In hoc primationum cyclo. . .et 50
in minutis.   ¶(Hand 5, notes on lunar periods etc.: 1 lunation is set at
$29^d 12^h;44$.)

38v-44r   (CALENDAR(Cycl,D,Dfes,Comp,Naur,Dmen,Dann).)   (:*Hdgs.*:
Cycl, "Cycli primationum lunae". Dfes, reg.fer., reg.lun.) (:*Additions*: *40r*,
hand 2, rota (19) on "pascha Hebraeorum", said to have been
invented A.D.1261, with canon "Siquis scire voluerit hanc rotam. . .",
App.5(e1). *41v*, hand 3: (KAL.CANON B:) (Letter table 1292-1577.)
(:Txt:) Quaere inter numeros. . .nocte praecedente. (A note on computus,
partly cut away, cf.App.5(f2):) Nota, a prima lunatione post epiphaniam
domini computa 10 dies. . . *43r*, hand 4, note to Oct.2 mentioning the
year 1362. *44r*, hand as on ff.1-37, note on Advent, cf.App.5(f2).)

p.12

44v-45ra (Table,19 rows, starting Kal.Febr. App.5(d1). Hdg.:) Tabula
terminorum. (:Canon, hdg.:) Ars istius tabulae terminorum. (:Txt:) Haec
tabula dicitur tabula terminorum, quoniam in illa termini 5 festorum
mobilium per ordinem inveniuntur. . .suppone sequentem.   **45ra-b**
(App.5(a1). Hdg.:) Ars duarum tabularum sequentium, scilicet Gerlandi
et eius contratabulae. (:Txt:) Quaere inter numeros. . .apparet in tabula
Gerlandi principali.   **45rb** (Hdg., hand 2:) Ad inveniendum gradum
signi in quo sit sol. (:Txt, hand 2, on the solar tables 46v-48v, mainly as
in the Old Quadrant, Tannery 1922, §35-8,40; cf.App.5(g1):) Si velis
scire in quo gradu signi sit sol, vide in quoto die. . . Si velis scire decli-
nationem. . .

45v-46r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula Gerlandi princi-
palis.   ¶(Table, 35 rows, App.5(a), but lacking some interval cols. Hdg.:)
Contratabula Gerlandi.   **45v** (bottom, some secondary hand: table
19 × 7 with tabular letters, first row "vabc. . .", cf.App.5(d3).)   **46v-
48r** (4 tables giving solar longitudes for each day during the years
1296-9, starting at Cap 18°;39 for Jan.1,1296. Cf. §17a. Hdg. of first
table:) Tabula solis prima ad habendum verum locum eius in anno
bissextili, anno domini 1296° aequata et verificata.   **48v** (Table giving
solar declination from longitude, max.23°;33. Hdg.:) Tabula solis quinta
ad habendum declinationem eius.

49r-56r (Hdg.:) Incipit theorica 7 planetarum. (:Txt, T&K 223:) Circulus
excentricus. . .coniuncti lumine ipsi planetae et non corporaliter.

56va-57r (Hdg.:) Ars istius tabulae lunae sequentis. (:Txt, App.4(b):) Ad
praesentis tabulae notitiam. . .(56vb) quaere in kalendario magistri Petri
de Dacia, qui magis appropinquat veritati, diem primationis lunae. . .
(57rb) incipies dies tuos. (:Table, 13 × 28, hdg.:) Tabula lunae ad
inveniendum locum eius, videlicet in quo gradu cuius signi sit.   **57v**
(hand 3(?), notes on medicine. Further notes in other hands.)

58r-77ra (Sacrobosco, Compotus, with corrections and glosses in hands
2 and,probably,5.)   **77ra-83va** (Old Quadrant "Geometriae".)   **83va-
b** (a prayer, hand as on 57v.)

The calendar, although rather nondescript, seems to be Northern French; instances are Guilelmi (Bitur.), Jan.10; Juliane v., Dec.10. The rubricated Benedicti abb., R Mar.21, and Francisci cf., R Oct.4, only weakly indicate a connexion to some order.

Kt København, Kgl.Bibl., Thott 240,2°. Vellum, 45½ × 33½, ff.I+ 12+I, A.D.1480 or later (f.8r). Roman numbers throughout. Prints from microfilm 1r-12r (K.B.micro 220), and inspection.

Eneström(1885,3)25. Bjørnbo 1912, 95 n.l. Beckman / Kålund 1914,XL. Zinner 1936,no.36 and p.321-2. Bober 1948,16 and Plate 5b(reprod. of f.12r). OP 4.17.

1r (KAL.CANON B(k). Hdg.:) Cy commence la table de maistre Piere de Dacia. . . (:Letter table 1292-1653. Subscr.:) Cy monstre par ces quatre cicle(!) la figure du nombre d'or. (:Txt:) Qveres en ceste table. . .(mention of the years 1441 and 1444 in examples). . .en l'an mil CCCC et XLV.

1v-7r (CALENDAR(Cycl,Dmen,L,Naur,D,Dfes,Qdie,Alts): *L*, lunar letters, series of 27.) (:*Hdgs.*: Cycl, "Ce sont lez iiii ciecles pour trouuer la conioncion de la lune au soleil (Jan.; some variation)". Dfes, number of days, "la lune".)

7v (Table, 35 rows, App.5(b). Hdg.:) Table pour sauoir les festes mobilles par le nombre d'or.   **8r** (two rotae (19 and 28), App.5(b), with short inscriptions, starting 1484. The second one has:) Cy commence a demonstrer la lettre dominicale courant l'an (1484) la lettre d.c.   **8r-9r** (rota for phases and other properties of moon; cf.App.4(h). Canon, with hdg. at 8v:) Cy commence la table de la reue en ce feuillet figuree, laquelle contient en soy sept cercles.   **9r-v** (lunar table, 27 × 19, containing lunar letters with period 27. Cf.App.4(e2). Canon at 9r:) Chi apres s'ensieult la figure de la table seloncq le cours de la lune.   **9v-10r** (Hdg.:) Chi apres monstre et enseigne les debilitacions de la lune. (:Txt in 17 paragraphs.)   ˎ**10r-v** (astrology, cf.App.6(d10), hdgs. "Quant on veult scauoir et jugier questions et degres ascendent", "Pour cognoistre l'ascendent et les maisons angheles", "Pour cognoistre en quel clemat chescun signe a sa signifficacion".)   **10v-11v** (astrology, wording akin to App.6(d1). Hdg.:) Pour cognoistre et scauoir le vray cours de la lune. (:Txt:) Qviconques voelt scauoir le droit cours de la lune. . .   **11v-12r** (melothesy, App.6(d10), hdg.:) S'ensieult la signifficacion de la lune estant en ung ceschun signe. (:Txt:) La lune estant en Aries ne dois saignier le chief ne rere ne remouuoir la plait de fer. Mais bien puelt on saignier des autres membres et baignier. Bon fait achater draps vermaux ormes et cheuaulz de gherre et chemin commenchier. La lune estant en torel. . . **12r** (Sign-man, cf.App.6(d7), with canon. Hdg.:) S'ensieult le zodiach compare au corps de l'omme signifiant les xii maisons des planettes, et reuient la lune en xxviii iours au lieu dont elle part en la coniunction du

soleil. (:Txt:) Aries est caut et secq colorique masculin mouuable maison de mars qui contient le nest de l'omme la face et les yeulx. Taurus. . . **12v** (blank.)

The calendar has many non-local feasts. For French feasts see notes on Mj. Some further feasts indicate Northern France, such as: Lieuard, Feb.4; Hilaire, Mai.5; Godefroy (=Hunfridi), Mar.8; Eusebe, Jun.21; Fuscian, Jun.27; Inv.Maxime, Sep.13; Winoc, Nov.6; Maxime, Dec.4. Also e.g., Dedicase S.Nicaise, Oct.15; Mommelin, Oct.16. Franciscan feasts are: Franchois, Mai.25; Trl.Francois, Jul.3; Franchois, Sep.17; Clare,Maximine, Oct.2.

Kh København, Kgl.Bibl., Thott 825,4°. Paper, 21 × 14½, ff.266, ca. A.D.1461. From Cistercian house at Marienfeld, dioc. of Münster/W. (owner's note on inside of front cover; Cologne mentioned 186r; cf. 262v). This manuscript has been recorded only summarily below and in the appendices, from inspection.

Jørgensen 1923, 423-5. OP 5.26-7; 6.2-3. Modern note enclosed with the ms.

130r-150v (Computus chirometralis "Cognitio veritatis" (T&K 231).) **151r-152v** (:insertion made from a single leaf folded in two.)   **151r** (T.L., 14 × 12, no hdg., upper row Mar-Feb. Left and right entr. normal, hdgs. "Aetas lunae/-". Right entr. corrected into "13,26,. . .,5" with the addition "Compotus Cy(rometralis) habet sic". Subscr.:) Quartis octavis undenis pone dies tres Signis, sed reliquis binos, finalibus unum. ¶(:Canon:) Tabula signorum, in qua practicandum est secundum modum qui ponitur in compoto cyrometrali in fine, cum dicitur Lunae igitur cum signum gradumque scire volueris etc.   **151v-152v** (List of computistical variables for 4 × 19 years, apparently conjunctions; headed "primus ordo primi cycli antiqui" etc.)   **152v** (Canon to the preceding, with a mention of the Computus Chirometralis.)

153r (Table of positional notation of numbers, up to 10^9, cf. App.5(h6).) **153v** (some table of moveable feasts, with syllables of Cisiojanus.) **154r** (sign-man, with the "Nil capiti facies", App.6(d6).)   **154v** (lunar table, 27 × 19, first row "$z_2$peymbti. . .", App.4(e2).)

155r-160v (a calendar, undated, App.5(j9), with lunar letters for table at 154v, etc.)   **161r-162v** (sign-book, cf.App.6(d10), some themes as in App.6(d1).)   **162v** (rules, cf.App.6(c):) Hora Saturni non bibas medicinam, nec venam incidas nec novas vestes induas. . .   ¶(7 verses, App.5(f1):) Pocula Ianus amat. . .   ¶(note on unlucky days.)   **163r** (Planet table, 14 rows,24^h, App.6(c). Subscr.:) Item secundum Alfraganum intelligitur de horis inaequalibus, et debent incipi ab ortu solis, ut ipse dicit in introductorio suo in astronomiam.   ¶(:verses:) Iupiter atque Venus. . . Sol luna Mars. . .   **163v+** (planet book, cf.App.6(d10):) Saturnus planetarum pessimus, frigidus siccus, assimilatur terrae. . .

-220v (on theology and astronomy, mentioning Petrus Cameracensis etc.)
221r (7 distichs, App.6(d10):) Si quis nascatur dum Saturnus dominatur
... ¶(a few lesser notes.)

221v (T.L., 14 × 12, no hdg. Left entr. in two cols.: "Aetas lunae" as
usual, and "signa lunae" as "0,0,1,...,11,0,0,1". Right entr.
"13,26,...,5". Upper entr. with month-names Mar-Feb.)   **222r** (lunar
table, 27 × 19, first row "yncvkz$_4$...", App.4(e2).)   **222v** (Planet table,
14 rows,24^h, App.6(c).)   **223r+** ("Tabula cycli solaris prima", and other
tables ending at 236v; subscr.:) Et sic est finis anno 1461.

262v (computus, with a chronological table including a statement that
A.D. 1463 is 251 years "a dedicatione basilicae Campi Mariae". Ac-
cording to Atlas de l'Ordre Cistercien, the church was built during the
years 1200-1222 (ref. B.P.McGuire).)

Kr Kraków, Bibl. Jagiellońska, 562. Paper, ff.111, A.D.1387 (f.16v).

1r-6v   (CALENDAR(N,Cycl,Naur,D,Dfes+Comp,C,Dmen,Grad):   *N*
(secondary, Feb. only), golden numbers "-,16,-,5,13...". *C*, syllables of
Cisiojanus.) (:*Hdgs.*: Cycl, "Quattuor cycli primationum lunae". Dfes,
number of days, lunatio, reg.fer., reg.lun.) (:*Additions* in text-hand: "Iani
prima dies..." (App.5(f1), each month); "horae noctis.., diei.."(§20,
each month); "hic fallit epacta..." (March; other such notes occasio-
nally). Several secondary additions.)

7r (Table, 7 × 6, first row "-fnvgo", App.5(d2). Hdg.:) Tabula hebdo-
madalis.   ¶(Table,19 rows, beginning with the date Kal.Feb.; App.5(d1).
Hdg.:) Tabula terminorum.   **7v-8r** (Table(28,1139-1643) with tabular
letters, cf.App.5(c1). Hdg.:) Tabula Dionysii vel magna.   ¶(Table,35
rows, mainly like App.5(a). Hdg.:) Tabula contra.   **8v** (Table, 19 × 7,
first row "vabcrst", App.5(d3). Hdg.:) Tabula Bedae.   ¶(Table, 19 × 7,
first row "nasvleg", App.5(d4). Hdg.:) Tabula angeli.   ¶(Rota(7) for age
of moon at the five feasts, App.5(d4).)   **9r** (Lunar table, 12 × 12,
App.4(a), no hdg.)

9r-11v (Canons for the tables at 7r-9r, cf. generally App.4(a2):) Ad
habendum generaliter cognitionem omnium tabularum quantum ad
formationem...Deinde sequitur tabula terminorum, quae terminorum
dicitur quia in ipsa termini quinque festorum mobilium per ordinem
inveniuntur...Deinde sequitur tabula Dionysii, cuius longitudo continet
28 annos sive distinctiones, quoniam proceditur in tot annis quot cyclus
solaris continet...Deinde sequitur tabula contra, cuius utilitas est: si
quinque festa mobilia invenire volueris, ad tabulam ex opposito corres-
pondentem tabulae Dionysii transeas, quae contratabula dicitur...
Deinde sequitur tabula Bedae, circa quam tria principaliter sunt notanda:
primum est eius formatio...Sequitur tabula angeli, iuxta quam duo sunt
notanda: primum est eius formatio...(Hdg.:) Expositio tabulae signorum

vel medicorum. (:Txt, App.4(a2):) Sequitur tabula signorum vel medi-
corum, cuius utilitas est. . .   **12r+** (Sacrobosco, Algorismus, with glos-
ses; subscription at 16v, dated 1387.)

The calendar has feasts for each day, in several hands. The distinctive
ones in the first hands are Central European: Sigismundi m., R Mai.2;
Trl.Wenceslai, R Mar.4; Alberti ep.m., R Apr.23; Trl.Adalberti, Oct.20
(later hand?). Monastic: Anniversarium 〈〉, R Sep.16; Anniversarium
fratrum so. de praedicatorum ordine, R Oct.10. Some feasts in a
secondary hand are Dominican: Trl.Thomae de Aquino, Jan.29; Kathe-
rine. .de Senis (can.1461), Mai.4; Bernhardini cf. . .fratrum praed. (can.
1450), Mai.20.

Sc Leiden, Bibl. der Rijksuniv., Scal.66. Vellum, 12½-15 × 11½,
ff.48; the relevant part, comprising ff.39-48, is from the first half
of the 14th c. Photographs 39v-48r.

Bibl.Univ.Leid.Codd.mss.II,1910, p.26. Zinner 1925 no.2064;1936 no.8.
OP 4.18. Van Wijk 1936, plate facing p.40 (reprod. of f.41r).

39r (blank)   **39v** (KAL.CANON B. Hdg.:) In ista parva. . .per annos
domini. (:Letter table 1292-1653.) (:Hdg.:) Canon supra kalendarium
magistri Petri de Dacia dicti Phylomena. (:Txt:) Quaere inter numeros. . .
nocte praecedente.

40r-45v (CALENDAR(Cycl,Naur,D,Dfes+Comp,Dmen,Dann): *Naur,* two
cols. for February, one of them headed "in anno bissexti". *Comp*
indented.) (:*Hdgs.*: Cycl, "Cycli primationum lunae". Dfes, reg.fer.,
reg.lun.) (:*Additions*: in text-hand, "nox habet horas. ., dies. .", for some
months. In other hands, marks for unlucky days, and some computi-
stical notes: "Annus habet menses 12. . ."(Jan., 2nd hand); "Vincentii
festo. . ." (Jan., possibly text-hand; App.5(f1)).)

46ra-va (KAL.CANON A. 46ra,top,2nd hand:) Primus canon Petri de
Dacia pro renovatione sui calendarii. (:Txt:) In hoc primationis cyclo. . .
scilicet anno 1444º. (:Subscr.:) Explicit primus canon magistri Petri de
Dacia dicti Philomena.   **46va-47ra** (KAL.CANON A. Txt:) In hoc
primationum cyclo. . .ab assumpta eam sequitur. (:Subscr.:) Explicit
secundus canon magistri Petri de Dacia dicti Philomena supra kalen-
darium suum ab eo noviter compilatum.

47v (computistical notes, i.a."Regulae de die paschae. . ." for 19 years,
cf.App.5(e1); verses on intervals "Sanctorum sanctus. . .", App.5(f1).
Other notes in various hands which might be contemporary, among
which one in French, App.5(f1):) apres la sainte ?Agate prime lune que-
rons, lou samedi apres la uoile des brandons.   **48r** (8 verses, not text-
hand:) Cur miser ingrederis, nudo pede, veste carente. . .(:not in Walther.)
¶Janus et Augustus necnon. . .(:6 verses, App.5(f1).)

The calendar contains some feasts proper to Paris: Marcelli ep., Jul.26;
Genovefe v., Nov.26. Further, e.g., Lupi ep., Jul.29; Hilarii ep.cf., Oct.25,

both of which may be French; and the English Oswaldi ep., Feb.28. I have not located the rubric Revelatio 7 dormientium, R Jun.27, nor Hilarii ep., Jul.8. Still probably Northern France.

L   Leipzig, Univ.Bibl., 1487. Paper, 20½ × 15, middle of 14th c. At least two hands, which may be contemporary; the distinction below is tentative. Microfilm 1r-10r.

Zinner 1925 no.2065; 1936 no.10. OP 4.19.

1r-v (computistical rotae (19 and 28); short titles only. Cf.App.5(b).)

2r (T.L., 14 × 12. Subscr., 2nd hand:) Tabula magistri Petri de Dacia ad sciendum in quo signo et in quo gradu signi sit luna quolibet die anni, incipiendo diem a media nocte secundum ecclesiam. (:below, 2nd hand:) Tabula medicorum. (:left and right entr. normal, hdgs. "Aetas lunae / (not in photo)". Upper entr. with month-names Apr-Mar.)

2v (KAL.CANON B(d1). Hdg.:) Hii sunt quattuor cycli. . .omni anno. (:Letter table with the years 1292-1653 above the table and 1672-2033 below.) (:Txt:) Quaere inter numeros. . .litteras invenire.

3r-8v   (CALENDAR({Cycl,Naur,D,Dfes+Comp},{Dmen,Grad},{Qdie, Qnoc,Alts},X): the columns   may be re-arranged, keeping order within the groups shown in brackets. *Comp* indented. *Dmen* appears to be missing for January. *Grad* and *Dmen* possibly in 2nd hand. *X*, columns of tabular letters for each of the moveable feasts.) (:*Hdgs.*: Cycl, none. Dfes, number of days, reg.sol., reg.lun., lunatio.) (:*Additions* in text-hand: tops of pages, verses "Principium Iani. . .","Iani prima dies. . .", App.5(f1). Bottoms of pages, "horae noctis. ., diei. ."; and "Quantitas crepusculi", two values, cf.§20. Additions in 2nd hand: "Nox habet ho.16 di.8 secundum Pe. Dacum" (January). "Dies egra hora xi^a secundum P.D." (Mai.25 and a few other dates). "Sol in aquario secundum Petrum Dacum" (Jan.12, and at varying dates in other months); "secundum Rupertum Lynconiensem" (at the date 15.Kal.Feb. and the corresponding dates of other months, as addition to the text-hand's "sol in aquario" etc.).)

9r (Lunar table, 12 × 12, App.4(a), with canon App.4(a4), and notes on elections App.6(d3).)   ¶(Dietary verses, App.6(f):) Escas per Ianum calidas est sumere sanum. . .   **9v** (App.6(d6):) Nil capiti noceas. . .salubris. ¶(Rota(30) for duration of moon-light, App.4(g), canon:) Numerus exterior significat horas integrales, puncti partes horarum, et v puncti faciunt unam horam. . .   ¶(Quadrilateral figure on winds, temperaments, etc., cf.App.6(f); some lines of text at corners.)   **10r** (List of intervals Christmas-Quadrag., for 1331-1419, cf.App.5(e2).)   ¶(List of some times and longitudes, Oct.1345-Dec.1346.)   ¶(Figure of climates, cf.App.5(h4).)

The calendar is Central European, possibly from Prague: Trl.Wenceslai, R Mar.4; Adalberti m.ep., Apr.24; Trl.Adalberti, Aug.25; Ludimille m.

elect., Sep.16. Also some Southern German feasts, e.g. Livini ep.m., R Nov.12; and the French Transfiguratio (translatio L) domini in monte Thabor, R Jul.27.

La London, British Libr., add.35317. Vellum, 9 × 6, ff.364, late 15th c. Microfilm 1r, incomplete.

Cat. of additions 1894-9 (1901) 255-6. Jørgensen 1910,259. OP 5.30.

1r (T.L., 14 × 12. Subscr.:) Praecedens tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in quo gradu illius signi. (:left and right entr. normal, hdgs. "Aetas lunae / Gradus lunae". Upper entr. with month-names Mar-Feb.)   **1v+** (according to catalogue, computistical tables and a calendar; and Hours of the Virgin etc. from 9r.)

Lr London, British Libr., Arundel 207. Vellum, 18 × 11, ff.36, 14th-15th c. Microfilm 30v-32r.

Cat., New Ser. (Forshall, 1834-40). OP 5.31.

1+ (Calendar of Nicholas of Lynn, from 1386 (Cat.; cf.32v+).)   **-30v** (figures of lunar eclipses ending 1462, App.5(j8).)   **31r** (Table, 19 × 7, dates for 70ª, Easter and Whitsun, cf.App.5(d6). Hdg.:) Tabula festorum mobilium.   ¶(Verses:) Prima viginti. . .   ¶(List of Sunday letters for 28 years beginning in 1381, App.5(e2), with short canon. Hdg.:) Cyclus solaris.

31v (Lunar table, 13 × 12. Hdg.:) Tabula ad sciendum in quo signo fuerit luna quolibet die anni. (:left entr. as for T.L. with two last cells merged; right col. starting 13°;10; no hdgs. Below table, short notes on melothesy, and the verse "Est Ari Li. . .", App.5(f1).)   **32r** (Planet table, 24 rows, App.6(c). Hdg.:) Tabula ad sciendum quis planeta dominatur pro omni hora diei et noctis.   ¶(:Subscr.:) Sol Jupiter boni. . .   **32v+** (Canon to Nicholas of Lynn's calendar, cf. T&K 1131:) Pro declaratione autem punctorum praecedentium. . .

Lo London, British L., Egerton 831. Vellum, 22 × 15, 14th c. Microfilm 8v-13r.

List of additions 1836-40 (1843), 1840 p.17. Eneström(1885,3)23 no.7. Zinner 1936,26. OP 5.33;6.4; p.31.

1+ (Calendar of Walter of Elvedene, from A.D.1327 (cat.; cf.App.5(j5)).) **-9v** (List of eclipses ending 1386, App.5(j6).)

9v-10r (Planet table, 7 × 7, 24ʰ, starting with Saturn. Cf.App.6(b,c). Hdg.:) Hic est tabula planetarum secundum magistrum Petrum de Dacia, Parisius facta.   ¶(:Txt, App.6(b): Septem sunt planetae, scilicet Saturnus . . .patet in tabula.

10r-v (Hdg.:) Tabula ad sciendum in quo signo luna est omni die, et in quo gradu eiusdem, in sequenti tabula secundum magistrum Petrum.

(:T.L.CANON(a1):) Ad locum etiam lunae habendum. . .13 gradus et 10 minuta.   **10v** (near end of text preceding: T.L., 14 × 12. Hdg.:) Tabula lunae ad sciendum eius signum omni die in mense. (:left entr. normal, right entr. starting 13°;10, hdgs. "Aetas lunae / Gradus lunae-minuta graduum". Upper entr. with month-names Mar-Feb.)   **10v** (:subscr. after the canon:) Finis tabulae praecedentis.

10v (Subscr. continuing:) Consequenter hic sequuntur expositiones signorum secundum praedictum magistrum Petrum de Dacia.   **11r-12r** (:Txt, App.6(b):) Multum prodest scire. . .hoc impediatur. Explicit.   **12r** (school-boy jottings, English/Latin.)   **12v** (blank.)

Le London, British Libr., Egerton 847. Vellum, 20 × 15, ff.159, later 14th c. Microfilm, whole ms.

List of additions 1836-40 (1843), 1840 p.19. OP 5.34.

1+ (Cursive notes on astronomical instruments etc.)   **13v** (blank.) **14r-17v** (App.6,(d1) mixed with (d2):) Quicumque cursum lunae scire voluerit. . . (:Subscr.:) Explicit de effectu lunae dum fuerit in diversis signis firmamenti.   **17v** (Rota (12), cf.App.6(d10), with title "Domus planetarum" and short canon:) Signa in quae planetae dum intrant dicuntur gratulari in eis. . .   **18r** (Sign-man with notes, App.6(d8):) Aries: cave ab incisione in capite. . .

18v-19ra (T.L., 14 × 12. Hdg.:) Tabula lunae ad sciendum omni die eius signum et in quo signo est. (:upper entr. "signa septentrionalia / signa meridionalia". Left entr. normal, hdg. "Aetas lunae". Right entr., on 19ra, in 12 cols.: the first one repeats the "Aetas lunae"; the second one, headed "Gradus", has the values "13,26,. . .,5"; and the 10 following cols. each augment the preceding one by 3° *modulo* 30°. This part has the hdg.:) Tabula ad sciendum gradus lunae omni die.   **19rb** (T.L. CANON(a2):) Cum volueris scire locum lunae omni die per tabulam signorum, videas. . .

19v-20r (Planet table, 24 rows, App.6(c). Hdg.:) Tabula planetarum. (Canon, T&K 685, cf.App.6(c), passages resembling Sacrobosco's Compotus:) In ista tabula docetur qualiter omnis planeta dominatur in die naturali, et quotiens et qualiter denominatur a 7 planetis. Et nota quod omnis planeta dominatur quater in suo die naturali, ut patet in tabula. Et nota quod omnes sagaces homines. . .Jupiter atque Venus. . .cum luna sunt mediocres.   **20r-21v** (Hdg.:) Incipit parvus tractatus de lunationibus. (Txt, cf.App.6(d10):) Luna prima utilis est in omnibus. In lecto qui ceciderit, diu languebit et longam patietur infirmitatem. Et in somnis quod viderit, in gaudium convertetur. Et si tu vinceris, tu vinces inimicos tuos omnes. Et infans natus vitalis erit. Luna secunda. . .   **21v+** (Interpretatio somniorum Danielis.)

Lh London, British Libr., Harley 267. Vellum, 21½ × 14½, ff.232, 14th c.(on f.175-9 a calendar written 1343 (Cat.)). Three hands in the present passage, possibly contemporary: hand 2 mentions Bruges, and hand 3 writes in Flemish (217v). Microfilm 215v-218r.

Cat. (1808) I p.101. OP 5.35.

-216v (Almanach of Profatius, then some astronomical tables ending with tables of equations of moon and sun; max. for sun, 1°;59,10.)

217r (T.L., 14 × 12. Hdg.:) Tabula de loco lunae inveniendo omni die a media nocte sui incepto. (:left and right entr. normal, hdgs. "Dies perfecti lunae / Gradus lunae". Upper entr. in ?third hand, with month-names Mar-Feb.)

217v (T.L.CANON:) Ad locum lunae habendum...epicycli lunae. ¶(Continued by second hand, see App.1(a2):) Scias quod gradus solis in kalendario fuit aequatus ad primum annum post bissextum, scilicet anno domini m°cc°nonagesimo sexto, in meridie...Elevatio arietis Brugis est 38 graduum, et motus octavae sphaerae in anno 1296° fuit 10 gr. 17 mi. ¶(Note in third hand:) Ontfaen van mester Janne upten almanac ende upte spere: VI, item XII grote...   **218r+** (Zael, de electionibus.)

Ln London, British Libr., Harley 1811. Vellum, 22 × 14½, ff.34, last quarter of 14th c. The references concern the new foliation, which is 2 greater than the old one. Microfilm 30v-33r.

Cat. (1808) II p.249. OP 5.37.

1+ (calendar, and table of moveable feasts (Cat.). At 31r, note in a Humanist cursive attributing the calendar to Nicholas of Lynn.)   **-32v** (tables, and uninscribed figures, of lunar eclipses 1387-1462, App.5(j8).)

33r (Lunar table, 13 × 12. Hdg.:) Tabula ad inveniendum locum lunae et moram eius sub quolibet signo. (:left entr. as for T.L. with two last cells merged, hdg. "Aetas lunae"; right entr. starting 13°;10(;17 *ms.*), hdg."Gr.Mi.". Below table, short notes on melothesy, and 4 lines "Signa attractiva Aries...".)   **33v+** (according to catalogue: "Tabula ad sciendum quae planeta regnat in qualibet hora inaequali diei et noctis", cf.App.6(c), and more astronomical notes.)

H London, British Libr., Harley 3647. Vellum, 25 × 18, early 14th c. Microfilm 1r-17r.

Cat. (1808) III p.48 (only copying the 14th c. index at the start of the ms.). OP 4.21; 5.38.

Index (ignoring later additions:) In isto volumine continentur isti libri, videlicet primo: Compotus manualis; Kalendarium Linconiensis; Algorismus...   **2r** (owner's notes "Ex libris Claudii Danæi 1573" and later ones.)

2v-3v (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Gerlandi, continens cyclos solar. et 19'l. et litteras tabulares.   ¶(Canon, App. 5(a1):) Quaere inter numeros. . .necessaria reperies.   ¶(Table, 35 rows, App.5(a). Hdg.:) Tabula secunda Gerlandi, et est contratabula primae. ¶(Canon, App.5(a2):) Ad compositionem. . .incipit cyclus 19'lis. Et sic operandum est. . .verificabis tabulam Gerlandi principalem.   **4r-10r** (Balduinus de Mardochio, Compotus manualis, defective at beginning.)

10v (KAL.CANON A:) In hoc primationum cyclo. . .anno domini (1444). ¶(Margin, smaller hand but possibly the same, T.L.CANON:) Ad locum lunae habendum. . .epicycli lunae.

11r-16v (CALENDAR(Naur,Cycl,D,Dfes,Comp,Dmen,Dann):   *Dfes* blank.) (:*Hdgs.*: Cycl, "Quattuor cycli naturalis compoti". Dfes, number of days, lunationes, reg.sol., reg.lun. Comp, "Hic renovatur littera dominicalis"(January, and such notes for some other months).)   **17r+** (Sacrobosco, Algorismus.)

R   London, British Libr., Royal 12.C.xvii. Vellum, 23½ × 17½, ff.218; f.1-145 are English from the early 14th c. (cat.). Microfilm 1r-9r.

Warner / Gilson 1921, II p.31-2. OP 4.22; 5.40. T&K 680.

1ra-b (KAL.CANON A:) In hoc primationum cyclo. . .primationes sicut prius.   **1rb** (T.L.CANON:) Ad locum etiam lunae. . .epicycli lunae.

1v-7r (CALENDAR(Naur,Cycl,D,(Dmen),Dfes,Alts,Qdie,Qnoc): *Dmen* late addition, Jul-Sep only.) (:*Hdgs.*: Cycl, "Quattuor cycli lunares / Quattuor cycli primationum lunae". Dfes, number of days, lunationes, reg.sol., reg.lun.) (:*Additions,* not in text-hand: length of twilight(Jan.); days elapsed of the year (end of each month).)

7v-8r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Gerlandi, continens in se multa ecclesiae utilia.   ¶(Canon, App.5(a1):) Quaere inter numeros. . .necessaria reperies.   ¶(Table, 35 rows, App.5(a). Hdg.:) Tabula secunda Gerlandi, et est contratabula primae.

8v (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die anni a media nocte sui incepto. (:left and right entr. normal (right entr. with some corrections), hdgs. "Aetas lunae / Gradus lunae".) **9r+** (Sacrobosco, Algorismus.)

The calendars of R and B are almost identical, cf. §13 and the martyrologies reproduced below, p.336 ff. Feasts notable in RB are: Dominici cf., R Aug.5; Ludovici cf., R Aug.25; Trl. Iacobi ap., Dec.30; Edmundi aep., R Nov.16. The feasts of RB do not definitely point to England.

The calendars of the manuscripts *RBF* share some feasts locatable to Northern France, besides a few which are otherwise hard to find on the dates given. The following feasts are common to RBF; a few of them also occur in the French mss. Mj Kt, and they are found singly in a few

manuscripts more. Fairly common French feasts are: Guilelmi Bitur., Jan.10; Anne matris Marie, R Jul.28; Oct.Dionysii, Oct.16 (erasure in B); Marcelli ep., Nov.3; Genovefe v., Nov.26. Restricted: Firmini, Jan.13; Trl.Bartholomaei, Jun.13; Amandi ep., Sep.20. Rare: Benedicti ab., Dec.3; Damasi pp., Dec.10.

A wider group of calendars with affinities to Northern France are those of *RBFPQGFpOr*. The following feasts are common to these calendars, without more than four exceptions for any calendar. Some feasts also occur in Cj, in the French Mj Ly, and in Mg, which is in any case rich in non-local feasts. Common: Audomari cf., Sep.9; Maglorii ab., Oct.24; Eadmundi aep., Nov.16. Restricted: Trl.Marie Magdalene, Mar.19; Isidori m./ep., Apr.5. Rare: Passio Iacobi, Mar.15; Alexandri cf., Mar.28; Calixti pp., Apr.15; Valerii m./ep., Apr.18; Victoris pp.(m.), Apr.20; Sulpicii cf., Jun.9; Calixti pp., Oct.15.

A   London, College of Arms, Arundel 20. Vellum, first half of 14th c. I have seen a photostat of 6r-14v (= København, Kgl.Bibl., ms.phot.19,4°) provided by Bjørnbo (cf. Jørgensen 1910,256 n.1). Roman numbers throughout.

Black 1829, 8°, p.28. Jørgensen 1910,253;256 n.1. Beckman / Kålund 1914,XL. Thorndike 1934,647 n.4-5("BM Arundel 20"). OP 4.23. Cf. Eneström (1885,3)25 no.2; Bjørnbo 1912,95 n.1.

6r-11v (CALENDAR(Cycl,Naur,D,Dfes+Comp,Qdie,X): *Comp* indented, with notes on liturgy and vestment. *X*, "Declinatio solis in gradibus", integer degrees from Decl.) (:*Hdgs*.: Cycl, "Quattuor cycli primationum lunae". Dfes, number of days, reg.lun., reg.fer.) (:*Additions*: "nox habet horas. ., dies. .", each month.)

12r (KAL.CANON B. Hdg.:) In ista parva. . .per annos domini. (:Letter table, 1292-1653.) (:Hdg.:) Canon supra kalendarium magistri Petri de Dacia dicti Philomena. (:Txt:) Quaere inter numeros. . .nocte praecedente.

12r-v (T.L.CANON. Hdg.:) Canon supra tabulam magistri Petri de Dacia dicti Philomena. (:Txt:) Ad locum etiam lunae habendum. . .die incepta.

12v (Hdg.:) Utilitates istarum trium rotarum. (:Txt, cf. App.5(b):) Si vis scire utilitates. . .festa mobilia celebrabuntur.   ¶(Subscription with dating to A.D.1316.)   **13r** (two inscribed rotae (28 and 19), cf.App.5(b), starting 1324, or "(1314)" in the latter rota. Inscription of the former:) Ad inveniendum litteram dominicalem et litteram bissextilem per annos domini.

13v (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in quo gradu illius signi (:left and right entr. normal, hdgs. "Aetas lunae / Gradus lunae".)   **14r** (Planet table, 24

rows, App.6(c). Hdg.:) Tabula ad sciendum quis planetarum regnat in qualibet hora diei et noctis.   ¶(:Subscr.:) Jupiter et Venus. . .cum malis malus.   **14v** (sign-man, with canon App.6(d7), hdg.:) Dominium signorum. (:Txt:) Duodecim sunt signa. . .Mercurius. Septentrionalis.

The calendar is English. It contains the feasts noted under C and Ca above, except Mar.24, plus many more English feasts, such as Dunstani (Ord., Oct.21; Octav., Oct.26(!); Octav., Mai.25); Elphegi (Passio, Apr.19; Trl., Jun.8; Octav., Jun.15; Ord., Nov.16); Augustini (Octav., Jun.1; Trl., Sep.13). Some feasts seem to point to London or Salisbury: Anstroberte v., Feb.10; Trl.Ricardi ep., Jun.16; Oct.Benedicti, Jul.18; Audoeni ep.cf., Aug.25; Trl.Hugonis cf., Oct.5.

Ly Lyon, Bibl. de la Ville, 1649 (''No.1627'',cover). Vellum, each leaf folded into 2 × 3; 8 × 6 (folded leaves), 15 × 17 (unfolded); ff.14, mid-14th c. Leaf 1 fragmentary. Text generally on inner (=verso) pages; month-names for Calendar, and other titles, on outer pages. Microfilm of whole ms.

Cat.Dep. 30,511. Jørgensen 1910,256 n.1; 1933,193 n.6. Zinner 1936 no.31. OP 4.24. Manuscrits Datés VI,1968,482 (on the date at 14r).

1r (title:) Canon supra kalendarium magistri Petri de Dacia.   **1v** (KAL. CANON B. Hdg.:) In ista parva. . .annos domini. (:Letter table 1292-1653). . .(incipit lost). . .N⟨am si punc⟩tus primum angulum (:at 1r; explicit lost.)

2-13 (CALENDAR(Cycl,Naur,D,Dfes,Comp,Qdie,A): *Comp* blank. *A*, altitude of sun in degrees, rounded from the values of Alts.) (:*Hdgs.*: Cycl, ''Quattuor cycli primationum lunae''. Dfes, number of days.)

14r (Rota(28), App.5(b), inscription:) Ad inveniendum litteram dominicalem et litteram bissextilem, et per annos domini. 1339.   ¶(Title:) Tabula ad sciendum vᵉ festa mobilia.   **14v** (:Table, 35 rows, App. 5(b). Hdg.:) Tabula ad sciendum vᵉ festa mobilia supponendo numerum aureum et litteram dominicalem.   ¶(From 14v (=my 14r?), Manuscrits Datés reports one more rota, for golden number, with an inscription carrying the date 1339. This is not in my film.)

The calendar is presumably French, cf. Genovefe v., Jan.3; Guilelmi (Bitur.), Jan.10. Some influence from an order may also be perceptible, cf. to ms.N below, Sep.20 and Oct.25 (Chrysanthi m.).

Lp Lyon, Bibl. de la Ville, P(alais des) A(rts) 45. Vellum and paper, 25½ × 21, ff.203, 14th-15th c.; f.71+ is 14th c. Microfilm 68v-75r.

Cat.Dep.31,17. Jørgensen 1910,253; 1933,193 n.6. Thorndike 1934,674 n.4; 1959,37 n.34. Manuscrits Datés VI,1968,525 (on ff.157-172.)

-71r (Almanach perpetuum (T&K 83, only from here), 15th c.(cat.), ending with tables of ascensions and proportions (14th c., from writing).) **71r** (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia dicti(!) Philomena, ad sciendum ⟨in⟩ quo signo luna sit qualibet die et in quo gradu signi. (:left and right entr. normal, hdgs. "Dies perfectae aetatis lunae / Gradus signi in quo est luna".)   **71r-v** (T.L.CANON:) Ad locum lunae habendum...gradum computabis.   **72r+** (treatise on constellations "Artophilax sive Bootes", T&K 127.)

Ma Madrid, Bibl. Nacional, 17961. Vellum, 15 × 11½, first half of 14th c. Several hands; probably three different main hands for 3r-v; 4r-9v; 10r-11v. Microfilm 1r-11v.

OP 4.25;5.46.

1r-2v (Cisiojanus, App.5(f1), annotated.)   **3r** (Table, 35 rows, App.5(b). Canon:) Ad sciendum aureum numerum et litteram dominicalem est sciendum quod anno domini 1397(in erasure)...litteram dominicae sequentis.   **3v** (Canon on Cisiojanus, and some short computistical notes.) **4r-9v** (CALENDAR(Cycl,Naur,D,Dfes+Comp,Dmen,Grad,Decl,A): *Comp* indented. *A*, "Altitudo solis Valenc(iae)", values 27º-73º, or ca. 10º greater than those of Alts.) (:*Hdgs.*: Cycl, "Quattuor cycli primationum lunae". Dfes, number of days, luna(tiones).)

10r-v (KAL.CANON B. Hdg.:) Canon supra kalendarium magistri Petri de Dacia. (:Hdg.:) In ista prima(!) tabula...annos domini. (:Letter table 1292-1653.) (:Txt:) Quaere inter numeros...nocte praecedente. (:Subscr.:) Explicit canon supra kalendarium magistri Petri de Dacia dicti Philomena.   **10v** (T.L.CANON. Hdg.:) Incipit canon supra tabulam ip⟨si⟩ magistri. (:Txt:) Ad locum etiam lunae habendum...epicycli lun... Explicit.   ¶(astrological notes labelled "Ludovicus", not text-hand.)

11r (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia dicti Philomena ad sciendum in quo signo sit luna et in quo gradu illius [gradus lectura]. (:left and right entr. normal, no hdgs. Upper entr. with monthnames Mar-Feb.)   ¶(two notes in a cursive, on lunar longitude.)   **11v** (List of elections according to zodiacal signs, App.6(d10), "intrare ad reges vel principem", etc. Hdg.:) Haec tabula est de eligendis diebus secundum diversas operationes per motum lunae in signis.

The calendar is Spanish: Engratie v. et innumerab. mm. Cesaraug., Apr.16; Quiterie v., Mai.22; Christofori m., Jul.9; Iuste et Rufine, Jul.17; Trl.Eulalie Barchinone, Oct.23; Ermendaudi ep., Nov.3.

Mz Mainz, Univ.Bibl., 562. Paper, 15th c. Microfilm 116r-139r.

OP 4.26.

116r (title:) Valde bonus kalendarius cum aliis plurimis computualibus et diversis tabulis in astronomia.   **116v-128r** (a calendar, App.5(j9),

with 4 cycles of conjunctions/oppositions, dated 1463/1482/1501/1520, first value δ 2^h;40 for Jan.2. One of its sub-tables contains lunar letters, series of 27; cf. 132r.)   **128v-131r** (several computistical tables and rotae, with short canons.)

131r-v (Canon to the calendar, not in T&K:) De coniunctione et opposi-tione notandum quod in praesenti kalendario in primo latere cuiuslibet folii quattuor distinguuntur cycli. . .   **131v-132r** (Table, 28(!) × 19, with lunar letters in series of 27. Cf.App.4(e2). Hdg.:) Tabula signorum lunae. ¶(:Canon:) Quolibet die signum lunae invenitur. . .

132v (T.L., 14 × 12. No hdg. Left entr. normal, subscr. "Aetates lunae". Right entr. placed between left entr. and body of table, and starts with 13°;10.)   **133r** (T.L.CANON(f):) Si gradus lunae. . .signis lunae. **133r+** (continuation of canons to the calendar, including further compu-tistical tables and the text:) Tandem pro kalendarii huius continuatione sive perpetuatione, aliqua scilicet revolutione eius finita, sciendum quod anno domini 1538. . . (:at 134v, a 7 × 8 table, App.5(d6).)

M Metz, Bibl. Municipale, 464. Vellum, 17 × 12, ff.365, first half of 14th c. Microfilm 1v-11r: some rubrics faint.

Cat.Dep. V,4°. V.Leroquais, Les Bréviaires manuscrits. . .,1934, II p.237ff. (with full description). Zinner 1925 no.2063; 1936 no.7. OP 4.27. Manuscrits Datés V, 1965, 650 (on f.9v).

1v (prayer.)   **2r** (T.L.CANON. Hdg.:) Canon super tabulam magistri Petri de Dacia. (:Txt:) Ad locum lunae habendum. . .die incepta. ¶(T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia dicti Philomena. (:left and right entr. normal, hdgs. "- / Gradus lunae".)   **2v** (KAL. CANON B. Hdg.:) In ista parva. . .per annos domini. (:Letter table 1292-1653.) (:Hdg.:) Canon super kalendarium magistri Petri de Dacia. (:Txt:) Quaere inter numeros. . .nocte praecedente incipiunt.   ¶(App.5(h1):) Si volueris scire horas diei per quadrantem. . .secunda et sic de aliis. ¶(Computistical verses, secondary.)

3r-8v (CALENDAR(Cycl,Naur,D,Dfes+Comp,Qdie,Alts): *Dfes* with notes on liturgy. *Comp* indented.) (:*Hdgs.*: Cycl, "Quattuor cycli primatio-num". Dfes, number of days, luna(tio).)

9r (Table, 35 rows, App.5(b). Hdg.:) Ad sciendum quinque festa mobilia per aureum numerum et litteram dominicalem.   **9v** (:canon, see App.5(b1):) Ad sciendum festa mobilia per numerum aureum et per litteram dominicalem. . .tabulae suprapositae.   ¶(five computistical rotae (28;19;15;19;7), first four starting 1301. Canons, see App.5(b1).) ¶(List of paschal limits for 19 years in cycle, cf.App.5(e1).)   **10r** (prayers.)

The feasts have been written by several hands (cf. Leroquais). Early hands have entered the Swiss feasts listed under ms.Bv; further, the first hand has Augustini patris nostri, R Aug.28; and cf. ms.Bv at Sep.4. Second-

arily, the feasts at Oct.20, Nov.12 and Nov.18 have been erased, and later hands have added, i.a., the Southern German feasts Guidonis cf., Mai.4; Zoili m., Oct.6; Terentii ep., Oct.29; and the Conv.Augustini, Mai.15. Secondary are also the obituary notice of Bernardus de Angelach dated 1477, at Mar.3, and the note Dedic.eccl.Hirdensis(name in erasure), to October; these were used by Leroquais to place the calendar at the house of Canons regular at Herdt, dioc.Speyer.

Mj Milano, Bibl.Ambrosiana, N.55.sup. Vellum, 18 × 11½, ff.30, A.D.1330-40 (?, cf.10v-11r); second half of 14th c. (McGurk). Microfilm of whole ms.

McGurk 1966,43-4 (full description). Eneström(1885,3)23 no.6. Zinner 1936 no.29. Bober 1948, Plate 5d(reproduction of f.12r). OP 4.28. T&K 1191.

(Fly-leaves: prayers in Italian, not in text-hand, dated 1519; librarian's note for A.D.1603.)

1ra-va (KAL.CANON B. Hdg.:) In ista parva. . .annos domini. (:Letter table 1292-1653.) (:Hdg.:) Canon supra kalendarium magistri Petri de Dacia dicti Philomena. (:Txt:) Quaere inter numeros. . .nocte praecedente.   **1va-b** (T.L.CANON. Hdg.:) Canon supra tabulam magistri Petri de Dacia dicti Philomena. (:Txt:) Ad locum etiam lunae habendum . . .unum gradum computabis.   **2ra** (App.5(h1). Hdg.:) Ad sciendum horas diei per quadrantem. (:Txt:) Si volueris scire. . .secunda et sic de aliis.   **2rb-v** (blank.)

3r-8v (CALENDAR(Cycl,Naur,D,Dfes,Qdie,A): *A*, "Altitudo solis", values in degrees, rounded or abbreviated from the values in Alts.) (:*Hdgs.*: Cycl, "Quattuor cycli primationum lunae". Dfes, number of days.) (:*Additions*: month-pictures (?drinking,burning,pruning,. . .,cf. App.5(f2).)

9r (Table, 35 rows, App.5(b). Hdg.:) Tabula ad sciendum V festa mobilia, supponendo numerum aureum et litteram dominicalem.

9v (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in quo gradu illius signi. (:left and right entr. normal, hdgs. "Aetas lunae / Gradus lunae".)   **10r** (Planet table, 24 rows, App.6(c). Hdg.:) Tabula ad sciendum quis planetarum regnat in qualibet hora diei et noctis.   ¶(:Subscr.:) Jupiter et Venus. . .cum malis malus.   **10v** (two rotae (19 and 28), App.5(b), starting 1330, with inscriptions; the second one has:) Ad inveniendum litteram dominicalem et litteram bissextilem et cyclum concurrentium et cyclum solarem, et per annos domini.   ¶(two tables (15 and 19) giving indiction and cyclus lunaris, starting 1330, cf. App.5(e1).)   **11r** (list of eclipses 1335-70, App.5(j6).)   **11v** (Figures of lunar phases and eclipses, App.4(h).)   **12r** (Sign-man, with canon App.6(d7). Hdg.:) Dominium signorum. (:Canon:) Duodecim sunt signa, scilicet aries. . .illi membro.   ¶(:conti-

nuing, cf. App.6(d10):) Aries est signum mobile orientale masculinum diurnum calidum et siccum. Bonum est emere pannos rubeos et arma, iter arripere; non est bonum ducere uxorem. Taurus. . .   **12v** (2 tables (7 rows) giving "dominium domorum","dominium exaltationum" for each planet, cf. App.6(d10).)   ¶(Table (12 rows) giving "dominium facierum", 3 planets for each sign.)   ¶(Figure of spheres with graduated outer rim, cf. App.5(h4).)

13ra-27ra (App.6(d4):) Aries est primum signum caeli zodiaci, domus diurna (divina *ms.*) Martis. . .timidus vanus et inconstans. (:Subscr.:) Explicit tractatus de 12 signis.   **27ra-b** (Hdg.:) Ordo quantitatum corporum caelestium. (:Txt, not in T&K:) In primo ordine est sol cuius magnitudo. . .160 miliariorum.   **27r** (note on stars, up to seventh order, cf.App.5(h5).)   **27v-30v** (blanks, or notes in Italian.)

The calendar contains some French feasts in common with Kt, such as: Clodoaldi cf., Sep.7; Leonii cf., Nov.12; Gentiani m., Dec.11. Shared with the group RBF: Anne matris Marie, R Jul.28; Marcelli ep., Nov.3; Genovefe v., Nov.26. The feasts cited point to *Paris,* as is confirmed by the following: Fortunati ep.m., Mai.5; Landerici ep., Jun.10; Nummii cf., Jul.8; Theobaldi cf., Jul.9; Ionii m., Aug.5; Cerbonii cf., Oct.17. Connection with some order may be indicated by the feasts cited under ms.N, Eustathii m.,R Sep.20 and Chrysanthi m.,R Oct.25, as well as by Mauri ab., R Jan.15; Scholastice v., R Feb.10; Benedicti ab., R Mar.21.

E   Modena, Bibl. Estense, Est.lat.14 (= α.F.1.27). Vellum, 18 × 12½, ff.93,14th c. Microfilm 2r-4v, and information from librarian.

Kristeller I,1965,368a. Aristoteles Latinus, Codices, no.1468.

2r-v (KAL.CANON B. Hdg.:) In ista parva. . .per annos domini. (:Letter table, 1291(for 1292)-1653.) (:Hdg.:) Canu(n)(!) supra kalendarium magistri Petri de Dacia dicti Phylomene(!) de civitate Parisius. (:Txt:) Quaere inter numeros. . .nocte praecedente.

3r-4v (CALENDAR((Dmen),Lfer,Cycl): three months per page, one *Dmen*-column to the outer left.) (:*Hdgs.*: Lfer+Cycl, "Cycli quattuor lunae".)   **5r-7v** (blank.)   **8r+** (Vita Alexandri Magni.)

Mt   Monte Cassino 193. 16th c.(Eneström,Zinner; contrast p.247).

Edition: Bibliotheca Casinensis IV,1880,p.224-247, which has been used as source for the text and is referred to by the page-numbers below. Eneström(1886,3)58-9. Zinner 1936 no.30. OP 4.29.

232 (KAL.CANON B. Hdg.:) In ista prima. . .per annos domini. (:Letter table, 1292-1653.) (:Hdg.:) Canon supra kalendarium magistri Petri de Datia de primationibus lunae. (:Txt:) Quaere inter numeros. . .nocte praecedente (:continuing like KAL.CANON B(h1):) et horae aequales. Transactis autem. . .obviet in talibus.

233-46 (CALENDAR(Cycl,D,Dfes,Grad,Qdie,Alts): *D,* no Sunday letters.)
(:*Hdgs.*: Cycl,"Quattuor lineae primationum lunae". Grad, "Declinatio solis" (!, cf. OP p.23). Dfes, number of days, luna(tio).)

247 (Hdg.:) Canon supra tabulam festorum mobilium. (:Table, 35 rows, App.5(b). Canon:) Ista parva tabula in latere descripta docet scire quinque festa mobilia...Quando ergo per istam tabulam scire volueris praedicta quinque festa, primo scias litteram dominicalem anni de quo quaeris, et aureum numerum, sicut in istis duabus figuris circularibus quae secuntur, edocetur...suppone sequentem.   ¶(:then follow the two rotae mentioned (28 and 19), App.5(b), starting 1332, with short inscriptions. The first one has:) Regula ad inveniendum litteras dominicales et bissextiles. (:Canons:) Super istum numerum 1332 computa... numerus aureus illo anno.

Bound with a Franciscan calendar from the province of Naples, cf. edition. Our calendar has few distinctive feasts: Honorati ep.cf., Jan.16, is normally Southern French; and Aniceti pp.m., Apr.17, might be Italian or from some order.

Y   München, Bayerische Staatsbibl., Clm 3512. Vellum, 35 × 23, ff.434; A.D.1300(Cat.). Earlier in Augsburg. Elaborately executed but carelessly transcribed. Microfilm 288v-298r.

Cat.codd.mss.bibl.reg.Mon.III,II ed.alt. p.98. Zinner 1925 no.2059,2079; 1936 no.5. OP 4.30;5.47. T&K 1191,685.

288v (blank)   **289ra-b** (KAL.CANON B:) Quaere inter numeros... nocte praecedente. (:Hdg:) In ista tabula...annos domini. (:Letter table, 1292-1729 (1520 *ms.*).)

289v-295r   (CALENDAR(Naur,Cycl,D,Dfes,Comp,Decl,Grad,Dmen, Dann).) (:*Hdgs.*: Cycl, "Cyclus primationum lunae". Dfes+Comp, number of days; month-name in Hebrew, Greek, Egyptian; verses on unlucky days "Principium Jani...", "Jani primus dies...", cf.App.5(fl); "sol in .. gradu.. ", reg.sol., reg.lun.) (:*Additions*: "nox habet horas.. , dies vero. .", each month. Etymological notes on each month, somewhat resembling Beda, P.L. 90,347-52, and further mentioning Isidore.)

295v (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die an⟨ni a⟩ media nocte sui incepto. (:Left and right entr. normal; their hdgs., "Dies perfecti aetatis lunae / Gradus in quo est luna", are below the table alongside with a row of month-names Mar-Feb.)

296ra-b (KAL.CANON A:) In hoc primationum cyclo...anno domini 1444.   **296rb** (App.1(a1):) Nota quod per hoc...meridionalibus subtrahenda.   ¶(T.L.CANON:) Ad locum etiam lunae habendum...epicycli lunae.

296va-297vb (App.6(d1):) Qui cursum lunae recte scire desiderat...

(:ending abruptly at bottom of page.)   **298r+** (Galenus (Cat.), in another hand.)

The calendar contains one or more feasts at each day. Judging from the rubricated feasts only, it may be located to *Augsburg* itself: cf. Afre m., R Aug.7; Narcissi ep.m., R Oct.29. Some order may be indicated by Petri m., R Apr.29; Dominici cf., R Aug.5.

M8 München, Bayerische Staatsbibl., Clm 5538. Vellum, 20½ × 15, ff.75; end of 13th c.(text-hand); c.1330(?, 2nd hand); one or two further hands, numbering not chronological. From monastery at Diessen (Cat.); in the late 13th c., in Cistercian convent at Günterstal near Freiburg i.B. (Bischoff). Microfilm 54v-57r.

Cat.codd.mss.bibl.reg.Mon. III,III p.21. Bischoff, Hist.Jahrb.d.Görresges. 60(1940)567 n.93 (= Mittelalterliche Studien II,1967,212 n.85). T&K 602,1098.

-54v (Cisiojanus and tables of Gerland and Fungo (Cat.; cf.App.5(a;d2)). At 54v, a table, 19 × 7, starting with the date 7.Id.Apr., cf.App.5(d6). Hdg.:) Magna Bedae tabula ad habendum diem paschalem et aetatem lunae et litteram tabularem.

55r (top, 2nd hand:) Tabula magistri Petri de Dacia dicti Phylomena. *p.14* (Lunar table, 12 × 12, App.4(a), all in text-hand. Hdg.:) Haec est tabula lunae ad inveniendum in quo signo sit luna secundum veram eius primationem. (:to the left and right, the entrances from the T.L. have been added by ?2nd hand, and unsuccessfully, since they are too tall for the table. In fact, at the bottom of the page the 2nd hand has remarked:) Vidi tabulam habentem 14 interstitia in descensu vel in longum.   ¶(:Just below table, 2nd or 3rd hand, an incomplete canon?:) Intra per hunc sequentem numerum s⟨. .⟩ vacat.   **55r** (Canon to 12 × 12 table, 2nd hand?, App.4(a1):) Haec tabula docet in quo signo. . . (The mis-attribution of the lunar table was adopted by T&K 602.)

55v (Table, 19 × 5, starting with the date Kal.Feb.; App.5(d1). Hdg.:) Tabula terminorum, et est prima.   ¶(:Canon:) Haec tabula prima dicitur tabula terminorum, quoniam in illa termini 5 festorum mobilium per ordinem inveniuntur. . .deberet 7 diebus.   **56ra** (Verses on intervals Christmas-Invocavit, for the years 1260+, cf. Bischoff; erroneously attributed to Peter in T&K 141 and Walther no.1492. App.5(f1). 4th hand:) Armatura gravis exultabunda dolenti. . .

56rb (2nd hand, T.L.CANON. Hdg.:) Canon super tabulam magistri Petri de Dacia praepositam. (:Txt:) Ad locum lunae habendum. . .die incepta.   ¶(Hdg.,?3rd hand:) Canon super miracula Christi scripta in spatiis sequentis kalendarii. . .

56v (top, 2nd hand, age of Christ at some Biblical events.)   ¶(Hdg., 2nd hand:) Canon super kalendarium 4or cyclorum naturalis compoti.

(:Txt, text-hand, App.1(d):) Ad habendum notitiam...semper proposi-
tum...variatur in Septembri. (:Subscr., 2nd hand:) Explicit canon Linco-
niensis episcopi super 4 cyclos kalendarii sui.   ¶(Margin, 2nd hand:)
Canon super kalendarium Thebit seu Reginae, scilicet duorum cyclorum
praecedentium 4or cyclos compoti naturalis. (:Txt, 2nd hand, paraphrase
of William of St.Cloud, Harper p.96ff., App.5(j2):) Sciendum quod in
kalendario Thebit seu in parte prima eiusdem est una columna quae
continet litteras designantes cyclum 19'lem...plantantibus et naviganti-
bus.

57r+ (Calendar of Grosseteste, with many additions on feast-days, and
notes by 2nd hand on the years 1323 and 1336. Other additions by 2nd
hand (cf.App.5(j1)) are: to the left of the calendar, the two columns of
William of St.Cloud's Kalendarium reginae (App.5(j2)); and to the right,
the tables Qdie and Qnoc, presumably also from William.)

Md München, Bayerische Staatsbibl., Clm 5640. ?Paper, 28½ × 20,
ff.164, ca. A.D.1370(f.75v,76r). From monastery at Diessen (Au-
gustines). Microfilm 65v-84r.

Cat.codd.mss.bibl.reg.Mon.III,III p.33. Zinner 1925 no.2070; 1936 no.2.
OP 4.31. T&K 1191.

-65v (Henr. de Wissach, Expos. super initium Ezechielis, A.D.1373
(Cat.).)

66r-71v   (CALENDAR(Cycl,Naur,D,Dfes+Comp,Qdie,Alts).)   (:*Hdgs.*:
Dfes, number of days, luna(tio).)

72r (KAL.CANON B(g). Hdg.:) In ista parva...per annos domini.
(:Letter table 1292(1298 *ms.*)-1653.) (:Txt:) Quaere ergo inter numeros...
secundum morem ecclesiae Romanae etc.

72v (Table, 35 rows, App.5(b). Top:) Januarius. Alia tabula (:Canon:) Ista
tabula docet invenire 5 festa mobilia et plura alia ut patet in subscrip-
tione. Et ad inveniendum ista omnia praesupponit scire aureum nume-
rum illius anni. Verbi gratia (v.g.: oᵗ *ms.*) posito quod sint anni domini
1372, tunc 5 sunt aureus numerus...est radix huius tabulae etc.   **73r**
(Tables for times of mean conjunctions, years 1311-1558, stepping by 19
years; the day starts at dawn and the year with April. Cf.App.5(j10). Value
for 1330: 3rd day, 4ʰ;4. Canon:) Ad habendum singulis annis et singulis
mensibus coniunctionem mediam ad feriam...(:mentioning A.D.1363.)
73v (Table of golden numbers, day by day, beginning "19,-,8,16"(Jan.),
cf.App.5(j10).)   ¶(Table, 35 or 36 rows, giving Easter dates, listed as
fixed feasts, when entered with golden number+Sunday letter: cf.App.
5(b). Short canon:) Quocumque anno volueris scire ubi dies Paschae...
74r (Lunar table, 12 × 12, App.4(a).)   ¶(Computistical note:) Nota,
punctus est quarta pars horae...   ¶(Table, 16 rows, for 30 days:
App.4(g). Canon:) Haec est tabula quot horas et quot puncta luna

splendet. Unde si aetas lunae est unius diei. . .   **74v** (6 tables of shadow-length, each with 12 hours, App.5(h2).)   ¶("rota fortunae" (23) for mortality of illness, App.6(e1). Canon:) Collige per numerum quidquid cupit esse probandum. . .

75r (T.L., 14 × 12, no hdg. Left entr. normal. One right entr. with standard values mis-arranged, hdg. "Gradus"; another right entr. "13,26,. . .,5", hdg. "Minuta". Lower entr. with month-names Mar-Feb.) ¶(Verse "Terminus et festum. . ." with gloss.)   ¶(Note on Advent.) ¶(Table of intervals, 19 × 7, App.5(d5), with numbers 6-11.)   **75v** (Table, 19 × 11, with numbers 6-11. App.5(d5). Canon:) Haec est tabula taxillorum a nativitate D.N.J.C. usque ad dominicam qua cantatur Invocavit. . .   ¶(Rota(28), starting 1371, cf.App.5(b). Canon:) Volens scire litteram dominicalem cuiuslibet anni, incipiat. . .   **76r** (Table of positional notation of numbers, App.5(h6).)   ¶(list of intervals and Sunday letters, 1370-1395; cf.App.5(e2), value 9^w5^d for 1370.)   **76v-77r** (Table(28,1064-1568), with tabular letters, App.5(c1); solar cycle (rows) starts with year 9.)   ¶(Table,35 rows, with data mainly as in App.5(a), but with columns re-arranged. Resembles Ml,149r. Cf.App.5(c1). No hdgs. nor canons to either of the present tables.)   **77v** (Planet table, 24 rows, App.6(c). Canon:) Terrea sunt signa. . .Jupiter et Venus. . .Nota quod dies naturalis habet 24 horas, in quibus horis diversi planetae regnant. . .in prima hora luna etc.   ¶(List of ⟨eclipses⟩, 1365-1386 and 1371-1386, last one 1386 Jan.27,15^h. App.5(j6).)   **78r** (two rotae (19 and 28) starting 1360, cf.App.5(b); with canons. Canon to the first one:) Per istam figuram possumus scire claves 5 festorum mobilium et aureum numerum, epactas et litteram imprimationis cuiuslibet anni. Incipe ergo complere annos domini, incipiendo a 1360, ubi sunt signata, et ubi numerum annorum domini complete invenies, erit aliquod istorum praedictorum.   **78v-82r** (tables of solar longitudes, day-by-day for 4 years, undated; first value $9^s19^o;8$ at Jan.1; App.5(g1). Hdg. of first table:) Tabula veri motus solis in anno bissextili.   **82v** ("Mappa mundi", cf.App.5(h4).)   **83r** (Astrological rota(23, on outer rim). App.6(e1). Canon:) Si vis scire sub quo signo aliquis homo sit natus, tunc accipe proprium nomen ipsius hominis. . .   ¶("Horologium viatorum", semi-circular table, App.5(h2).)   **83v** (Astrological rota(23, on outer rim). App.6(e1). Canon:) Si vis scire utrum aeger morbum evadet aut non, tunc accipe nomen istius aegri, et diem illum in quo se posuerit, et divide nomen et diem per novem. . .   **84r** (moon-book, cf.App.6(d10):) Hie fahet an das buch von den 12 zaichen. . .

The calendar is Southern German: Leguntii ep., Feb.19; Basilie v., Mai.20; Philippi diac., Jun.6; Othmari ab., ?R Nov.16; Conradi ep., ?R Nov.26.

Mf München, Bayerische Staatsbibl., Clm 5963. Paper, 22½ × 14½, ff.278, 14th-15th c. From Ebersberg, Bavaria. Microfilm 7r-14r.

Cat.codd.mss.bibl.reg.Mon.III,III p.60. Zinner 1925 no.2071; 1936 no.6. OP 4.32.

1r+ (Jo. de Brunswic, compotus ecclesiasticus (Cat.).)   **6v** (blank.) **7r** (Table, 19 × 7, first row "vabcrst", App.5(d3). Hdg.:) Tabula Bedae. ¶(Table, 7 × 6, first row "-fnvgo", App.5(d2). Hdg.:) Tabula fnugonis.

7v (KAL.CANON B(d1):) (Letter table 1292-1577(1477 *ms*.); titles, see App.2(d1).) (:Txt:) Quaere inter numeros. . .fingentur cycli sequentes.

8r-13v (CALENDAR(Naur,Cycl,Dmen,D,Dfes+Comp).) (:*Hdgs*.: Dfes, number of days, luna(tio).) (:*Additions*: Day-number in year, at 10-day intervals. Verses of Cisiojanus, App.5(f1), each month.)   **14r+** (arithmetical problems; then Computus of Sacrobosco (Cat.).)

Calendar of Konstanz: Pelagi m., R Aug.28; Dedicatio Constan., R Sep.9; Othmari ab., R Nov.16; Conradi ep., ?R Nov.26.

Mg München, Bayerische Staatsbibl., Clm 14270. 30 × 20½, ff.172, A.D.1375(cat.). All in Roman numbers. From Benedictine monastery of St.Emmeram, Regensburg. Microfilm and photographs 162v-170r.

Cat.codd.mss.bibl.reg.Mon.IV,II p.152. Zinner 1925 no.2060; 1936 no.3. OP 4.33.

-162v (sermons)   **163r** (eclipse predictions 1375-1380, secondarily one for 1439. Cf.App.5(j10).)   ¶(Computistical verses:) Grifo boans draco. . .

163v (KAL.CANON B(d2): letter table only, 1292-1653, and 1672-2033 (2024 *ms*.) below table.)

164r-169v (CALENDAR(Cycl,Naur,D,Dfes).) (:Hdgs.: *Dfes*, number of days, luna(tio).) (:*Additions*: "horae noctis. ., diei. .", each month.)

170r-v (KAL.CANON B(d2):) Quaere inter numeros. . .et litteras tabulares.   **170v** (Sermons, in other hands.)

Calendar presumably from Regensburg or vicinity: Erhardi ep., R Jan.8; Trl.Nicolai, Jul.9 (secondary hand); Margarete v., R Jul.12; Trl.Wolfgangi, Oct.7; Vigilia omnium sanctorum+Wolfgangi ep., Oct.30+31; Sole cf., Dec.3. Central European: Procopii m., R Jul.4; Ludmille vid., Nov.10. Mg also happens to contain the rare feasts of Apr.5,15,18, plus that of Apr.20, noted under ms.R.

T München, Bayerische Staatsbibl., Clm 19414. Vellum, 30½ × 24, ff.189, middle of 14th c. Text-hand uses Roman numbers. From Tegernsee (189r; Benedictines.) Microfilm 180v-189r.

Cat.codd.mss.bibl.reg.Mon.IV,III p.243-4. Zinner 1925 no.2066; 1936 no.1. Thorndike 1934,647 n.5. OP 4.34. T&K 1191.

180r (Five ages of man, figures with captions.)   **180v** (blank)   **181r** (upper margin, 2nd hand:) Canon super kalendarium magistri Petri Daci. Non tenentur istae regulae, quia falsae et superstitiosae in multis et non pure naturales. (:Txt, App.6(d2): Aries est signum mobile, calidae et siccae naturae. . .cavillarum non medices.

181v (KAL.CANON B:) Quaere inter numeros. . .nocte praecedente. (:Subscr.:) Explicit canon supra kalendarium magistri Petri Daci. (Hdg.:) In ista parva. . .per annos domini. (:Letter table 1292-1729, with transcriptions into Arabic figures and markings for the years 1401-7 by later hands.)   ¶(later hand, table of golden numbers and Sunday letters (19 and 28 years) starting in the year 1401. App.5(e1).)

182r-187v   (CALENDAR(Cycl,Naur,D,Dfes+Comp,Dmen,Qdie,Alts, Dann): *Comp* indented, with a set of dates at XV.Kal. for the sun's entrance into the signs, marked "secundum antiquos", and another, anonymous, set at varying dates.) (:*Hdgs.*: Cycl, "Cycli primationum lunae". Dfes, number of days, luna(tiones).) (:*Additions*: "Kalendarium", hdg. to January, 2nd hand. "Nox habet horas. . ., dies. .", each month.)

188r (Table, 35 rows, App.5(b). Hdg.:) Tabula ad sciendum V festa mobilia, supponendo aureum numerum et litteram dominicalem. ¶(Two rotae (19 and 28), App.5(b), starting 1339; the first one has a pointer to the year 1395 in another hand. Short inscriptions; the second one has:) Ad inveniendum litteram dominicalem et litteram bissextilem, et hoc per annos domini. Anno domini (1339).   **188v** (Sign-man, hdg.:) Dominium signorum. (:Txt, cf.App.6(d7):) Duodecim sunt signa. . .dividuntur per signa supercaelestia. . .Taurus / Virgo / Capric. terrea meridionalia.

189r (top, 2nd hand:) Tractatus hic infra in quo signo valet minutio et in quo non. Iste liber attinet monasterio sancti Quirini in Tegernsee. (:Short notes on the signs, in a new hand.)

Calendar approximately from Freising: Margarete v., R Jul.12; Hilarie cum soc., Aug.12; Borbiniani(=Corb.) ep., R Nov.20; and in another hand, Firgilius(!) ep., ?R Nov.27. For the feasts in common with W, see notes to the latter.

Mk München, Bayerische Staatsbibl., Clm 22049. Vellum/paper, 4°, ff.19, 14th-15th c. From Wessobrunn, Bavaria (Benedictines). Strikingly similar to ms. Bern 524 (=Bv); for details not found below the description of Bv should be consulted. Microfilm of whole ms.

Cat.codd.mss.bibl.reg.Mon.IV,IV p.22. T&K 1694.

(Fly-leaf and upper margin of 1r: modern dating to ca.A.D.1368, referring to ff.1v and 9v.)

1r (T.L.CANON(a3), no hdg.:) Videas igitur. . .diei volueris.   ¶(T.L.,
14 × 12. Subscr.:) Tabula ad sciendum in quo signo sit luna et in quoto
gradu eiusdem signi quolibet die, et hoc secundum eius medium
motum, qui positus est quo ad gradus. (:left entr. normal, hdg. "Aetas
lunae"; right entr. "13,26,. . .,5", hdg. "Gradus lunae". Upper entr., in
text-hand, with month-names Mar-Feb.)   **1v** (KAL.CANON B(h2);
rubric and subscription, with attributions, omitted:) Per annos domini. . .
usque in infinitum.

2r-8v (CALENDAR: *Cycl* renewed for 1368+. *Dfes* has no liturgical
notes. The monthly notes on day-length are not in the text-hand.)

9r (Table, 35 rows, App.5(b). Canon, hdg.:) Ad sciendum quinque festa
mobilia per numerum aureum et per litteram dominicalem. (:Canon,
App.5(b1):) Nota circa tabulam praedictam. . .   **9v** (Rota(28,19,15),
starting 1368, App.5(b). Canon:) Nota, haec rotula continet in extremo
. . .   **14-15,10-13** (App.6(a):) Omnis creatura. . .   **16r-19v** (astrologi-
cal notes in German, then the "Nil capiti facias" etc., all in a new hand.)
The calendar is Swiss, containing the feasts cited under Bv except Oct.20;
Dec.16 has been added secondarily.

Ml München, Bayerische Staatsbibl., Clm 24514. Paper, 20 × 14½,
ff.235, A.D.1374-84(ff.148r,149r,150r). Many points of similarity
to Clm 5640 (=Md). Microfilm and photographs 141v-152r.

-141v (theology.)

142r-147v (CALENDAR(Naur,Cycl,Qdie,Qnoc,C,Alts,(Dmen,)D,Dfes+
Comp): order somewhat varying. *C*, "Quantitas crepusculi", 1ʰ;52-4ʰ;0.
Dmen, February only. *Comp* indented.) (:*Hdgs.*: Cycl(Jan. only), "Quattuor
cycli primationis lunae". Dfes, number of days, luna(tio).) (:*Additions*:
"horae noctis. ., diei vero. .", each month. To June(144v), verses "Sex
nonas Maius. . ." (*Massa Compoti* 74: T&K 1440), "Dat Clemens hiemem
. . .".)

148r (KAL.CANON B: letter table only, 1292(1298 *ms.*)-1653, subscr.:)
Litterae primationis.

148r (List of eclipses 1374-1386, last one at Jan.16,3ʰ;3(!). Cf.App.5(j6).
Hdg.:) Tabula eclipsis lunae.   ¶(Computistical verses in German.)
148v (Table of golden numbers during a year, starting "19,-,8,16"(Jan.).
Cf.App.5(j10). Hdg.:) Tabula de incensione lunae.   ¶(Fill-out:) Nota,
secundum Augustinum 4or sunt in ecclesia. . .   **148v-149r** (Table (28,
1372-1512), with tabular letters, App.5(c1); solar cycle (rows) starts with
year 9.)   ¶(Table, 35 rows, cf. App.5(c1). Subscr.:) Tabula Dionysii.
149r (bottom:) Nota, sub anno domini 1384 .a fuit tabularis littera. . .
149v (Table, 7 rows, with syllables of Cisiojanus; referred to diocese of

Aug(sburg).   ¶(List of computistical variables, 19-year cycle, cf.App.
5(e1).)   **150r** (Two rotae (15 and 28), starting 1370, cf.App.5(b). The
latter one has the inscription:) Hic invenis litteram dominicalem cum
bissexto.   ¶(Rota(19), starting 1360, App.5(b). 4 zones with short titles.)
¶(Semicircular table (12), with numbers for shadow-lengths, App.5(h2).
Title:) Horologium viatorum.   **150v** (Planet table, 24 rows, App.6(c).
Hdg.:) Tabula ad sciendum que planeta regnet qualibet hora diei.
(:verses:) Jupiter atque Venus. . . Frigidus et siccus est Satur. . .   ¶(Table
(15 rows, 30 days; App.4(g)) giving duration of moon-light from moon's
age. Canon:) Si aetas lunae est unius diei. . .

151r (T.L., 14 × 12. Hdg.:) Tabula ad sciendum in quo signo luna sit
singulis diebus etc. (:left entr. normal, hdg. "Dies". One right entr. with
standard values mis-arranged, hdg. "Gradus"; one further right entr.
with the values "13,26,. . .,5" slightly mixed, hdg. "minuta", cf. ms.Md.
Lower entr. with month-names Mar-Feb.)   ¶(:verses, App.6(d10):)
Terrea sunt signa. . .aethera produnt.   **151v** (elegiac verses, contents not
scientific.)   **152r** (Verses, App.6(d10):) Si quis nascatur dum Saturnus
dominatur. . .   ¶(Rota(12) for unlucky days in each month, cf.App.
5(f2).)   ¶(short piece headed "Aug(ustinus) ex pastorali".)

The only distinctive feasts in the calendar seem to be those of Iudocus:
Inventio Ju(), Jul.25; Judoci quando manus domini appa(rui)t super
eum, Jun.12(!); Trl. Ju(do)ci, Oct.15(!). This somewhat vaguely points to
Austria.

Ny New York, Pierpont Morgan L., Bühler ms.12. Vellum, 15 × 11,
ff.76, ca.A.D.1425, English. Two foliations: the modern one is
used below. Microfilm of whole ms.

Census, Suppl., p.389.

1r-2v (Canon "ad notitiam tabularum kalendar(ii) sequentium primo
ponitur tabula docens legere algorismum. . ." (John Somer, according to
T&K 55). Includes (2r) a table of positional notation of numbers, App.
5(h6); at 2v, a list of golden numbers and Sunday letters for ?1367-1507,
cf.App.5(e2), and a table of feast-dates and intervals much like App.
5(b).)   **3r** (blank.)   **3v-15r** (calendar, App.5(j7), 4 cycles of conjunc-
tions+oppositions for 1387-1462, first value *19* 21^h;45 at Jan.1.)   **15v**
(Planet table, 24 rows, App.6(c). Hdg.:) Tabula planetarum cum canone.
(:Txt:) In hanc tabulam planetarum intrandum est cum die in capite et
cum horis in latere sinistro, in quorum concursu. . .set malum hora
Saturni et Martis cautius evitetur. (:verses:) Jupiter atque Venus. . .

16r (Hdg.:) Canon tabulae [[. . .]]. (:Txt, on qualities of signs, cf.App.
6(d10):) Notitia[m] autem tabulae lunae nondum utilis est pro minutione
. . .signum firmum et signum commune.   ¶(T.L.CANON(g):) Ut autem
signum et gradus lunae prompte habeantur. . .quae ponuntur a dextris.
16r-v (Hdg.:) Item al. (:T.L.CANON(c1):) Si quis desiderat scire in quo

signo erit luna...ad quamlibet horam poteris invenire. Gradum solis sic invenies...membra humani corporis dividuntur.   **16v-18r** (Notes on the signs, time-reckoning, etc.)

18v-19r (Lunar table, 13 × 12. No hdg. preserved. Left entr. normal, no hdg. Upper entr., partly cut away: "Signa septentrionalia / Signa meridionalia". Right entr. consists of one col. with the values "13,26,..., 5"; then 10 cols., each of them augmenting the preceding one by 3°, *modulo* 30°; and finally one col., headed "Minuta", such that the two last cols. form the series 13°;10,...,5°;17.)   **19v** (note on calculating moon's position, not in text-hand.)   **20r-21r** (Lists of lunar and solar eclipses, 1387-1462, App.5(j8).)   **21v+** (App.6(d1), paraphrase:) Quicumque cursum lunae scire desiderat...

Od Oxford, Bodleian Libr., Ashmole 191. Paper, 4°, ff.83(this part), ca.1440, written in Oxford. Some marginal notes have been disregarded. Photographs 7r-10r; 52r-54r.

Black 1845, col.154-60. T&K 891.

1+ (John Launde, de temporum electione pro morbo curando; Tabula Dionysii (Cat.).)   **7r** (Txt, T&K 1448, Decl.abbatis S.Albani super Kal. reginae:) Si fiat quaestio de nativitate viri...ac multas divitias.   ¶(App. 6(b)§14:) Multum prodest scire in quo signo...notabilibus.

7r-v (T.L.CANON(c1):) Si quis invenire voluerit in quo signo...addat, et habebit intentum. (:Continuing as hdg. of lunar table:) In pede huius tabulae habetur de partibus corporis hominis quod signum quam partem recipit, id est Aries regit caput, Taurus habet regere collum etc. **7v** (:lunar table, miswritten and without the melothesy mentioned.)

7v-8v (App.6(b)§15-27 and an abbr. of §28:) Quando luna est in ariete, bonum est loqui cum potentatibus...vel stellae fixae impediatur.   **9r-v** (App.6(b)§2-9. Hdg.:) Proprietates planetarum et tabula eorundem. (:Txt:) Septem sunt planetae, scilicet Saturnus...13 gradus et 10 minuta perc⟨urrit⟩. (:no table.)   **9v** (note:) Attractivae, triplicitas ignea: aries leo sagittarius...   ¶(note on planets and humors.)   **9v-10r** (astrology, hdg.:) Dignitates planetarum. (Txt, T&K 1540, only from here (App. 6(d10)):) Sunt autem in signis quaedam fortitudines...

-52r (figure of climates, cf.App.5(h4); notes on dignities of planets, in Latin and English, subscribed "secundum magistrum".)   **52v** (upper mg.:) secundum magistrum. (:various classifications of signs, cf.App. 6(d10), citing Albumasar, de revolutionibus annorum mundi. Then notes on planets, conjunctions and lunar signs, and their influence on weather. Last note:) Nota quod quandocumque luna est in signo frigido et humido...sequitur pluviam si deus voluerit. Haec est regula generalis a magistro docta.

53r (App.6(b)§14:) Multum prodest scire in quo signo...notabilibus. ¶(App.6(b)§28:) Et nota quod quando luna est in signis terreis...impediatur.   ¶(T.L.CANON(a2):) Cum scire volueris locum lunae omni die per tabulam signorum...et non diei sequentis.   ¶(Lunar table, 13 × 13, no hdg. Left entr. normal, no hdg. Right entr. meant to contain degrees and minutes starting with 13°;10, but miswritten and unfinished, hdg. "Gr.Mi.". Note to table:) Require hanc tabulam in paenultimo quaterno huius libri proximo post coniunctiones lunae [[...]].   **53v** (Use of lunar instrument at back of New Quadrant, App.5(h3):) Nunc iterum restat dicere qualiter perveniemus ad cognitionem lunae cum fuerit in ariete vel tauro vel in aliis signis. Scito quod super hanc cognitionem composui quoddam instrumentum et ipsum in dorso quadrantis signavi, et vocatur instrumentum lunae, cum quo sic debes operari: pone linguam solis...Nota tamen quod ad hoc ut habeas veritatem cum isto instrumento, oportet te addere super primationem inventam in kalendario 3 dies et post operari per totam summam. Dies enim incipit in meridie praecedente et terminatur in medio sui secundum astrologos. (:Unfinished figure, with a reference to the back cover of the ms.)   **54r+** (figure of a quadrant; then Tables of Will.Reed, etc. (Cat.).)

Oa Oxford, Bodleian Libr., Ashmole 360. Quarto, ff.161, containing several mss., of which the pertinent one is ff.151-161, vellum, early part of 14th c.(Cat.), after 1322(f.151r), possibly the 1330's (f.158r), "by the hand of a Roman notary"(Cat.). Some notes in later hands have been ignored. Photographs 150v-158v. Very faint in parts.

Black 1845, col.271-6. Zinner 1936, no.45. OP 4.36.

151r (a canon for finding calendar letters. Faint in photo. Phrasing not unlike Kal.canon A:) Si per istud kalendarium innovationem lunae invenire volueris, annos Christi cum ≪anno≫ imperfecto per 76 divide, et si residuum fuerit 19 vel minor(!)...Nota etiam quod 1292 divisi⟨s⟩ per 76 nihil remanet: ab annis ≪ergo≫ Christi subtrahe 1292 et cum residuo operare ut supra est dictum. Item nota quod littera tabularis sive innovationis lunae renovatur in Ianuario, et quod dies et horae incipiunt ab ortu solis(!). Et in praesenti anno domini 1322, facta praedicta divisione, remanent 30ᵃ; abiectis 19 remanent 11; ergo 11ᵃ littera alphabeti, scilicet L, erit littera innovationis lunae.   ¶(bottom of page, note in 2nd hand:) Ego veni de Avinione prima vice anno domini 1327°, in secunda vice anno domini (?)1330.

151r-v (KAL.CANON B(f2):) (Letter table 1292-1653.) (:Txt:) Quaere inter numeros...et fuit iste kalendarius factus anno domini 1292, et iste numerus ponitur in principio primi cycli...nocte praecedenti.   **151v**

(T.L.CANON:) Ad locum etiam lunae inveniendum. . .epicycli lunae.
¶(Canon to Tabula Gerlandi, re-statement of App.5(a1):) Quaere inter
numeros. . .inter omnia festa mobilia.

152r (T.L., 14 × 12. Hdg.:) Tabula ad sciendum omni die in quo «signo
et in quo» gradu signi (:sequel lost. Outer left entr. normal, hdg.
"Numerus dierum aetatis lunae". Inner left entr., also in text-hand, hdg.
"Alius numerus", with numbers from the 12 × 12 lunar table, App.4(a).
Inner right entr. normal; hdg., partly lost, "Numerus graduum". Outer
right entr. secondary, starting like the normal one but ending in degree-
values which are 5° less. Upper entr. with month-names Mar-Feb.)
¶ (T.L.CANON(e):) Si per hanc tabulam locum lunae invenire volueris. . .
cum enim luna innovatur, oportet esse in eodem signo et gradu signi
cum sole (:by same author as the canon at 151r?)

152v-158r (CALENDAR(Cycl,Naur,D,Dfes+Comp,A,H,Decl,Grad): *Cycl,*
hour numbers 1 greater than standard. *Comp* indented. *Dfes+Comp,*
separate column added, containing liturgical notes. *A,* "Altitudo solis in
meridie", values 28°;57-76;3; *H,* "numerus horarum diei", 9^h;23-14^h;37:
both *A* and *H* for a latitude ca.37½°.) (:*Hdgs.*: Cycl, "Quattuor cycli
primationis lunae". Dfes, month-verse "Alterius mensis. . ."(Feb.+; App.
5(f1)), number of days, lunatio, reg.sol., reg.lun., "nox habet horas. .,
dies vero. .".) (:*Additions*: Text-hand, bottom of Dfes, verses "Nona parit
bellum. . .", App.5(f1). Uncertain hand, "Quantitas crepusculi", two
values for each month, cf.§20. Later hands, copious, including: (153r) a
moon-book, cf.App.6(d10), "Cum luna fuerit in ariete, bonum est
operari quidquid cum igne fit, aurum cambire, lapides pretiosos emere
et vendere species aromaticas. . ."; (155v-156r) observations of eclipses
and comets, dated 1339 and 1337, and notes on some war-time
operations involving England; (156v+) App.6(d1*a*) and a note on unlucky
days.)

158r (hand 2?: two rotae (28 and 19), starting 1330, with canons.
Cf.App.5(b). First canon:) Haec rota docet invenire litteram dominicalem
et litteram bissextilem, et per annos domini, capiendo ut est ostensum et
perficiendo in d( )o.   **158v-159r** (Table(28,1044-1548), App.5(a), hdg.:)
Tabula principalis Gerlandi continens multa utilia.   ¶(:Canon, cf.App.
5(a), short:) Si per tabulam Gerlandi quae principalis dicitur litteram
tabularem invenire volueris, quaere in superiori parte tabulae. . .omnia
tibi festa mobilia perfecte monstrabit.   ¶(Contratabula Gerlandi (Cat.).)
160+ (from Catalogue; all in Hand 2: Dominium signorum "Duodecim
sunt signa", App.6(d7); rota for sun's entrance into zodiacal signs; Rasis,
de fugandis serpentibus, and medical notes, etc.)

Of the feasts noted in the text-hand, a few shared by N (*q.v.*), and
sparsely by some others, point to Italy or to some order. The same is
true for the following, which may be Italian or monastic, and if so,
mostly Benedictine: Basilii cf., Jan.1; Severini ep.cf., Jan.8; Scholastice v.,
R Feb.10; Fusce et Maure vv.mm., Feb.13; Benedicti ab., R Mar.21+

Octav.Benedicti ab., Mar.28; Bernardi ab.cf., R Aug.20; Germani Ca-
puani ep., Oct.30. The following may also be Italian: Paule nec v. nec
m., Jan.26; Barbati ep.m., Feb.19; Herculani ep.m., Mar.1; Domnii
aep.m., Mai.7.

The feasts noted in secondary hands (none of which appear to be the
same as Hand 2 above) are mainly from *Bayeux,* such as: Renoberti ep.cf.,
Mai.16; Trl.Timothei, Mai.9; Exuperii...Vigoris, Jul.14; Trl.Renoberti,
Sep.3; Vigoris ep.cf., Nov.3. Northern French also Macutii, Jul.11/12.

B   Oxford, Bodleian Libr., Ashmole 1522. Vellum, small 2°, ff.203,
first quarter of 14th c. Photographs 8v-17r.

Black 1845, col.1425-30 (listed in Summ.Cat.6750). Eneström(1885,3)22
no.4. Zinner 1936 no.19("Bodl.6750"). Jørgensen 1933, 194 n.6. Thorn-
dike 1934,674 n.4-5. OP 4.37. T&K 680.

-8r (Alexander de Villadei "Haec algorismus ars praesens"(Cat.).)   **8v**
(cursive notes on paschal limits, cf.App.5(e1).)

9ra-b (KAL.CANON A:) In hoc primationum cyclo...primationes sicut
prius.   **9rb** (T.L.CANON:) Ad locum etiam lunae...epicycli lunae.

9v-15r   (CALENDAR(Naur,Cycl,D,Dfes,Grad,Decl).)   (:*Hdgs.*:   Cycl,
"Quattuor cycli primationum lunae / Q.c.lunares / Q.c.naturalis
compoti". Dfes, number of days, lunationes, reg.sol., reg.lun.) (:*Addi-
tions,* later hands: journey London-Dover-Calais-Nieuport-Bruges
1361(July 7); peace treatise England-France 1375, at Bruges (Dec.29).)

15v-16r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Ger-
landi, continens in se multa utilia ecclesiae.   ¶(Table, 35 rows,
App.5(a). Hdg.:) Tabula secunda Gerlandi, et est contratabula primae.
¶(15v, bottom, canon to Tab.Gerl., App.5(a1):) Quaere inter numeros...
necessaria reperies.

16v (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in
quolibet die anni a media nocte sui incepto. (:left and right entr. normal,
hdgs. "Aetas lunae / Gradus lunae". To the outer left, a secondary
column starting 13°;11.)   **17r+** (Sacrobosco, Algorismus.)

The feasts in the calendar are almost the same as those of ms.R above;
see the notes to the latter for details. Oct.15 and Oct.16 show erasures
only. The calendars are connected with Northern France.

O4   Oxford, Bodleian Libr., Bodl.464. Vellum, 28 × 19½, ff.3+209,
A.D.1318. Earlier in St.Augustine, Canterbury (no.1156). English
writing. Photographs 57v-75r.

Summary Cat. 2458. Eneström(1885,3)23 no.8. Zinner 1936 no.25
("Bodl.2458"). OP 4.38;5.51.

-57v (Almanach of Profatius (Cat.), ending in a table of proportions.)
57b (figure for graphical determination of solar altitudes etc., at a

latitude of *ca.* 51°. App.5(h3).)   **58r-59r** (canon to the calendar at 59v+.
Hdg.:) Canon super sequens kalendarium ad veram coniunctionem solis
et lunae accipiendam, compositum a fratre Rogero Bacoun. (:Txt:)
Kalendarium sequens extractum est a tabulis Tholetanis anno domini
1292, factum ad meridiem civitatis Tholeti quae in Hispania sita est,
cuius meridianus non multum distat a meridiano medii puncti Hiber-
niae. . .In fine ponitur altitudo solis in gradibus ab oriente(!) in meridie,
et hoc secundum latitudinem 53 graduum. . .Dicta vero latitudo efficitur
civitatis Lincolniensis.

59r (Hdg.:) Canon super tabulam sequentem. (:Txt, like KAL.CANON
B:) In ista parva tabula. . .per annos domini. Quaere inter numeros. . .
Quocumque igitur numero. . .ipsius coniunctionis ostendit. (:Letter table
1292-1653, with the numbers ”2,. . .,19,1” substituted for the letters A-
T.) (:This text is adapted to the calendar at 59v+, and thus with
”numerus; coniunctionis” at the place of ”littera; primationis”. This
entails the inconcinnities ”coniunctionis ⟨solis et⟩ lunae” (*l.* 16) and ”quae-
ras eam (*sc.*”numero”)” (*l.*30), a fact which serves to confirm the depen-
dence on Kal.Canon B.)

59v-71r (a calendar, App.5(j3), 4 cycles of conjunctions, first value *19*
1[h];*2* for Jan.1.)

71v-72r (Table with 28 rows,(1215-1728,19), giving tabular letters out of
a set consisting of ”A-K(colour), A-N(black), A-M (with points)”. Cf.
App.5(c2).)   ¶(Verses on solar and lunar cycle, App.5(f1):) Ter denos
duo dant. . .   ¶(Table, 35 rows, entrance with the tabular letters
mentioned; giving dates of the moveable feasts, and Sunday letters.)

72v (T.L.CANON. Hdg.:) Canon supra tabulam magistri Petri de Dacia
dicti Philomena. (:Txt:) Ad locum etiam lunae. . .die incepta.   ¶(Short
notes on qualities of planets and signs.)   **73r** (T.L., 14 × 12. Hdg.:)
Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in
quo gradu illius signi. (:left and right entr. normal, hdgs. ”Aetas lunae /
Gradus lunae”.)   **73v** (Planet table, 24 rows, App.6(c). Hdg.:) Tabula ad
sciendum quis planeta dominetur omni horae cuiuslibet diei.   **74r+**
(Figures and notes on planetary aspects, houses, etc.)

O5 Oxford, Bodleian Libr., Bodl.551. Vellum, 24 × 16½, ff.4+238,
early 15th c., written in France (Cat.) Photographs 233v-237r.

Summary Cat. 2303. Eneström(1885,3)24 no.11. Zinner 1936 no.24
(”Bodl.2303”). OP 5.52.

-233 (Lives of saints etc., connected with Auxerre (Cat.).)   **233v** (Astro-
logical notes, not in text-hand, including:) Quattuor sunt partes princi-
pales firmamenti. . .Quattuor sunt partes temporis vel anni. . .Quattuor
sunt complexiones hominis, scilicet colericus (:cf.App.6(f)). . .Duodecim
sunt signa supercaelestia, quorum primum est aries qui caput hominis eo
quod in prima mundi constitutione coepit vergi habere dicitur. . .(:last

one mainly as App.6(d7) but with signs re-ordered.)   **234r-v** (Astrology, starting as App.6(d7), with extensions on properties of signs. Hdg.:) De dominio signorum et naturis eorum. (:Txt:) Duodecim sunt signa, scilicet aries. . .numero impari naturali ordine disposita.   **234v-235r** (Astrology, cf.App.6(d10), hdg.:) De natura planetarum et eorum aspectibus. (:Txt:) Sciendum est quod sunt septem planetae, scilicet Saturnus. . . luna. Unde sciendum quod istae stellae dicuntur planetae quia erraticae respectu stellarum fixarum. . .si detur medicina de facili evomitur. **235v** (Computistical rules: "Adam degebat" (App.5(f1)), etc.)   **235v** (App.5(h1). Hdg.:) Ad sciendum horas diei per quadrantem. (:Txt:) Si volueris scire horas diei per quadrantem. . . secunda et sic de aliis.

236r (T.L., 14 × 12. Subscr.:) Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in quo gradu illius signi. (:left entr. normal, hdg. "Aetas lunae"; right entr. normal but shifted one row down and lacking last figure, hdg. "Gradus lunae". Upper entr. with month-names Apr-Mar.)   **236v** (Planet table, 12 rows, 12^h, App.6(c). Hdg.:) Tabula ad sciendum quis planetarum regnat in qualibet hora diei.   ¶(Note, another hand:) Jupiter et Venus sunt boni. . .   **237-8** (lists of persons (Cat.), in a cursive hand.)

Oc   Oxford, Bodleian Libr., Can.Misc.161. Vellum, 18½ × 13, ff.44, first half of 14th c. (13th c., Cat.). Microfilm of whole ms.

Quarto Cat.III (Coxe 1854) 533-4. Eneström(1885,3)22 no.2; 23 no.9. Jørgensen 1910, 254 n.2. Zinner 1936 no.20. OP 5.49.

-38r (Sacrobosco, Compotus.)

38v-44r   (CALENDAR(GG,Naur,Cycl,D,Dfes,Comp,Qdie,Qnoc,Alts, Decl,Grad,Dmen,Dann): *GG,* letters and numbers of William of St. Cloud's Kalendarium Reginae, App.5(j2).) (:*Hdgs.*: Cycl, "Cyclus primationis lunae". Dfes, number of days, lunationes, reg.sol., reg.lun.) (:*Additions,* each month, verses (cf.App.5(f1)): "Prima dies Iani", "Principium Iani", "Escas per Ianum" (App.6(f), 2nd hand), "Poto, ligna cremo . . ."; two values for "Quantitas crepusculi" (§20); syllables "Armis. . ."; Cisiojanus, with expansions. Occasionally, "Hic incipiunt regulares lunares. . ." and other computistical notes.)

44v (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die anni a media nocte sui incepto. (:left and right entrances normal, hdgs. "Dies perfecti aetatis lunae / Gradus signi in quo est luna". Upper entr. with month-names Mar-Feb.)   **45r** (blank, end of ms.)

The feasts of the Calendar which are written in the text-hand, vaguely point to Southern Germany and possibly to some order. Examples: Paulini ep., Jun.22; Margarete v.m., Jul.15 (secondarily moved to the usual date Jul.13); Adriani m., Sep.8; Primini (=Pirm.) ep., Nov.3; Romani cf., Nov.18. Another hand has Petri m. de ordine praed., Apr.29,

peculiar to the Dominicans. One or two Humanist hands have added feasts peculiar to Italy or an order.

Om Oxford, Bodleian Libr., Can.Misc.248. Vellum, 36 × 23½, ff.45, 14th c.(from f.42 on). Some text in common with ms.A, but no calendar or canons. Photographs 39v-45v.

Quarto Cat.III (Coxe 1854) 625-6. Eneström(1885,3)23 no.10. Zinner 1936 no.23. Bober 1948, Plate 5c (reprod. of f.42r). OP 5.50.

-40v (The Compotus orbicularis, and some computistical notes, 15th c.) **41r-v** (blank.)   **42r** (Sign-man, with canon as App.6(d7). Hdg.:) Dominium signorum. (:Txt:) Duodecim sunt signa. . .fleumatici feminini. Septentrionalia.   **42v** (Planet table, 24 rows, App.6(c). Hdg.:) Tabula ad sciendum quis planetarum regnat in qualibet hora diei et noctis. ¶(:Subscr.:) Jupiter et Venus sunt boni. . .Sol regnat prima hora die dominica. . .tertia hora Jupiter et sic de aliis.   **43r** (Table, 19 rows, with dates for the 5 feasts, starting Kal.Feb. App.5(d1). Hdg.:) Tabula terminorum.   **43v-44r** (Table(28, 1044-1548), App.5(a). Hdg.:) Tabula principalis Gerlandi.   ¶(:canon, App.5(a1). Hdg.:) Canon supra tabulam principalis(!) Gerlandi. (:Txt:) Quaere inter numeros. . .necessaria reperies.   ¶(Table, 35 rows, App.5(a). Hdg.:) Contratabula principalis Gerlandi.

44v (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in quo gradu illius signi. (:left and right entr. normal, in Roman numbers; hdgs. "Aetas lunae / Gradus lunae".)

45ra (Hdg.:) Utilitates directorii. (:Txt:) Primo directorium ostendet quattuor partes mundi, scilicet oriens. . .per tabulam scietis quot puncta faciunt unam horam. (:by ?William of St.Cloud. Cf.App.5(h3). A text, with some deviations from this one, was quoted by Harper 1966 p.58, from "Canon.Misc., 284.45r.". The present text is accompanied by a "Tabula horarum artificialium ante meridiem vel post" and by the Directorium itself, which has the form of a rota.)   **45rb** (Hdg.:) Utilitates trium rotarum. (:Txt:) Si vis scire utilitates istarum trium rotarum, accipe clavum infixum rotae, in qua ponitur imago. . .sequenti dominica celebrabuntur. (:cf.App.5(b). The rotae themselves are absent, but the present text assumes one of them to start in 1330.)   **45v** (Images of the martyrs (Cat.).)

Or Oxford, Bodleian Libr., Rawlinson C 117. Vellum, 2º, ff.170, 14th c. Earlier in St.Augustine, Canterbury (no.1140). Photographs 134r-141r.

Quarto Cat.V fasc.2 (Macray 1878) col.48-9. Saxl, Verzeichnis. . .III,I (1953),400. Jørgensen 1910,253; 256 n.1. Jørgensen 1933,194 n.1. OP 4.39. T&K 1191.

-133v (=183v, old foliation) (Almanach of Profatius (Cat.). At 133v, the Contratabula Gerlandi (35 rows, as App.5(a)).)

134r-139v   (CALENDAR(Cycl,Naur,D,Dfes,Comp,Dmen,Dann,Alts): *Cycl* lacks the dots denoting quarters of an hour.) (:*Hdgs.*: Cycl, "Cycli lunae". Dfes (small variations), lunatio(nes); regularis sol., lunaris.)

140r (T.L., 14 × 12. No hdgs. Left and right entr. normal, right entr. with some corrections.)   ¶(T.L.CANON(d1):) Cum ista tabula uti volueris, scias gradum solis et lunae per istud kalendarium. . .secundum Christi fideles semper a media nocte incipitur.

140v (in a new hand, KAL.CANON B. Hdg.:) In ista parva. . .per annos domini. (:Letter table 1292-1653, secondarily -1729.) (:Hdg.:) Canon super kalendarium magistri Petri de Dacia dicti Philomena. (:Txt:) Quaere inter numeros. . .nocte praecedente.

140v (still another hand, much like the English hand of Bodl.464, f.58+: Table of precessions, like Quadrans 2 §35. Hdg.:) Tabula aequationis motus octavae sphaerae.   ¶(One note on precession, in same hand.) **141r+** (Canon to Profatius' Almanach, "Quia omnes homines naturaliter . . ." in same hand as f.134r-140r.)

The calendar has the feasts peculiar to the larger of the Northern French groups described under ms.R above, except Mar.15. In common with some mss. from this group it also has Nicostrati et Symphoriani, Jul.7; Transfig. Domini at Jul.26(not Jul.27), and Dominici cf. at Aug.6(not Aug.5). There seem to be no special feasts of note.

X   Oxford, Bodleian Libr., Savile 17. Vellum, 24 × 16½, ff.3+201, first half of 15th c., written in England (Cat.). Photographs 1r-9v.

Summary Cat.6563. Halliwell, Rara Mathematica,1841, p.117. Eneström (1885,3)22 no.3. Zinner 1936 no.21. OP 4.40; 5.53; 6.5.

1r (Index, 15th c., starting:) [[---]] in quo continentur haec quae secuntur. 1. Kalendarium novum magistri Petri de Dacia. 2. Practica astrolabii. . . **1v** (Table(28,1029-1533) giving dates of Easter. Cf.App.5(c2). Hdg.:) Tabula paschalis Christianorum perpetua a principio mundi secundum Ebraicam veritatem a Ianuario inchoata, continens magnum cyclum solis et lunae 532 annorum; quotiens fuerit consummata totiens inchoanda. ¶(Table of years of world, epoch -3760, with two short notes.)

2r (Upper mg.:) Kalendarium novum magistri Petri de Dacia.   ¶(KAL. CANON B(f1). Hdg.:) Hic incipit canon super kalendarium. (:Txt:) Quaere in superiori parte. . .secundum hoc opus. (:Letter table 1292-1653(-1805, partly secondarily). Title:) Haec est tabula per quam scitur littera coniunctionis.   **2v** (Table, 35 rows, App.5(b). Hdg.:) Tabula ad sciendum 5 festa mobilia supponendo aureum numerum et litteram dominicalem.

3r-8v (CALENDAR(Cycl,D,Dfes,Naur,Qdie,Alts): *Dfes* blank, except for solar signs and a secondarily added column of golden numbers for Easter.) (:*Hdgs.*: none for Cycl or Dfes.)

9r (T.L.CANON(d2). Hdg.:) Canon ad sciendum locum lunae. (:Txt:) Si vis scire locum lunae. . .praecedente diem.   ¶(T.L., 14 × 12. Hdg.:) Tabula per quam scitur locus lunae. (:left entr. normal, hdg. "Aetas lunae"; right entr."13,26,. . .,5", hdg."Gradus".)   ¶(Small table on melothesy of signs, cf.App.6(d10).)

9v (Planet table, 24 rows, App.6(c). Hdg.:) Tabula planetarum. (:note to hour 12:) Hic terminatur tabula pro horis inaequalibus.   ¶(:Subscr.:) Jupiter atque Venus boni sunt. . .Frigidus et sic(cus) Satur. . .   **10r** (two rotae, 28 and 19, App.5(b), starting 1301, with short titles. The first one has:) Rota litterarum dominicalium et bissextilium annorum. Millesimo tricentesimo primo inclusive super A computa.   ¶(Verses, not text-hand:) Fert ea dux. . .(:T&K 555; v.Wijk p.114.)   **10v** (figure of aspects, cf.App.6(d10).)   **11r+** (Messehallah, practica astrolabii.)

Ow Oxford, Bodleian Libr., Wood D.8. Paper, 22½ × 15½, ff.5+266, written ca. 1485 at Writtle in Essex (Cat.). Contains, *i.a.*, the tables of Will. Reed (Cat.). Photographs 152r-153r.

Summary Cat.8538. OP 5.54.

-152r (table of solar longitude, day by day, ending Cap 18°;58 for Dec.31. The cat. yields no sensible context.)

152v-153ra (T.L., 14 × 12, much like that of ms. Le. Hdg.:) Tabula lunae ad sciendum omni die eius signum et in quo signo est. (:upper entr. "signa septentrionalia / signa meridionalia". Left entr. normal, hdg. "Aetas lunae". Right entr. on 153ra, consisting of 12 cols.: the first one repeats the left entr. with its hdg.; the second one has the values "13,26,. . .,5"; and the 10 following cols. each augment the preceding one by 3° *modulo* 30°. These last 11 cols. have the sub-hdg. "Gradus", and all 12 cols. bear the hdg.:) Tabula ad sciendum gradus lunae omni die anno.   **153rb** (T.L.CANON(a2):) Cum volueris scire locum lunae omni die per tabulam signorum, videas. . .diei praecedentis etc.

P3 Paris, Bibl.Mazarine, 3599(482). Vellum, 43½ × 29, ff.1+118+1, 13th-14th c. From St.Martin at Louvain. Photocopies 95v-96v, and inspection.

Molinier III, 1890, p.139.

95v-96r (in text-hand: end of the Chirurgia Albucasis (transl. of Gerard of Cremona), then some arithmetic and astrology, including a piece on melothesy, a moon-book in the form of a rota, and a 12 × 12 lunar table. A *secondary hand* has glossed the piece on melothesy, and added what is listed below.)

96r (T.L.CANON(d1). Letters hidden because of the tight binding are in ⟨ ⟩. Hdg.:) ⟨Tab⟩ula magistri Petri de Dacia dicti Phylomena ⟨ad sci⟩endum in quo gradu signi sit luna omni die (ve)l ⟨ ⟩die sui incepto vel in quo gradu illius signi. (:Txt:) Cum autem volueris uti tabula magistri Petri de Dacia. . .⟨ ⟩ Christi fideles semper a media nocte incipitur. ¶(T.L.CANON. Hdg.:) Canon supra tabulam ma⟨gistri⟩ Petri de Dacia ad sciendum in quo gradu signi sit luna omni die vel a medio ⟨ ⟩ incepto, et in quo gradu illius signi. (:Txt:) Ad locum etiam. . .epicycli lunae.   ¶(T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia dicti Phylomena ad sciendum in quo signo sit luna et in quo gradu illius signi. (:left and right entr. normal, hdgs. "Aetas lunae / Gradus lunae, aliter(?) gradus signorum".)

96r (Moon-book, App.6(d9):) Martius. Cum quidem luna fuerit in ariete, bonum est versus occidentem tendere, et bonum est scribere, texere, per mare navigare. . .   **96v** (App.6(d1), possibly by the same secondary hand:) Qui cursum lunae recte scire desiderat. . .

Pc Paris, Bibl.Nationale, lat.7286 C. Vellum, 30 × 22, ff.58, 14th c. Earlier at Abbey of St.Denis (Delisle, Cab.mss.I,1868,p.202,204). One hand throughout. Microfilm of whole ms.

Reference from notes of E.Poulle.

Collection of astronomical tables, part of them at least based on the Alfonsine Tables. I can discern   **1r-8v** (Tables for Paris, starting A.D. 1320, with canons by Jo.Vimundi (:subscr. at 8v ". . .ad utilitatem scolarium universitatis Parisiensis et omnium aliorum").)   **9r+** (Tables like the Alfonsine Tables, with canons "Cuiuslibet arcus propositi"(10r) edited 1322 at Paris by Jo. de Lineriis (subscr.41r) interspersed with the tables. They end in various tables for eclipses and for planetary motions and stations.)

57r (T.L., 14 × 12. Hdg.:) Tabula Petri de Dacia ad sciendum in quo signo et in quo gradu illius signi sit qualibet die luna. (:left and right entr. normal, hdgs. "Aetas lunae / Gradus lunae". Lower entr. with month-names Mar-Feb.)

57r (Table, 19 rows, with dates concerning the five feasts, starting with the date Kal.Feb.; App.5(d1). Hdg.:) Tabula terminorum.   ¶(Table, solar longitude for each day in a year, starting at Cap 19° for Jan.1. App.5(g1). Hdg.:) Tabula de loco solis ad dies anni.   ¶(Table of Paschal limits, 19 years, starting with "post nonas Apr. prima dominica". App.5(e1). Hdg.:) Hic est terminus qui numquam praecurrit neque in b(issextili) neque sine b(issexto).   **57v-58r** (Multiplication table, 60 × 60, App.5(h6), triangular and fitted into two pages.)   **58v** (Planet table, in 7 sections for the days of the week, each of them with 7 rows and for 24^h. Cf.App. 6(c).)   ¶(Small tables of qualities of planets and signs, cf.App.6(d10).) ¶(Table, 19 × 7, with tabular letters, first row "vabc. . .", App.5(d3).

Hdg.:) Tabula Bedae presbyteri.   ¶(Table, 19 × 7, with numbers 6-11, App.5(d5). Hdg.:) Tabula ad habendum et sciendum hebdomadas cum diebus a die nativitatis domini usque ad primam dominicam quadragesimae, tam per litteras dominicales quam per aureum numerum a sinistris tabulae istius positum atque scriptum.   ¶(A few multiples of a lunation, which is set at 29^{d}12^h;44,3,2,58,22,51,24.)

P   Paris, Bibl.Nationale, lat.7298. Vellum, 37 × 25, ff.II+176, 13th-14th c. Microfilm I+1r-8v, and inspection.

Cat.(1744) IV p.337 (only repeating the index). OP 4.41; 5.56.

Iv (Index dated 1549, starting:) Contenta hoc volumine: Tabulæ astronomicæ, fol.1. Compotus manualis M. Hardouini de Mardochio, fol.9. . . **1r** (Ex-libris of Philippe Desportes, ?dated ?1589.)

1ra-b (KAL.CANON A:) In hoc primationum cyclo. . .primationes sicut prius.   **1rb** (KAL.CANON B, letter-table only, 1292-1653.)

1v-7r (CALENDAR(N,Naur,Cycl,D,Dfes,Comp,Dmen,Dann): *N,* extra column of golden numbers in February for bissextile years; and 1-2 extra columns of golden numbers in Jan-Apr. for moveable feasts.) (:*Hdgs.*: Cycl, "Cyclus primationum lunae / Cyclus cyclorum lunae". Dfes, number of days, lunatio(nes), reg.sol., reg.lun. Comp, "sol in . . gradu . .".) (:*Additions,* secondary: births in 1294, at Jan.22, and in 1288, at Oct.29.)

7v-8r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Gerlandi, continens cyclos solaris(!) et 19'l(is) et litteras tabulares.   ¶(Table, 35 rows, App.5(a). Hdg.:) Tabula secunda Gerlandi, et est contratabula primae.

8v (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die anni a media nocte sui incepto. (:left and right entr. normal, hdgs. "D(ies) perfecta(!) aetatis lunae / Gradus signi in quo est luna".) **9r** (blank.)   **9bis+** (Balduinus, Compotus manualis.)

The calendar contains the feasts proper to the Northern Franch group discussed under ms.R above, except Nov.16, plus those for Jul.26 and Aug.6 listed under ms.Or. There seem to be no further notable feasts.

Pd   Paris, Bibl.Nationale, lat.7349. Paper, 29½ × 22, ff.144, 15th c., French. Microfilm 32v-41r; 55v-71r; 104v-108v.

Reference from notes of E.Poulle.

-37v (Astrology, ending with a moon-book as App.6(d2 and d1). It starts at 33r with Aquarius; at 34r:) Aries est signum nobile(!), calidae et siccae naturae. . .Item secundum alium, cum luna fuerit in ariete, signo firmo. . .   **37v-38r** (Zodiacal sign of moon, calculation; verses "augurio" (*Massa Compoti* 111), with a note, on unlucky days.)

38r-v (KAL.CANON B:) (:Letter table 1292-1653(1553 *ms.*).) (:Hdg.:) Quaere inter numeros. . .minor quam anni domini (:Txt:) si forte annos domini. . .praecedente.   ¶(:Addition:) Nota etiam quod, si ultima con- iunctio fuerit in Martio, videlicet 12 illius mensis, 5. hora post mediam noctem praecedentem, cum 57 minutis horae 6 – ut autem habeamus coniunctionem proxime sequentem, adde praedictis 12 diebus 5 horas(!) 57 minutis 29 dies 12 horas 44 minuta; quibus additis si minute(!) excreveri⟨n⟩t 60, tum ⟨pro⟩ 60 adde unam horam horis; et si horae excreveri⟨n⟩t ultra 24, semper pro 24 horis adde unam diem diebus, ⟨et quae⟩ remanent[i] horae erunt horae coniunctionis sequentis [simul cum una remanentibus]. Et ut habeamus diem coniunctionis, subtrahe a diebus primo additis dies mensis, in quo fuit ultima coniunctio, et quod remanet erunt dies coniunctionis mensis sequentis. Et sic semper adde 19 dies 12 horas et 24(!) minutis(!) etc.   **38v** (:Txt, cf.App.6(f):) Sicut sunt quattuor elementa, ita sunt 4 humores. . .

56r (Albandinus, App.6(e2):) Incipit liber similitudinum hominum(!) filiorum Ad[d]ae fortun⟨at⟩orum. . .Cum volueris scire actus(!) nativi- tatis. . .

56v (KAL.CANON B (l1):) (Letter table 1293-1426.) (:Txt:) Si vis invenire litteram deservientem. . .renovando eam in Ianuario. (:Subscr.:) Tabula cyclorum.   **56v** (Table, 12 rows, properties of signs, cf.App.6(d10).)

57r (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia de loco lunae inveniendo qualibet hora diei. (:above this, an upper entr. with month- names Mar-Feb. Left and right entr. normal, no hdgs.) (:Subscr.:) Tabula signorum.   ¶(:Added: properties of signs; geographical regions connec- ted with signs.)   **57v** (Table headed "Altitudo solis", day by day for a year, starting in March, values 26°-73°; geogr. latitude ca.40½°. App.5 (g2).)

58r (Canon to table "S" in the Calendar at 59r+; cf.App.5(g1):) Si vis scire qualibet die in quo gradu est sol, quaere diem in mense de quo vis scire. . .est cifra quae significat unum.   ¶(KAL.CANON B(l1), continued from 56v:) Habita notitia litterae. . .in fine horae coniunctio.   ¶(T.L. CANON(c5):) Si vis scire qualibet die. . .1 gradum computabis. Gradum lunae habebis ad horam.   ¶(Further notes on phlebotomy (cf.App. 6(f)), sunrise and sunset, and melothesy.)   **58v** (blank.)

59r-64v (CALENDAR(Dmen,Cycl,D,Dfes,S): *Cycl* lacking quarter dots in January. *S*: table of solar longitudes, four cycles, first one starting at Cap 7°. App.5(g1).) (:*Hdgs.*: Cycl, "Cycli coniunctionum". Dfes, number of days.)

65r (Planet table, 14 rows, 24[h], App.6(c). Hdg.:) Tabula ad sciendum quis planetarum regnat qualibet hora diei.   **65v** (Computistical table, 19 × 7, giving numbers between 1 and 25, no doubt Easter dates. Cf.App.5(d6).) ¶(Two rotae (19 and 28), App.5(b), with short titles. The whole page is

headed:) Tabula rotarum.   **66r** (Table, 35 rows, like App.5(b) but with a few extra columns and lacking column of Sunday letters. No title.) **66v-67r** (List of 34 lunar eclipses, ending in 1386; list of solar eclipses 1352-1386: App.5(j6). No titles.)   **67v+** (Astrology.)

105r-107r (=99r-101r in another foliation) (Hdg.:) Incipiunt anuli Salamonis. (:Txt:) Notandum est secundum ea ad quem(!) tendimus (:T&K 948)...(:106r, canon to the Planet table:) Notandum est quod multis modis secundum diversos incipiunt dies (:citing "Alkabricius Alb(?ri)cus in libro suo introductorio in astronomia")...(:106v, Planet table, 14 rows, 24^h, cf.App.6(c). Title at 106r:) Sequitur tabula vii planetarum quomodo ipsi planetae regnant in qualibet hora secundum quemlibet diem, ut hic apparet...

The calendar only contains feasts common in France and elsewhere.

Pn Paris, Bibl.Nationale, lat.7351. Vellum, 24½ × 17½, ff.II+54, 14th c. Two hands. Microfilm IIv; 1r; 2v-13r.

Cat.(1744) IV p.345. Bober 1948 p.16; plate 5a(reprod. of f.2r). OP 5.57.
1r (hand 1, T.L.CANON(c3):) Quando volueris scire in quo signo... unum gradum computabis.   ¶(?Hand 2:) Verte folium et invenies sphaeram.   **1r-v** (hand 1, App.6(d6):) Nil capiti facias...   **2r** (Sign-man, from Bober's reproduction, cf.App.6(d7); 1v-2r not in my film.)

2v (hand 2, T.L., 14 × 12. Hdg.:) Tabula ad sciendum in quo signo sit luna. (:left entr. normal, right entr. "13,26,...,5", hdgs. "Numerus lunae / Gradus lunae". Two subscriptions, both in hand 2:) Canon⟨em⟩ huius tabulae invenietis post librum de nati(vitati)bus Albumazar, scilicet post sphaeram Pitagorae, scilicet fol.13. Quaere 13, et invenies canonem huius tabulae et etiam in principio huius libri.

3r-11v (hand 1, Albandinus, App.6(e2):) Hic est liber similitudinum omnium filiorum Adae fortunatorum...(:continues as a sign-book, App. 6(d10):)...de signo arietis, quod est masculinum igneum mobile, et est domus Martis, exaltatio solis, dolor Saturni, signum candidum(!) et siccum, igneum diurnum colericum, amari saporis, orientale, et habet caput et faciem. Quando luna fuerit in eo, non radas caput nec barbam...Bonum est vestem novam induere et iter per terram et mare arripere...(Subscr.:) Explicit liber de nationibus Albumazar.   **12r-v** (hand 1, the Sphere of Pythagoras, App.6(e1), preceded by canon:) Pitagoras Nasurio regis Caldeorum. Ita fertur scriptio...   **13r** (hand 1, hdg.:) Versus. (:Txt, cf. App.6(d10):) Sagit Arez que Leo Gegeminati pondus et unda...

13r (hand 2, T.L.CANON(c3). Hdg.:) Canon ad sciendum in quo signo luna sit quolibet die. (:Incipit as the normal canon:) Ad locum lunae habendum videas quota est dies coniunctionis ab ingressu signi, id est

quot dies habet a die primationis eius...unum gradum computabis. **13v** (Graduated scale, as on back of New Quadrant, App.5(h3), with text in French.)   **14r+** (Astrology (Cat.))

N   Paris, Bibl.Nationale, lat.7420 A. Vellum, 24½ × 17½, ff.156, ca. A.D.1331 (Manuscrits Datés II,1962,p.516, from examples at f.113v mentioning the years 1331 and 1333). From the Languedoc (op.cit.). Microfilm of whole ms.

L.Thorndike, *Speculum* 29(1954)233-4. T&K 60.

-57r (Sacrobosco, Algorismus.)   **57v-63r** (calendar, App.5(j3), ascribed to Raimund Bancal O.F.M., 4 cycles of conjunctions, first value δ 13^h;45 at Jan.2. Cf.f.71r.)

63v (upper mg.:) Incipit kalendarium magistri P. de Dacia.   **63v-69r** (CALENDAR(A,Naur,Cycl,D,Dfes,Qdie,Alts,Decl,Grad,Dann): *A*, degree-values from Alts.) (:*Hdgs*.: Cycl, "4 cycli primationum lunae / 4 cycli naturalis compoti (once)". Dfes, month-name only.) (:*Additions*: "Nox habet horas. ., dies. .", each month. To January, a list of numbers in ?5 series of 10, starting "3,16,5,18,6. . .".)

69va (Upper mg.:) Ars cognoscendi horas diei. (:Txt, cf.App.5(h2). Attributed to Peter of Dacia by T&K 60:) Ad sciendum certissime horas diei sine quadrante et horologio, pone in terra lapidem ad solem post calcem tuum et vide quot pedes habeat umbra tua. Ianuarius cum Decembri in eadem mensura concordat, Februarius cum Novembri... Hora prima Ianuarii habet pedes xxix, secunda xix. . .Hora prima Iunii habet pedes xix. . .xii^a mille. Combinari autem debent alii sex menses sicut supradictum.

69va (T.L.CANON(b2). Hdg.:) Tabula lunae abbreviata et correpta per magistrum Petrum de Dacia, correptorem huius kalendarii. (:Txt:) Ad inveniendum signum et gradum in quo est luna. . .in ordine signorum. ¶(:Lunar table, 13 × 1, App.4(c).)

69va-b (KAL.CANON B(e). Hdg.:) Sequitur canon seu expositio kalendarii. (:Txt:) Quaere igitur in numero in superiori parte. . .in media nocte praecedente quantum ad istum kalendarium exercendum, milleque ter centum dant simul octo.   ¶(Continuing as KAL.CANON B(j1):) Unde ibi in illa tabula sunt 4 cycli sive lineae. . .scriptos per hunc modum. Quaere inter numeros. . .primae litterae aptitabis. Si vis etiam scire. . .ultra 57. (:Letter table 1292(1672 *ms.*)-1653.)

70r (T.L., 14 × 12. Hdg. in upper mg.:) Tabula magistri Petri de Dacia de loco lunae inveniendo in quolibet mense anni a media nocte sui gradus(!). (:left and right entr. normal, no hdgs. except the "gradus" moved into the hdg. of the table. Upper entr. with month-names Mar-Feb.)   ¶(T.L.CANON(d1):) Cum volueris uti ista tabula, scies gradum . . .secundum Christicolas a media nocte semper incipit.   ¶(:continuing,

cf. App.6(c):) Versus de complexione signorum, Ignea sunt A Le Sa...Jupiter atque Venus bene(!) sunt...Frigidus et siccus Satur...(:last set with glosses.)

70ra-va (Astrology, App.6(d5): Frater Vincentius...Quattuor sunt triplicitates...Notandum igitur quod signorum quaedam sunt ignea...Notandum quod aries habet caput et facies...Unde luna existente in ariete nullatenus capiti est medendum aut radendum, nec auribus nec oculis nec ulli parti capitis est medicina danda. Tamen de brachio minui...

70va (T.L.CANON(d4):) Respice coniunctionem solis et lunae...nunc fuit in eodem signo.   **70vb** (Two lists of eclipses, 1324-1341 and 1330-1344. Cf.App.5(j10). Canon:) Ibi sunt eclipses ad aliquod tempus, unde nota quod ubi ponitur coniunctio, intellegitur esse eclipsis solis...incipitur in meridie et sic accipitur hic.   **71r** (Table of "horae artificiales", etc., apparently auxiliary to the calendar at 57v+, App.5(j3). Hdg.:) Incipit correctio kalendarii facti a fratre R⁰.Bancali ordinis minorum, et hoc est canon primi kalendarii magistri Bancalis, ut patet in illa tabula et in scripto sequenti...(:Text of canon, T&K 745:) Innovationes seu coniunctiones lunae cum sole...   **71rb-va** (Txt, cf.App.5(h3):) Ad habendum horas diei in instrumento isocheles vocato...   **71v** (Rota(30+2), with duration of moon-light and predictions "qui hic natus erit, vitalis erit et pauper...", cf.App.4(g), App.6(d10).)   ¶(Figures of elements and spheres, cf.App.5(h4), with short canons.)   **72r+** (Sacrobosco, Compotus.)

The calendar of N shares a few feasts with D which may have their origin in Southern France or in some order, such as: Giliberti (Fili-,D) cf., Feb.4; Salvi ep.(cf.), Sep.10; Martini ep.cf., Nov.12(2nd hand in D). Some feasts in common with the first hand of Oa could be there for the same reasons: Pantaleonis m., Jul.27; Sabbe ab.(cf.), Dec.5; Eustachii (m. & soc.), Sep.20; Chrysanthi et Darie, Oct.25. The two last-mentioned are also in Mj Ly. Cf. Roberti ab., Apr.24, in common with Kt.

Other examples of feasts either Southern French or monastic: Fulcranni, Feb.13; Trl.Antoni, Mar.17; Illatio Fidis, Mai.4(Rodez); Baudilii m., Mai.20; de ordine minorum+Antoni cf., Jun.13; Rufine et Secunde, Jul.10; Antoni cf. atque (?)parentis, Jul.16; Grati,Ansuti, Oct.16; Naamatii, Nov.2; Pontiane (=-ani) Nov.19.

Pi Paris, Bibl.Nationale, lat.11252. Paper, 20½ × 14½, ff.II+203, written in 1473 at Masevaux/Masmünster, near Mulhouse (Manuscrits datés III,1974, p.227). Contains, i.a., Alfonsine Tables with canons, and astrological texts in French. Notes from inspection of ms.

158r-(164v) (Txt:) Quaeritur quare mulieribus menstrua fluunt...(this text continues at 181-198v where it is subscribed "Et sic est finis horum probleumatum Aristotelis...".)   **165r-v** (Tables of properties of signs.)

166r-171v (a calendar with conjunction times in letters/hours/puncta, apparently undated.)   **172r** (:Canon:) abc. . .st, par ces lettres cy dessus escriptes. . .

172v (T.L., 14 × 12, left entr. normal, right entr. "13º;10/26;20/. . ./5;0". Upper entr. with month-names Mar-Feb.)   **173r-v** (Notes on properties of signs, e.g.:) Aries/Leo/Sagit. sunt signa orientalia. . .De ces iii signes Aries Leo Sagittarius. . .Signa tropica sunt iiii scilicet Aries. . .   **174r** (Txt:) C'est le liure de la prophete Ezechiel. En terre de labour. . . **175v** (subscr. with the dating (Mss.datés).)

This manuscript has been only summarily recorded and will not be further used.

Pr   Paris, Bibl.Nationale, lat.14068. Paper, 21 × 14, ff.I+200, written in 1464 at Murat (Dép.Cantal; Manuscrits datés III,1974, p.355). Some cross-references by the scribe have been ignored. Microfilm I; 1r-2r; ?8v-35r.

Delisle, Bibl.Ec.Chartes 29(1868). OP 4.43;5.61;5.62;6.7. T&K 665.

Ir (writing perhaps 14th c.) (T.L., 14 × 12, subscription ". . .la lune chacun iour. . .", almost illegible. Left entr. normal, hdg. illegible. Right entr. "13,26,. . .,5", hdg. "Gradus lu⟨ ⟩". Upper entr. with month-names Mar-Feb.)   **Iv** (Table "ad inveniendum novationem lunae", 19 × 12, conjunction times for each month of years 1-19 in some cycle, first one at Jan.20,6^h. Cf.App.5(j10).)

(Blank page before 9r.)   **9r-14v** (CALENDAR(Cycl,Naur,D,Dfes+ Comp,Qdie,Grad,Alts): *Dfes,* feast-days only for January, February and December.) (:*Hdgs.*: Cycl(Jan.), "4 l(ineae) primationum". Dfes, number of days, luna(tio).) (:*Additions*: "Nox habet horas. ., dies vero. .", each month. Computistical notes to some months.)

15r-21v (Calendar of John Somer, App.5(j7), two cycles of conjunctions starting A.D.1425, first values *19* 23^h;53 and *19* 7;52 at Jan.1. Canon at 21r-v:) Ad honorem dei et virginis Mariae in hoc opusculo kalendarii a fratre Iohanne Sopmo(r?) ordinis minoris ac provinciae Angliae anno domini 1425 composito. . .

22r (T.L., 14 × 12. Left and right entr. normal though much miswritten, hdgs. "Numerus lunae / -". Subscr. to this part:) Tabula Tolomey de loco lunae inveniendo in quolibet mense [gradus superantes lunam]. (:to the left of this, there is one col. of degrees "1,14,27,. . .,6"; then 10 further cols. of degree-values, first one "3,16,29,. . .,8", increasing 3º, *modulo* 30º, at each step leftwards. To the outer left, one col. with day-numbers.)   **22v-23r** (Table, 12 rows, of planetary houses, exaltations, . . ., for each sign; cf.App.6(d10).)   **23v** (Planet table, 14 rows, 24^h, App.6(c). Hdg.:) Tabula planetarum. Ad sciendum quis planeta regnat omni die.   ¶(:Subscr.:) Jupiter et Venus boni sunt. . .   **24r** (blank.)

24v (T.L., 14 × 12. Hdg.:) Tabula lunae. Ad sciendum in quo signo luna sit omni die. (:left entr. normal, right entr. "13,26,. . .,5", hdgs. "Aetas lunae / Gradus lunae".)   ¶(T.L.CANON(g):) Ut autem signum et gradus lunae prompte habeantur. . .distinguit.   **25r** (List of eclipses 1337-1366: App.5(j6). Hdg.:) Tabula eclipsis.   **25v** (Table(28,1268-1548), part of App.5(a). Hdg.:) Tabula Gellandi principalis.

26r-33v (various computistical and astrological tables and rotae, some of them starting 1353, one marked 1438, mostly with hdgs. and canons. Selection:)   **26r-27v** list of elections, cf.App.6(d10), using the moon's place in the signs: "minuere sanguinem" etc.   **28r-v** Figures of solar and lunar eclipses, 1425-1462, with ascription to John Somer: App.5(j8). **29r** Figures of spheres, cf.App.5(h4).   **29v** Computistical tables. ¶KAL.CANON B, only Letter table without titles, 1292-1653.   **30r** Table, 35 rows, entrance with tabular letters, giving intervals etc.: cf.App.5(c1).   **30v** Table of Easter limits for 19 years: "post nonas Apr. prima dominica fac pascha", etc.: App.5(e1).   **32r** Rota(19) for "pascha Hebraeorum": App.5(e1).   ¶(Leaves 25-34 form a quire.)

34r (Table, 35 rows, App.5(a). Cf. f.25v. Hdg.:) Contra tabulam.

34v (top of page:) Tabula kalendarii subsequentis.   ¶(KAL.CANON B(h1). Hdg.:) Canon supra kalendarium novum magistri Petri de Dacia. (:Hdg.:) Hic sunt anni domini. . .omni anno etc. (:Letter table 1292-1653.) (:Txt:) In capite istius tabulae. . . et habebis intentum. Et tibi nota bene omnia ista.   ¶(Values of solar and lunar mean motions.)

35r+ (Paraphrase of Grosseteste's canon "Ad habendum notitiam huius kalendarii. . .", and several other canons.)

Among the feasts I have cursorily noted Necteri (=Nectarii) cf., Dec.9 (Clermont, in the Auvergne like the place of writing.)

Pl   Paris, Bibl.Nationale, lat.15125. Vellum, 20 × 12½, ff.III+63, ca.A.D.1351 (Manuscrits datés III,1974, p.399). Earlier at St. Victor, Paris. Photographs 6v-16r; 26v-33r.

Delisle, Bibl.Ec.Chartes 30(1869)74. Duhem IV,1916,29 n.4. OP 4.45; 4.46;5.63;6.8.

-7r (Anianus, Compotus metricus manualis, annotated.)   **7r** (Verses, App.5(f1):) Vincentii festo. . .   **7r-v** (Lists of solar eclipses 1352-86, and of lunar eclipses 1353-86, App.5(j6). Canon:) Eclipses solis et lunae per praesentes tabulas potes sic invenire: quaere numerum annorum domini et aureum numerum, et in directo invenies menses. . .

8r-v (KAL.CANON B:) In ista tabula. . .per annos domini. (:Letter table 1292-1653.) (:Txt:) Quaere inter numeros. . .nocte praecedente. (:Subscr.:) Explicit canon super kalendarium magistri Petri de Dacia. Deo gratias. **8v** (App.5(h1):) Si volueris scire horas diei per quadrantem. . .secunda et sic de aliis.   ¶(Two rotae (19 and 28), cf.App.5(b), starting 1300, last

one marked with the year 1350. Short inscriptions; the last one has:) Ad inveniendum litteram dominicalem et litteram bissextilem, et hoc per annos domini.

9r-14v (CALENDAR(Cycl,Naur,D,Dfes+Comp,Qdie,Alts): *Dfes* has the syllables of a Cisiojanus, App.5(f1), expanded where appropriate. *Comp* indented.) (:*Hdgs.*: Cycl, "Quattuor cycli primationum lunae". Dfes, number of days, luna(tio), reg.fer., reg.lun.; order varying.) (:*Additions:* month-verses "Pocula Ianus amat. . .", App.5(f1).)

15r-26v (Two other calendars (16v-26r not seen). The first one includes the conjunction column of William of St.Cloud's Kalendarium Reginae (App.5(j2)), plus Qdie,Naur, feasts and day-of-month. The second one has 3 cycles of conjunctions, ending with the value *10* 15^h;31 at Dec.31 (:Walter of Elvedene, App.5(j5)).)   **27r** (Canon to the former calendar:) En cest kalendier a 5 lignes et ?paurez en la premiere la primacion de la lune et a 1 iour entier. . .   ¶(Canon, apparently to the 28-rota below. Hdg.:) Ci commencent les regles de ceste table. (:Txt:) Ces 2 lettres assises en 1 parquet monstrent la lune double l'an dou bisexte. . . ¶(:Subscr., for both canons:) Explicit canon super secundum kalendarium. Deo gratias.   ¶(Two rotae, 28 and 19, with crosses to mark some starting-year. Cf.App.5(b). Short canons, the first of which runs:) L'an 1351 prenez b pour la lettre dou diemange ou secunt perquet deuant la croiz la apres g.a.   ¶(Two tables, 7 × 5 and 7 × 6, with the letters "fnvgo" in the 5th and first row, respectively; App.5(d2). Each of them with the title:) Tabula fongonis.   **27v** (App.6(d6):) Nil capiti facies. . .exit ab alvo.

28r (T.L., 14 × 12. Subscr.:) Tabula signorum quae dicitur tabula medicorum. (:left and right entr. normal, hdgs. "Aetas lunae / Gradus lunae". Upper entr. with month-names Mar-Feb.)   **28v-30r** (App.6(d5*dbc*):) Luna existente in ariete non radas caput, nec sanguinem per ventosas a cervice extrahas, nec mediceris ea quae ⟨ad⟩ caput pertinent, ut auribus oculis et aliis huiusmodi. Tamen de brachio minui. . .Quattuor sunt triplicitates. . .Signorum quaedam sunt ignea orientalia. . .Notandum est quod aries tenet caput et faciem. . .(:last one with sign-man.)

30v (T.L.CANON(b1):) Ad inveniendum certissime signum et gradum in quo est luna, videas in kalendario. . .duas partes unius horae.   **31r** (Planet table, 24 rows, App.6(c). Subscr.:) Tabula planetarum.   **31v-32r** (App.6(d5*a*):) Frater Vincentius. . .mediocris staturae.

32v (Table, 35 rows, App.5(a). Hdg.:) Contratabula Gerlandi ad principalem eiusdem, docens quinque festa mobilia et multa alia.   **33r+** (App.5(a3):) Theorica principalis tabulae et contratabulae Gerlandi talis est: in capite tabulae principalis quaeratur. . .

Calendar of Troyes/Langres: Frodoberti, Jan.8; Desiderii, Jan.19; Sabine v., Jan.29; Helene v., Mai.4; Mastidie v., Mai.7; Vinebaudi, Mai.29; Mammetis m., Aug.17. One feast from Poitiers, and some unidentified.

Pe Paris, Bibl.Nationale, lat.16650. Paper, 19 × 14, ff.62+I. Written in 1551 at Paris by Orontius Finaeus (Manuscrits Datés III,1974, p.555). Microfilm of whole ms.

Reference from notes of E.Poulle.

-23v (Orontius Finaeus, de speculo ustorio; 23r-v, solar clocks, and figure of properties of elements.)   **24r** (Table of solar altitudes for each day of a year, values 17°-65°. App.5(g2). Hdg.+canon:) Tabula ad sciendum gradus solis cum parvo cadrantis(!). Pone perpandiculum in cadrante. . .   ¶(:continuing as App.5(h1):) Si volueris scire horas diei . . .secunda et sic de aliis.

24v (text-hand:) Notte que pour trouuer la coniunction de la lune en ce kalendrier, ilz fault oster du nombre escript oultre la lettre tabulaire (*vacat*) heures, et s'il n'y en y a tant sil les conuint ilz prendre sur les jour precedant et des poinctz qui y sont pour les minutes (:apparently unfinished. Then two notes on metrology etc.)   **25r-v** (KAL.CANON B(h1). Hdg.:) Hic sunt anni domini. . .omni anno. (:Letter table 1292-1653.) (:Txt:) In capite istius tabulae. . .et habebit intentum.   **25v** (The verses "A festo stellae. . ." (*Massa Compoti* 144; Cordoliani 1961,182) with a gloss.)   **26r-28r** (Txt:) Extraict du 3ᵉ chappitre de Solonine pour congnoistre comment l'an a este reduit. . .   **28v-29v** (blank.)

30r-41r   (CALENDAR(Cycl,Dmen,Naur,D,X,Dfes+Comp,Qdie,Alts,S): X, sets of golden numbers for the moveable feasts. S, lunar letters in series of 27; cf.App.4(e2).) (:*Hdgs.*: Cycl, "Quattuor lineae". Dfes, number of days, luna(tio).) (:*Additions,* for each month, verses "Pocula Ianus amat. . .","Poto; ligna cremo;. . .","Prima dies mensis. . .",Cisiojanus (App.5(f1)). The verso pages are occupied by notes, tables, and rotae, mainly computistical. At 39v, the year 1519 is mentioned in an example.)

41v-42r (T.L., 14 × 12. Left entr. normal, right entr. "13,26,. . .,5", hdgs. "Aetas lunae / Gradus lunae". Upper entr. with month-names Mar-Feb. Hdg. to table:)   ¶Ad sciendum in quo signo luna sit omni die[i] (:T.L.CANON(c1):) primo debetis scire aetatem lunae. . .ad quemlibet(!) horam poteris invenire.

42r (Canon and notes to 42v:) En ceste table icy trouueras quelle planette. . .Jupiter et Venus sont bons. . .   **42v** (Planet table, 14 rows, 24ʰ,App.6(c). Hdg.:) Ad sciendum quis planetarum regnat omni die. **43r** (Table of properties of planets, and metals corresponding to them. Cf.App.6(d10).)   **43v** (blank.)   **44r** (Canons to 45v+:) Es 3 foeilles qui ensuit cy apres sont escript les xii signes en maniere de kalendrier. . . **44v-45r** (Table(28,1324-1548), App.5(a). Hdg.:) Tabula Gellandi. ¶(Table, 35 rows, App.5(a). No hdg.)   **45v+** (List of elections, cf.App. 6(d10), "Ab hospitio in hospi( )" etc., according to (the moon's place among) the zodiacal signs. Then other astrological tables.)

Significant feast-days are only found for January in the Calendar proper. The result is not very definite: French are Clair, Jan.2; Omer, Jan.19;

Metran, Jan.31. Severin, Jan.8, and Iginie pp., Jan.10(!), may be from some order; Marciane, Jan.9, and Satir, Jan.11(!) are usually German.

Pf Paris, Bibl.Nationale, lat.18505. Paper, 21½ × 15½, ff.91; written ca. A.D.1468 in Röchlitz, Saxony (Manuscrits Datés III,1974, p.609). Microfilm 51v-57r, and inspection.

Reference from notes of E.Poulle.

-**52r** (Computistical, ending with the Compotus Brandenburgensis "Quoniam ex astrologiae connotatione imbecilliumque ruditate" (44r; T&K 1275).)   **52v** (List of computistical variables for 1467(!)-1491: possibly mean conjunctions expressed with week-days, but the parameters appear to be different from those in ms.Md,73r. Cf.App.5(j10).)   **53r** (Rota for position of moon, degree-values "13,26,. . .,5", App.4(d). Inscription:) Tabula in quo signo ⟨et⟩ gradu sit luna. (:Canon, possibly from the Compotus Orbicularis, cf.ms.Om,39vb. Straight transcription:) In ista figure docetur locum lune omni die. In superiori ordine. . .ostendit tibi signa perfecta et completa.

53v (T.L., 14 × 12. Subscr.): Tabula magistri Petri de Dacia ad inveniendum locum lunae. (:left entr. normal, right entr. "13,26,. . .,5", hdgs. "Aetas lunae / (?)". Upper entr. with month-names Apr.-Mar. Lower entr. with month-names Jan.-Dec., and some memorial syllables such as "Adam degebat. . ." (App.5(f1)).)   **54r** (blank.)   **54v** (Table, 19 × 7, with numbers between 0 and 34. Cf.App.5(d6). Hdg.:) Intervallum laicorum.   **55r** (Planet table, in two parts, each of them 12 × 7, for 24^h. Cf.App.6(c). Canon:) Notandum, in quolibet tempore habet regnare aliquis planetarum, quia quilibet habet suum diem. . .   **55v-56v** (Verses on planets, App.6(d10), "Siquid nascatur cum Saturnus dominatur. . ."; a few computistical and arithmetical verses and rules.)   **57r+** (Blanks; a calendar with 1 cycle of conjunctions+oppositions, first value ♌ 2^h;16 (just possibly=App.5(j9), cycle IV); and more computus.)

D Paris, Bibl.Nationale, n.a.l.375. Vellum, each leaf folded into 2 × 3, 8 × 3½(folded), 14 × 9½(unfolded), ff.25, 14th c. First and last leaf fragmentary. Titles, generally on outer (=recto) pages, are given in selection. Microfilm of whole ms.

Bibl.Nat.Nouv.Acq.1875-1891, Inventaire alph., vol.I, Paris 1891, p.91. "Le Livre" (Bibl.Nat., Paris 1972) no.222. OP 4.47.

1-12 (CALENDAR(L,Cycl,Naur,D,Dfes+Comp,Decl,Grad,Dmen,Dann, Qdie,Qnoc,Alts,N): January leaf fragmentary. *L,N*, series of tabular letters and of golden numbers for the moveable feasts.) (:*Hdgs.*: Cycl, "Cyclus naturalis compoti". Dfes, reg.fer., reg.lun.)

13 (Title:) Tabula primationis.   ¶(KAL.CANON B(j1):) (Letter table 1292-1729.) (:Hdg.:) Canon supra kalendarium magistri Petri de Dacia.

(:Txt:) In ista parva. . .scriptos per hunc modum. Quaere inter numeros
. . .primae litterae abtitabit. Si vis scire quae sit littera primationis. . .ad
aliud crepusculum. Hoc dicatur ibi.

14 (Title:) Tabula signorum. (:T.L., 14 × 12. Hdg.:) Ad cognoscendum in
quo signo sit luna omni die et omni hora diei. (:left and right entr.
normal, hdgs. "Aetas lunae / Gradus lunae". Upper entr. with month-
names Mar-Feb.)   **15** (Title:) Tabula planetarum. (:Planet table, 12 rows,
24^h, App.6(c).)   ¶(Note in text-hand:) Nota quod Iupiter et Venus sunt
boni. . .   **16** (Title:) Tabula litterae dominicalis et aurei numeri. (:Rota,
28 and 19, App.5(b), starting 1328 and (in erasure?)1340, marked with
the years 1412 and 1415 in later hands.)   ¶(:Canon:) Ad inveniendum
litteram dominicalem sive bissextilem per annos domini et sicut patet in
secundo circulo. . .   **17** (Title:) Tabula festorum mobilium. (:Table, 35
rows, App.5(b).)   ¶(:Canon:) Nos intramus istam tabulam per aureum
numerum et per litteram dominicalem ipsum aureum ⟨numerum⟩
proximo subsequentem. . .Vel potes intrare istam tabulam per litteram
tabularem. Hoc dicitur ibi.   **18** (Table of positional notation of
numbers, App.5(h6), title:) Tabula chifrarum.   **19** (Title:) Tabula Dio-
nysi. (:Table(28,988-1492), with tabular letters. Cf.App.5(c1).)   ¶(:Ca-
non:) Doctrina tabulae Dionysii talis est: in principio sciendum est quod
in tabula Dionysii sunt 532 litterae et quaelibet istarum deservit suo
anno. . .et distantiam quorumlibet. Hoc dicitur ibi.   **20** (Title:) Tabula
hebdomadalis. (:Table, 35 rows, to be entered with tabular letter, giving
times and intervals about as App.5(a), but with columns in different
order.)

21 (Title:) Tabula Bedae et fungonis. (:table, 7 × 5, fifth row "fnugo",
App.5(d2), subscribed "tabula fungonis"; table, 7 × 6, first row
"-fnugo".)   ¶(Table, 19 × 7, first row "uabc. . .", App.5(d3). Canon:) Si
nescis quomodo ingrederis tabulam istam, specta litteram ferialem. . .
22 (Title:) Tabula angelica. (:Rota(19) for "Pascha Iudaeorum", be-
ginning with the date Non.Apr., App.5(e1). Canon:) Si vis scire hanc
rotam, vide quotus currit aureus numerus in illo ⟨anno⟩ in quo vis scire
terminum paschae. . .   **23** (or 24?) (Title:) Tabula quantitatis lunae.
(:Rota(30), with figures of lunar phases (cf.App.6(d10)) and prognosti-
cations "Longa tribulatione" etc.)   **25** (Table of properties of signs,
cf.App.6(d10), with melothesy.)

The calendar is possibly Southern French, if not connected with some
order (see under ms.N above); cf. also Antoliniani (=-liani) cum soc.,
Feb.6. The catalogue of 1972 locates this ms. to Italy.

Q   Paris, Bibl.Nationale, n.a.l.1893. Vellum, 30 × 22, ff.II+139, first
half of 14th c. (dated about 1323, from notes at 6r and 7r and
from a note on the year 1329 at 139v, in Manuscrits Datés IV,1,

1981, p.349). Leaf 1 lacks the topmost outer corner, with part of the canons and the January-page. Photographs 1r-9v.

Bibl.Ec.Chartes 68(1907)26 (Omont). Jørgensen 1910,260; 1933,193 n.8. OP 4.48; 5.64.

1ra-b (KAL.CANON A:) In hoc primationum cyclo...(end lost.)   **1rb** (T.L.CANON, start lost:)...centri epicycli lunae.

1v-7r (CALENDAR(Naur,Cycl,D,Dfes,Comp,Dmen,Dann).) (:*Hdgs.*: Cycl, "Cyclus primationum lunae / Cyclus cyclorum lunae". Dfes, number of days, lunationes, reg.sol., reg.lun. Comp, month-name repeated, "sol.. gradu.."(cf.§14).) (:*Additions,* second hand: notes mentioning the year 1323, for Oct. and Dec.)

7v-8r (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Gerlandi est haec.   ¶(Table, 35 rows, App.5(a). Hdg.:) Tabula secunda Gerlandi, et est contratabula primae. (:no canon to these tables.)

8v (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die anni a media nocte sui incepto. (:left and right entr. normal, hdgs. "Aetas lunae / Gradus signi".)   **9r** (Sacrobosco, Algorismus.)

The calendar belongs to the larger of the Northern French groups mentioned under ms.R above. It also has the feasts mentioned under Cj to Jul.7 and Sep.1, and that for Aug.6 under ms.Or.

Re Rennes, Bibl.Municipale, 593. Vellum, 37 × 24½, ff.538, ca. A.D.1304(f.1r). Microfilm 1r-9r.

Cat.Dep.24, 238-48. Eneström(1885,3)25. Jørgensen 1910,253; 254 n.2. Jørgensen 1933, 194 n.2. Zinner 1936 no.32. OP 5.66.

1r (KAL.CANON B(j2):) (:Hdg.:) En ceste petite table...les anz nostre seigneur. (:Letter table 1292-1653, marked with the year 1304.) (:Hdg.:) La lettre a sauoir le vrai cours de la lune par le qualendier mestre Pierre de Dace dit Rosignol. (:Txt:) Qyerez entre les nombres...commencent a minuit.   ¶(Canon to the calendar of William, App.5(j2). Hdg.:) La lettre a sauoir le nouel kalendier que mestre Guilliaume de S.Cloot fit a la requeste de la roygne. (:a letter table headed 1291, first year 1292, marked for 1304.) (:Txt:) Se vous voles sauoir les primations c'est a dire le cours de la lune par le nouel kalendier, queres 1 autel nombre (1291)... et sachies que le iour commence a midi.

1v-7r (CALENDAR(Cycl,GG,Naur,D,Dfes,Qdie,Qnoc,Alts,Decl): *GG,* letters and hour-numbers of William's calendar, cf.1r.) (:*Hdgs.*: Cycl, "Les quatre lignes de la lune". Dfes, number of days, "la lune".) (:*Additions*: "La quantite du crepuscule", two values for each month, cf.§20.)

7v (Planet table, 12 rows, 12^h, App.6(c). Hdg.:) La table a sauoir quel planete regne a chacun heure du iour.   ¶(:Subscr.:) Jupiter et Venus sont bons...   ¶(:Canon, see App.6(c1). Hdg.:) Ch'est a sauoir quel planete regne a chacun heure du iour.   **7v-8r** (Two rotae, 19 and 28,

App.5(b), with short titles, starting 1301. Inscription of the latter:) Les lettres par coi li dimenches keurt.   ¶(Table, 35 rows, App.5(b). Hdg.:) La table a sauoir les V festes mouables.   ¶(:Canon, App.5(b2). Hdg.:) Ch'est a sauoir le cours de la lune et la letre du dimenche et quant il est bissexte et les 5 festes mouables qui ne sont pas ou kalendier.

8v (T.L., 14 × 12. Hdg.:) La table a sauoir en quel signe la lune est et en quel degre. (:left and right entr. normal, hdgs. "L'age de la lune / les degres de la lune". Upper entr., possibly in a later hand, with month-names Mar-Feb.)   ¶(T.L.CANON(b3). Hdg.:) Ch'est a sauoir la table de la lune mestre Pierre de Dace. (:Txt:) Se vous voules sauoir en quel signe la lune est et en quel degre. . .riens aiouter au degres de la lune. **9r+** (Tables of Profatius' Almanach.)

The calendar is probably Northern French but is not significantly similar to the Northern French groups cited under ms.R above. Selection: Lucien, Jan.8; Marie l'Egyptiane, R Apr 2(also in R,B); VII freres (=VII vv.), Apr.9; Nicholas, R Mai.9; Lyffroy, Jun.21; Lois roy de France, R Aug.25; Gille, R Sep.1; Denis, R Oct.9; Benoit, Dec.4.

Ro   Rouen, Bibl.Municipale, I 55 (985). Paper, 21½ × 14, ff.121, 15th c. Formerly possessed by the Carmelites at Rouen. Microfilm 63v-68v.

Cat.Dep.I,8°, p.249. Jørgensen 1910,256 n.1; 1933,193 n.7.

-62v (Louange de Notre-Dame (Cat.).)   **63va** (Lunar table, for 30 days. Two sets of degree-values: one of them is William's "12,24,. . .,6", the other is "13,26,. . .,5". Cf.App.4(d), and to 65v+.)

63vb-64v (KAL.CANON B(j3):) (Letter table 1292-1653. Subscr.:) En cheste petite table. . .par les ans nostre segnieur. (:Hdg.:) Chy est la l(ett)re du kalendier mestre P(er)res de Dace. (:Txt:) Qveres entre les nombres. . .commenchent a minuit.

64v (Txt, App.5(g2),(h3):) Quy veult sauoir les heures du jour par declinasion du sollail il doit compter puis la mi mars 41 degres en son cadran. . .   **64v-65v** (Hdg.:) Che est a sauoir l'imprimasion de la lune. (:Txt, to calendar of William of St.Cloud, somewhat like Harper 1966, 215ff, cf.App.5(j2):) Se vous voules sauoir les vraies ynprimasions de la lune as ans nostre segnieur, aioutes 1ᵉ, puis le deuises par 19, et s'il demeure 1, A sera lettre de l'inprimasion. . .et le sollail sera en tant de degres en son signe.   **65v-66r** (Hdg.:) Che est a sauoir le lieu de la lune et en quel sine elle est. (Txt, to table on 63va, about as William of St.Cloud, App.4(d),5(j2):) Se vous voules sauoir le lieu de la lune, rec. l'age de la lune et le lieu du sollail du iour en quel vous voudres sauoir le lieu de la lune. Et quier l'age de la lune en la premiere linne de cheste table et pran les nombres des sines. . .   **66r-67r** (Canon to the Tabulae Gerlandi, cf.App.5(a):) Queres entre les nombres de cheste table au chief

d'en hault 1 nombre senblabe as ans nostre segnieur, et se vous ne le trouues parfait, queres 1 nombre mendre que les ans nostre segnieur. Et vous trouueres en la 2ᵉ ligne 1 tel nombre, 1296, qui soit senblabe a chety nombre...   **67v** (Table of solar altitudes, for each day of a year, 19°-66°, i.e. for a latitude about 47½°. App.5(g2).)   **68r** (Table of the Roman numbers 1-76, cf.App.5(h6).)

68v (T.L., 14 × 12. Hdg., as read:) Tabula magistry petry de dasia ad ciendon in quo sino et in co gradu sina sit luna in colibet die anny, insipiendo dien secondon eclesiam. (Subscr.:) Tabula medicorum. (:left and right entr. normal, hdgs. "Aetas lunae / Gradus lunae".)   **69r+** (contents uncertain from Cat., which cites "calendrier et recettes" for ff.64-75.)

S   Salzburg, Bibl. der Erzabtei St.Peter, b.IX.14. Paper, A.D.1429 (Zinner 1925). Microfilm 19r-22r.

Zinner 1925 no.2073,2081; 1936 no.18. OP 4.50;5.71.

-19v(25v, old fol.) (Computistical work "per Chuonradum Deuache ordinis Carmelitarum...collecti...finitum 1406", ending with a commentary on the verses "Nil capiti facias" (cf.App.6(d6)) and a short section on phlebotomy.)

20ra-vc (CALENDAR(Cycl,Alts).) (:*Hdgs.*: none except sub-hdgs., month-names, and the "K(a)l." left over from the *D*-column. Upper margin partly cut away.)

21r (KAL.CANON B:) (Letter table 1292-1653. In margin:) Hic sunt quattuor cycli sive lineae ad sciendum quae sit littera primationis lunae in quolibet anno etc. (:Txt:) Quaere inter numeros...media nocte praecedente. (:Subscr.:) Explicit canon super tabulam lunae primationum. ¶(Planet table, 7 rows, 24ʰ, App.6(c). Hdg.:) Tabula ad sciendum quis planetarum regnet in qualibet hora diei.   ¶(:Subscr.:) Jupiter Venus sunt boni...   ¶(Table giving "gradus solis" for the days during a year, values as *Grad.* App.5(g1).)

21v (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia ad sciendum in quo signo et in quoto gradu signi luna est quolibet die (:upper mg.:) incipiendo diem secundum ecclesiam. (:left entr. with numbers 1-30, over 12 rows and with split numbers as in the 12 × 12 lunar table, App.4(a); right entr. normal; no hdgs. Upper entr. with month-names Mar-Feb.)   ¶(T.L.CANON(d1):) Cum volueris uti tabula magistri Petri, scias gradum coniunctionis solis et lunae per kalendarium ipsius...quae dies secundum Christi fideles semper a media nocte incipitur etc.   ¶(In right margin, cf.App.6(d10):) Ar Vir A sunt signa multum bona...Mobilis est aries can cor...Nota quod in fixis signis debent incipi opera quae...
22r+ (Compotus of Sacrobosco, annotated.)

Sf   Sankt Florian, Stiftsbibl., XI,432. Paper, 2°, ff.194, 15th c. Microfilm 1r-11v.

Czerny 1871,160-1. Zinner 1925 no.2072; 1936 no.16. OP 4.51.

1r (Upper mg., contemporary, not text-hand:) Iste liber est monasterii sancti Floriani Pat() dioecesis.   ¶(KAL.CANON B, ending like KAL.CA-NON B(h1):) Quaere inter numeros. . .a media nocte praecedente, et sunt horae aequales. Transactis autem. . .et habebis intentum. (:Hdg.:) In ista parva. . .per annos domini. (:Letter table 1292-1723.)

1v-7r (CALENDAR(Cycl,Naur,D,Dfes+Comp,Alts,Qdie,Dmen).) (:*Hdgs.*: Cycl, "Cyclus p(rima) luna", missing for some months. Dfes, number of days, lunatio, reg.fer., reg.lun.) (:*Additions*: "Nox habet horas. ., dies. .", not all months. To June, 4 verses, Walther 19936 "Uxor abiit 2ª. . .".) **7v+** (Sacrobosco, Compotus.)

The calendar has belonged to a house of the Augustines, but is not liturgical and shows no certain influence from any order. It contains a lot of non-local feasts, but also some which are concentrated about Salzburg/Freising, such as: Altonis cf., Feb.9; Quirini m., Mar.24; Ruperti ep., Mar.27; Helene regine, Apr.15; Trl.Elisabeth, Mai.2; Trl.Quirini, Jun.16; Trl.Nicolai, Jul.9; Marini, Nov.15; Trl.Corbiniani, Nov.20. As a curiosity one may note a few feasts typical of Northern Germany and Denmark: Lucii pp.m., Aug.26; Fortunati pp., Oct.15; Leonis pp., Nov.10.

Sg   Sankt Gallen, Stiftsbibl., 610. Paper, 2°, pp.521, 15th c. Microfilm p.13-38.

Scherer 1875,196-7. Eneström(1885,3)25 no.17. Zinner 1925 no.2077 and no.5364+p.446; *id.*1936 no.15. OP 4.52;9.2.

12 (blank.)   **13+** (A calendar (App.5(j9)) with 4 cycles of conjunctions, starting 1404; first value δ 1ʰ;19,59 at Jan.2. With various auxiliary tables, as follows:)

13 (Table giving golden numbers for the calendar, otherwise similar to a Letter table, 1403-2752. Hdg.:) Tabula ad inveniendum aureum numerum quattuor cyclorum per annos domini, et hoc quo ad annos futuros. (:Canon:) In ista tabula sunt quattuor cycli sive lineae aureum numerum continentes. . .intra tabulam annorum domini et accipe numerum viciniorem annis domini hoc anno quo scire desideras, et qui sit minor eisdem annis, et super eundem numerum computa descendendo per lineam aureum numerum continentem, annis domini sup[er]positam, donec compleatur numerus annorum domini anni in quo quaeris. . .esto quod anni domini sint 1422, quos invenies in capite secundae lineae versus dextram computando. . .erit annus bissextilis etc. (:Paraphrase of a text similar to Kal.canon B(h).)

¶(Table, hdg.:) Tabula continuationis coniunctionis. . .ad meridianum Wienensem. . .   **14-25** (Month-tables of the calendar, including a sub-

table with lunar letters App.4(e2), cf. table at p.26.)   **26** (Table, 27 × 19, with lunar letters in series of 27, App.4(e2). Hdg.:) Tabula signorum motus lunae, ad sciendum in quo signo sit luna qualibet die. ¶(Notes on phlebotomy, among which the verses App.6(d10) "Luna vetus veteres. . .".)   **27** (Table "Motus lunae", 30 days, last value $1^s5^o;17$: App.4(d).)   ¶(Table "Motus solis", 31 days, last value $30^o;33$.)   ¶(Table "Sol in principiis mensium", $9^s18^o;15$ for January.)   ¶(List of computistical variables, for a cycle of 28 years, with a canon which makes the list start in 1401. App.5(e1).) **28** (Table (19 × 11), with numbers between 7 and 10, App.5(d5). Hdg.:) Tabula ad inveniendum intervallum per taxillos. (:Canon, on interval Christmas-Invocavit:) Ad inveniendum intervallum secundum practicam istius tabulae. . .   ¶(Table, 35 rows, to be entered with golden number+Sunday letter (cf.App.5(b)), giving the intervals 6^w3^d-11^w2^d. Hdg.:) Alia tabula de intervallo, computando usque ad dominicam Invocavit. (:Canon:) Intervallum per praesentem tabulam sic invenies, vide primo quis sit aureus numerus. . .

29 (Table with the usual values of Qdie, starting in January. Subscr.:) Tabula quantitatum dierum artificialium in horis et minutis secundum Petrum de Dacia.

30-31 (Canon to the calendar at p.14-25:) Ad inveniendum novilunium sive coniunctionem solis et lunae secundum medium motum, vide primo quis sit aureus numerus. . .(makes the calendar start in 1404, and mentions Vienna). . .continuare poterit qui tunc vivet iuxta tabulam continuationis supra scriptam. . .   **31** (Canon to the lunar table at p.26:) Si scire volueris in quo signo sit luna qualibet die, considera diem in qua haec scire desideras. . .   ¶(Sign-book, App.6(d10):) Aries est primum signum in ordine signorum, caput et alias partes capitis respicit. . .   **32** (Hdg.:) Nota de minutione sanguinis. (:Txt, cf.App.6(f):) De minutione sanguinis de vena si quis exquisite. . .   **33** (Hdg.:) De motu lunae. (:Txt:) Lunae medium motum si noscere quaeris, invenies primo medium motum solis. . .   **33-36** (Prayer consisting of memorial words for intervals Christmas-Estomihi, beginning "Salve praeclara caelorum regina advocata" (:T&K 1371; Bischoff, Mittelalterliche Studien II,1967,207 n.64).)   **36** (Table, 19 rows, of interval Christmas-Invocavit, cf.App. 5(e1). First row, for golden number 1 giving week-number 9:) Si littera dominicalis est F vel G, tunc 8.   ¶(Short note on other computistical variables.)   **37-38** (Advice on phlebotomy, cf.App.6(f), text beginning "Primo cui detrahitur sanguis. . ."; then about some medicine for the eyes.)   **39** (a few verses in German, headed "Sancte Galle". Rest of p.39 blank.)

St   Solothurn, Zentralbibl., S 208. Vellum, 23 × 16, ff.351, 15th c., prob. before 1462(Cat.). Photocopies 23v-25r.

Schönherr 1964, 9-11: "Reisebrevier für Augustiner-Chorherren"; diocese of Basle.

-23v (Missae votivae (Cat.), ending abruptly at end of leaf.)

24r (KAL.CANON B(g). Txt:) In ista parva tabula...per annos domini. Quaere ergo inter numeros...praecedentis diei secundum morem ecclesiae Romanae. (:Letter table 1292(1298 *ms.*)-1653.)   ¶(Table giving values "8,7,10,8,...,11", between 7 and 11, for a cycle of 19 years. Cf.App.5(e1).)   **24v** (blank.)   **25r+** (Proprium de tempore (Cat.). The Calendar is not in this ms.)

So   Solothurn, Zentralbibl., S I 167. Paper, 27½ × 21, ff.161. Written A.D.1388-1394, mainly at Rottweil, Württemberg; originally owned by a school-master at Solothurn (Cat.). Johannes de Palmis (45v) might be from Balm b. Günsberg, canton of Solothurn. Photocopies 44r-58r and 132v-145r.

Schönherr 1964, 112-20.

-44v (Sacrobosco, Algorismus.)   **45r** (KAL.CANON B(h2):) (Letter table 1292(empty: first year recorded is 1349)-1577. Partly covered in reproduction. Hdg.:) Per...⟨in⟩ferius notatos inven⟨ies⟩...mensibus. (:Txt:) In ista parva tabula...positas in kalendario sequenti. (:Hdg:) Canon super kalendarium magistri Petri de Dacia. (:Txt:) Si igitur litteram coniunctionis...Transactis autem 76 annis a compositione huius kalendarii, quod compositum fuit anno domini 1292...usque infinitum. (:Subscr.:) Explicit canon super kalendarium magistri Petri de Dacia compositum ad meridianum Parisiensem.

45v (Jo. de Palmis, on renewal of Calendar for the years 1369+: text, see App. 1(c1):) Notandum igitur quod cum anno domini 1368 completo... **45v-46r** (Five computistical rotae (19,7,15,18(!, for epacts),28), App.5(b), with short canons (*ibid.,*(b1)) indicating that they start in (1358,-, 1361,1355,1357). The last-mentioned rota is marked with the years 1393 and 1394.)   **46v** (Table, 35 rows, App.5(b). Canon, hdg.:) Ad sciendum quinque festa mobilia per aureum numerum et per litteram dominicalem. (:Txt, App.5(b1):) Nota circa tabulam istam quoniam primo quaerendus est aureus numerus...

47r-52v (CALENDAR(Cycl,Naur,D,Dfes,Qdie,Alts): *Cycl,* values "s8,-, s17,s9" for Jan.1., cf. to f.45v. *Dfes* blank from April on, except for entries for the sun's entrance into the zodiacal signs.) (:*Hdgs.*: Cycl, "Lineae primationis / 4ᵒʳ lineae imprimationis(Jan.)". Dfes, month-name only.)

53r (Rota(23) for mortality of illness. App.6(e1). Canon:) Pone feriam diei in qua infirmitas accidit, aetatem etiam lunae ipsius diei, vocabulum quoque aegri...vita patet sursum, mors est signata deorsum. **53v-56r** (Astrology, App.6(a):) Omnis creatura et universa quae sunt in mundo... (:54r, ref. to "magister Petrus de Dacia"; 56r, planet table, cf.App.6(c).)

56v (T.L., 14 × 12. Hdg.:) Tabula ad sciendum in quo signo sit luna et in quoto gradu eiusdem signi quolibet die secundum eius medium

motum qui positus est quo ad gradus. (:left entr. normal, hdg. "Aetas l(unae)"; right entr. "13,26,. . .,5", hdg. "G(radus) l(unae)". No horizontal entr.)   ¶(T.L.CANON(d3):) Notandum, si volueris scire in quo signo sit luna in quolibet die. . .die sequenti post coniunctionem etc.   **57r** (Table for mortality of diseases, giving one of the events "S,T,K" for each of the numbers 1-36. Cf.App.6(e2). Canon:) Computa quot dies sint a 14 Kalendas Augusti usque in diem in qua aeger decubuit. . .   ¶(on sign of moon:) Nota hic unum notabile valde pulcrum, concordans cum tabula praesenti, scilicet signorum. Quando scire volueris in quo signo sit luna, considera aetatem eius et dupla et adde quinque. . .   **57v** (Jo. de Limburg, de urinis.)

-142r (Compotus chirometralis, with tables and figures.)   **142v** (T.L., 14 × 12. Hdg.:) Tabula magistri Petri de Dacia dicti Philomena. (:body of table blank except first row. Left entr. illegible. Right entr. normal, hdg. "Gradus". No horizontal entr.)   ¶(T.L.CANON. Hdg.:) Canon super tabulam magistri Petri de Dacia. (:Txt:) Ad locum lunae habendum. . . consimili horae coniunctionis media nocte incepta.   **143r-144v** (blank except for text and music of the trope "Puer nobis nascitur" (Cat.).)   **145r+** (Compotus Judaicus.)

The calendar shows feasts for January-March only, and solely common ones.

Sx Stockholm, Kgl.Bibl., X 773. Vellum/paper, 19 × 13½, ff.III+61, 15th c. From Halliwell's library (no.54,"1838"(1r)). Dedication to Boncompagni by G(uglielmo) Libri, from London, June 13, 1850. This ms. is no doubt the same as Narducci 1892, no.157(302)(=id.1862 p.131; this ref. from København, Kgl.Bibl., catalogue "Haandskrevne Danica"). Purchased singly in London, 1914, by the Stockholm Kgl.Bibl. (librarian). Microfilm 1r-6r.

Eneström(1885,3)24 no.15; (1885,8)67. OP 5.72;5.67.

1r (T.L.CANON(c2), very faint in parts:) Ad sciendum ⟨--⟩. . .et pro horis sequentibus addatur. Et nota quod luna moratur in unoquoque signo per duos dies et sex horas et bisse unius horae.   **1r-v** (Weather-prognostication, P.L.90,951; T&K 1454?, App.6(f):) Nota, si nativitas domini fuerit in die dominica, hiems erit bona, ver ventosum. . .   **1v-5r** (Moon-book, cf.App.6(d9):) Cum luna fuerit in ariete, bonum est incipere opus et incipere iter et maxime ad occidentem, alibi per mare et maxime versus orientem; et bonum est incipere scribere texere. . .gratiam habebit et bonum signum in omni parte.

5r (Subscr. to the preceding:) Sequitur tabula Petri Daci de loco lunae inveniendo a media nocte sui inceptionis(!) quae prius sufficienter per declarationem signorum declarata est.   **5v** (T.L., 14 × 12. Subscr.:) Tabula magistri Pe. de Dacia. (:left and right entr. normal, hdgs. "Aetas

lunae / (?)". Upper entr. with month-names Mar-Feb. Below the table is
a verse, App.5(f1):) Est Ari Lib Scor. . .   ¶(top of page, not text-hand:) Si
scire vis in quo signo sit luna, sume lunam quam volueris et eius aeta-
tem per 4(!) multiplica. . .   **6r+** (Astrology and computus.)

Tr Trier, Stadtbibl., 718/273,4°. Paper, ff.274, A.D.1352(?, 261v).
Microfilm 252r-262r.

Keuffer, Verzeichnis VI,1910,56-58.

251-61 (De sacramento corporis Christi (Cat.); the texts noted below are
those interspersed or added.)
252r (KAL.CANON B:) (Hdg.:) In ista p(er)missa(?) parva tabula. . .per
annos domini.(:Letter table, 1292-1653, numbers out of position.)
(:Hdg.:) Canon supra kalendarium magistri Petri de Dacia. (:Txt:) Quaere
inter numeros. . .nocte praecedente.   ¶(App.5(h1). Hdg.:) Ad sciendum
horas diei per quadrantem. (:Txt:) Si volueris scire horas diei per
quadrantem . . .secunda et sic de aliis.   **252v** (Diagram of concentric
circles, empty, cf.App.5(h4). Scripture quotations, etc.)

261v (Lists of solar eclipses 1330-1386; lunar eclipses 1351-1375:
App.5(j6).)   ¶(List of planetary "domini anni", (13)52-65. Added:) Anno
domini m°ccc°lij. **262r+** (Alphonsus de Burgos, contra Iudaeos (Cat.).)

Vp Vaticano (Città del), Bibl. Apostolica Vaticana, Pal.lat.1381. Pa-
per, 20 × 14, ff.243, middle of 15th c. (1449-1460), partly written
by Mathias Kemnatensis (*Colophons* (Fribourg 1976) no.13484?),
who taught astronomy (f.123r). Photograph 175v, and inspec-
tion.

Cat.(handwritten, sign.328)493.

-175r ("Quadrantis notitiam"(T&K 1156), and some computistical notes.)
175v (Top of page:) Ista praesens tabula docet invenire locum lunae,
scilicet in quo signo omni die sit sol⟨--⟩. (Lunar table, 12 × 12, App.4(a),
starting with Aquarius. Hdg.:) Tabula Petri Data ⟪de⟫ loco lunae. (:left
entrance consists of (a) a col. of degree-values "14,27,. . .,6" as in normal
right entr. of the T.L., hdg."Gradus"; (b) day-numbers 1-30, some of
them written across row-divisions, hdgs."Dies","Aetas lunae"; (c) degree-
values "13,26,. . .,5". The numbers in (a) and (c) have been aligned with
those of (b), so that the former columns fit the height of this table. No
right entr. Upper entr. with month-names Jan-Dec, as usual in the
12 × 12-table.)   ¶(Bottom of page, hdg.:) Tabula medicorum. (:Txt,
concerning entrance (b) above:) Item si aetas lunae stat in linea sic quod
non in spatio, scire debes quod luna ista die est in duobus signis, id est
quod luna ista die est in signo supra lineam positam(!) et in eadem die
intrat signum quod est sub linea collocatum.   **176r+** (notes on astro-
logy, and on eclipses 1457-1462.)

V   Vaticano (Città del), Bibl. Apostolica Vaticana, Vat.lat.3114. Vellum, 4°, ff.100, first quarter of 14th c. ff.59-68 form a quire. Photographs 59v-69r, and inspection.

OP 4.54; 5.74.

33v-55r (Sacrobosco, Compotus.)   **55v-58r** (a calendar, not astronomical.)   **58v** (Rota, cf.App.5(e1), inscr.:) Circulus paschae m°cc°lxx°vii°. (:Canon:) In supradicta rota sunt quattuor circuli: in primo circulo qui est deforis est aureus numerus. . .   **59r** (Diagram of geographical latitudes and day-lengths, App.5(h4).)   **59v** (Table(28,1063-1567), App. 5(c1), with tabular letters variously executed. No title.)   **60r** (Table, 35 rows, App.5(c1), entrance with the normal tabular letters, giving dates of five moveable feasts plus Sunday letters and a solar cycle starting with year 9. Hdg.:) Tabula Dionysii bona.   **60v** (Diagram with compass directions, App.5(h4).)

61r-66v   (CALENDAR(Cycl,D,Dfes+Comp,Naur,Decl,Grad,(Dmen, Dann)): *Naur*, an extra column in February. *Dmen,Dann*, only for January.) (:*Hdgs.*: Cycl, "Quattuor cycli primationum lunae". Dfes, r of days, reg.fer., reg.lun.) (:*Additions*: "Nox habet horas. ., dies. .", each month; "Hic renovatur littera dominicalis. . ."(January; such computistical notes elsewhere). In other hands, to January: a table equating the letters A-T with the numbers 1-19; notes on the years 1292,1315, ?1399,1404; the computistical "Post Martis nonas. . ." (App.5(f1)) to March, in 2nd hand; length of lunation (upper mg., each month).)

67r-v (Table(28,1044-1548), App.5(a). Hdg.:) Tabula principalis Gerlandi, continens cyclos solar() et decennovenalis, et litteras tabulares. ¶(Table, 35 rows, App.5(a). No hdg.)   ¶(Bottom of 67r, note in 2nd hand on markings in table, cf.App.5(a):) Paragraphus niger deservit anno indictionis, rubeus cyclo lunari, littera rubea cyclo 19'li.

68r (T.L., 14 × 12. Hdg.:) Tabula Petri Daci de loco lunae inveniendo in quolibet die anni a media nocte sui incepto. (:left and right entr. normal, hdgs. "Dies / Gradus ad initium signi". Notes to first row, in ?2nd hand, on properties of signs.)

68v (2nd hand, T.L.CANON(d5):) Ad sciendum tabulam istam. . .est aries taurus etc.   ¶(2nd hand, App.5(a3):) Theorica huius tabulae Gerlandi. . .epacta in illo anno.   ¶(2nd hand, variant text to part of the preceding canon:) Quaere inter numeros. . .indictionis significat etc. **69r+** (Treatise on the Old Quadrant "Geometriae".)

The Calendar only contains a selection of the most important and common feasts. One peculiar instance is Helpidii cf., Nov.24, which I have not located.

O   Wien, Oesterreichische Nationalbibl., 1728. Vellum, 8°, ff.93, written in Vienna A.D. 1352 (f.1v). Photographs 1r-8r.

Tabulae codicum I,1864,281. Zinner 1925 no.2062; 1936 no.17. OP 4.55.

1r (Diagram of earth and spheres, cf.App.5(h4). Devotional notes.)

1v (KAL.CANON B(g):) (Hdg.:) In ista parva. . .per annos domini. (:Letter table 1292-1653, made to start with 1216 by a later hand.) (:Txt:) Quaere ergo inter numeros. . .nocte praecedente diem secundum morem Romanae ecclesiae.   ¶(6 lines:) Sancti qui ad aeterna cor elevant. . . ¶(Note on length of year.)   ¶(Subscr. to page:) Anno domini 1352 6.Id.Maii Wienne hoc kalendarium scriptum est. Gloria laus et honor deo. Sub Alberto (decrepito *s.l.*) duce Austriae et Karolo rege Boemiae ac Romanorum.

2r-v (Note,15th c.:) Iste liber est domus portae beatae in ?Axspach ordinis Carthusiensis in Austria.   ¶(Table of contents, 16th-17th c.) ¶(Note, 15th c.:) Viridarius de sanctis cum sermonibus quibusdam speci-alibus.   **3r-v** (Verses for memorizing books of Bible.)

4ra-6vb (CALENDAR(Cycl,Naur,D,Dfes+Comp): *Comp* indented or coloured.) (:*Hdgs.*: Cycl, "Quattuor cycli primationum". Dfes, number of days, l(unatio).) (:*Additions,* each month: "Nox habet horas. ., dies. ."; verses on unlucky days "Dat prima undenam iam pede septima senam" (App.5(f1)); Hebrew month-names. At May 31 and Dec.9, notes mention-ing the years 1332(!) and 1358.)

7r (Table(28,1044-1548); the text-hand has started an extra count of years, 1576-1800. App.5(a). Canon:) Nota quod in praesenti tabula annos domini sic formabis. . .semper addendo 28. Nota quod rubea littera significat primum annum cycli decennovenalis. . .Nota quod in tabula ista et similiter in tabula terminorum sumitur pro die XLmae dominica Invocavit. . .   **7v** (Table, 35 rows, contents mainly as App.5(a), but lacking some of the interval columns, and with extra columns of golden numbers and Sunday letters. No hdg.)   **8r** (Lessons for various feast-days.)

The calendar only contains fairly common feasts, some of which gener-ally point to Germany or Austria: Desiderii, Feb.11; Venceslai reg.Boem., Sep.28. I have not located Burkhardi, Oct.5; Oct.6 is blank.

Wi Wien, Oesterreichische Nationalbibl., 5509. Paper, 4°, ff.350, A.D.1459/1464(Cat.). Photographs 1r-15r.

Tabulae codicum IV,1870,141-2. OP 5.77.

8v (=4v, older fol.) (Astrological rota(23), cf.App.6(e1). Inscr.:) Sphaera Ptolomaei et Pythagorae. De legitimis per septem subtrahe. . . ¶(Numbered alphabet, cf.App.6(e2). Canon:) Si vis scire sub quo signo aliquis sit natus, tolle nomen suum naturale non violatum. . .   **9r-10v** (further alphabets with canons, one of them for mortality of illness, beginning "Ptolomaeus rex ait omnis scientia. . ."; another one in German.)   **11r** (Rota(23) for mortality, cf.App.6(e1), short inscription.) ¶(Rota(7) with planets, week-days, and numbers.)   **11v-14r** (T&K 1397, cf.App.6(f):) Sciendum quod duodecim sunt signa et 4ᵒʳ complexiones. . .

14r (T.L.CANON(c2), faint in places:) Nota, perlectis multis tabulis veriorem pro sacerdotibus valentem non invenire ⟨--⟩ potui invenire nisi quam compilavit venerabilis magister Petrus de Dacia in arte computistica. Cum aliquis desiderat scire. . .pro horis praecedentibus subtrahatur.   **14v** (T.L., 14 × 12, no hdg. Left entr. normal, right entr. "13,⟨26⟩,. . .,5", hdgs. "Aetas lunae / Gradus lunae". Upper entr. with month-names Apr-Mar.)   **15r+** (Alex. de Hispania, physiognomy.)

Wu Würzburg, Universitätsbibl., M.p.j.f.11. Vellum, 29½ × 21½, ff.82, of which ff.1-14 form a separate ms., 14th c. Earlier in the Jesuit college at Würzburg. Microfilm 1r-14r.

Catalogue inf. from librarian. Zinner 1936 no.11. OP 4.56.

1r (Upper mg., 18th c.:) Collegii Societatis Iesu Herbipoli.   ¶(Txt, last part of KAL.CANON B(d3):) Et sciendum quod dies et horae. . .terminatur et sic de aliis etc.   **1v-2r** (:Letter table 1292-1729.)   **2v-14r** (CALENDAR(Cycl,Naur,D,Dfes).) (:*Hdgs.*: Cycl, none. Dfes, number of days, l(unatio).) (:*Additions,* for each month: "Nox habet. . horas, dies. ."; notes on lessons; on elections, App.6(f), "Nota, mense Ianuarii non minuas; tamen si opus fuerit, luna quarta tantum minuas, et modicum propter coleram nigram. . .et feniculum tritum cum vino ad pectus" (Jan.); on unlucky days, "Iani prima dies. . ." (:App.5(f1)),"Prima dies nona fit Jani scorpius hora. . .(:T&K 1090)".)   **14v** (blank.)

The calendar has feasts to each day. The rubricated feasts point somewhat indefinitely to Erfurt/Würzburg/Halle, namely, Bonifatii ep.m., R Jun.5; Decem milium militum mm., R Jun.22; Kiliani et soc. eius, R Jul.8; Cyriaci et soc. eius, R Aug.8. Cf. also, e.g., Trl.Agilolfi ep., Jul.9(Köln); Getulii m., Jun.10; Eobani m., Jul.26, all of them mainly Southern German.

§2c. *References not utilized.*

The references are marked ̇as follows:
 e: manuscript extant but unavailable.
 n: manuscript not identifiable from reference or no longer extant.
 r: manuscript seen and rejected as irrelevant.
 l: as just above, containing the lunar table App.4(a).
 o: reference obsolete or imprecise, manuscript identifiable.

r Barcelona, Bibl. de Catalunya, 162, 27v-28r. OP 5.3. Text not astronomical.

r Basel, Univ.Bibl., F.V.15, 16r-21v. OP 4.3. See §2b, ms. Bu: calendar, App.5(j9).

e Bayeux, Bibl. du Chapitre 61. Vellum, 35½ × 26, ff.285, late 14th c. Delisle, B.E.C. 48(1887)531-2 with extracts from Calendar. Cat. gén. Dep. X,1889,325f. V.Leroquais, Les pontificaux manuscrits...,1937,I p.69 ff. (full descr.); *id.,* Sacrémentaires et missels, 1924,II p.370-3. OP 4.4;5.4. Contents according to Leroquais: *Ir* Kal.canon B ("Canon supra kalendarium magistri Petri de Dacia dicti Philomena"). *Iv-7r* Calendar. *7v-8r* Tabulae Gerlandi. *8v-10r* computistical tables.

o Bern, Burgerbibl., 524 A, 10r-v. OP 5.5. See §2b, ms. Bv.

r Bern, Burgerbibl., B 524, 12r-18v. Zinner 1925 no.2075; *id.*1932 no.14. The calendar does not contain a table of conjunctions (Bruckner, cited in §2b to ms.Bv, p.106 and Plate XXXVIc illustrating f.12v). See also App.6(a).

l Budapest, Orszàgos Széchényi Könyvtár, 29, 38v-39v. OP 5.7.

l Cambridge, Trinity Coll., O.2.45 (=1149), p.98-9. OP 5.9.

? Cambridge, Trinity Coll., O.7.2. 15th c. James III,1902, p.345-6,no.1330; p. 524-7,no.1491-6, espec.1493. OP 5.10. Stated by James (no.1330) to be missing, having contained a "Petrus Dacus de inveniendo loco lunae". Had returned, by way of Halliwell's library, as no.1491-6 (ref. from librarian), but the descriptions no longer mention that item.

r Cambridge, Univ.Libr., add.6860, 88r. Canon to Tabula Gerlandi, not to Calendar: cf. §2b, ms.Ca, and contrast T&K 1191.

l Cambridge, Univ.Libr., Ji.1.13,40r. OP 5.11.

l Cambridge, Univ.Libr., Ji.1.17,57r. OP 5.12 (misprint "27" for "17").

l Cambridge, Univ.Libr., Ji.6.5,97v. OP 5.13.

l Cambridge, Univ.Libr., Mm.4.43,271v. OP 5.14.

n Canterbury, Collegium S.Benedicti. Cited by Eneström (1885,3)24 no.12 from Cat.lib.mss.Angl.et Hib. I,III(1698) p.143 no.1598. OP 5.15. Contained the T.L.

e Edinburgh, Crawford libr. Catalogue, 1890, p.488. Ca. A.D.1339. OP 4.10;5.17. Contains Calendar and T.L. Too fragile to be microfilmed.

r Edinburgh, Univ.Libr., 126, 7v-8r. OP 5.16;6.1. Lunar table App.4(e2), and planet table App.6(c) with 24 rows, both to a British calendar from the late 15th c.

r Erfurt, W.A.B., 4° 362,63r+64r-69v. OP 4.13. See §2b, ms.E2. The calendar is App.5(j4).

l Firenze, Bibl.Med.-Laur., Ashb.211(143), 186v. OP 5.20.

l København, Kgl.Bibl., G.k.S. 1810 4°,65v. OP 5.24.

r København, Kgl.Bibl., N.k.S. 275ª 4°. See *Intr.*§4d. Calendar of Grosse-teste.

l København, Kgl.Bibl., Thott 825 4°,39r. OP 5.25. Cf. §2b, ms.Kh.

r Leipzig, Univ.Bibl., 1484, 3v-4r. Zinner 1925,2082; 1936 no.35. OP 5.29. Astrological text, not the T.L.

? London, Brit.Libr., Add.35317. See §2b, ms.La.

1r London, Brit.Libr., Arundel 220, 308r-314v. OP 4.20;5.32. A calendar with a canon in French, dating the calendar to 1289, and with phrasing reminiscent of ms.O4,58r; elements from Peter's calendar are absent.

r London, Brit.Libr., Harley 1785, 17r+19r. OP 5.36. Lunar table App.4(e2), and another one on the same principle.

l London, Brit.Libr., Harley 3814, 79v(not 76v). OP 5.39.

l London, Brit.Libr., Royal 12.G.iv, 132r. OP 5.41.

r London, Brit.Libr., Sloane 263, 31v(62v). OP 5.42. Lunar table App.4(e1).

l London, Brit.Libr., Sloane 514, 11v(not 8r). OP 5.43.

1r London, Brit.Libr., Sloane 568, 8r/7r. OP 5.44. *Ibid.*,15r(astrology). OP 5.45.

r London, Wellcome Institute, Western ms.202 (Moorat 1962,129). From convent of St.Emmeram. A modern hand on the fly-leaf gives the title "Petrus de Dacia, Tabulae cum explicationibus", which Moorat refers to f.17v-18, with the incipit "Ad inveniendum locum lunae scilicet in quo signo et gradu sit" (T&K 49, citing Wien 5512; also in ms.Kr,46r-47r). I have not discovered any contemporary ascription to Peter.

r Mainz, Univ.-Bibl., 562, 116r. OP 4.26. See §2b, ms.Mz: calendar, App. 5(j9).

n Middlehill (England), libr. of Thomas Phillipps. "Petri de Dacia tabula lunae". Haenel 1830 p.893; Eneström (1885,3)24 no.13.

e Monte Cassino 193. See §2b, ms.Mt. The printed edition was used.

r München, Bay. Staatsbibl., Clm 5538. T&K 141;602. See §2b, ms.M8.

n Münster, Univ.-Bibl., 741(530), 14th c. Ständer 1889,162. Zinner 1925, no.10934 with p.516. OP 5.48. Contained a T.L. at 69r+. Destroyed during last war.

r Oxford, Bodl.Libr., Bodl.464,58r+. OP 4.38. See §2b, ms.O4: calendar, App.5(j3).

r Oxford, Bodl.Libr., Bodl.531, 236v. OP 6.6. No table (librarian). Cf. §2b, ms.O5.

o Oxford, Bodl.Libr., 2303(Summary Cat.). Zinner 1936 no.24. See §2b, ms.O5.

o Oxford, Bodl.Libr., 2458(Summary Cat.). Zinner 1936 no.25. See '§2b, ms.O4.

o Oxford, Bodl.Libr., 6563(Summary Cat.). Zinner 1936 no.21. See §2b, ms.X.

o Oxford, Bodl.Libr., 6750(Summary Cat.). Zinner 1936 no.22. See §2b, ms.B.

l Paris, Bibl.Nat., lat.7292, 270va. OP 5.55.

l Paris, Bibl.Nat., lat.7366, 32v-33v. OP 5.58.

l Paris, Bibl.Nat., lat.7416B, 51r. OP 5.59.

r Paris, Bibl.Nat., lat.7422, 69v. T&K 62. Foll. 69v-70r are blank (librarian). Cf. §2b, ms.N.

rl Paris, Bibl.Nat., lat.7475, 66r. OP 4.42. Calendar of Grosseteste. *Ibid.* 59r: OP 5.60.

n Paris, Bibl.Nat., lat.15104. Vellum, 22-23 × 13½-15, 14th c., from St.Victor. Reference from notes of E.Poulle. The relevant part of the ms. is foliated 112-147 in a recent hand, corresponding to an older foliation of 48-58;112-133;143-146(=the recent f.146). A third foliation, 206-240, seems irrelevant. An index at 146v includes "Expositio super kalendarium magistri Jo.(!) de Dacia ab eodem edita, 109. Plures alii canones astrologiae et eorum expositiones, a folio 112 usque 127". The calendar is now missing from the manuscript.

r Paris, Bibl.Nat., lat.15121, 14v+. OP 4.44. Calendar of Grosseteste.

r Paris, Bibl.Nat., lat.15125, 27r. OP 4.46. Canon "En cest kalendier", not to Peter's calendar. See §2b, ms.Pl.

l Paris, Bibl.S.Geneviève, 1043, 50r. OP 5.65.

e Pistoia, Bibl.Fabroniana, 314. Vellum, 21 × 14½, ff.III+103; the relevant part, ff.4-11, is from the 14th c. It is bound with various astronomical treatises, part of them in Catalan. Earlier (15th c.) one of these was in the monastery of S.Polycarp at Limoux. ·Reference and data from the Catalogo di manoscritti filosofici nelle biblioteche Italiane III,1982, 114 and 132-4, with the inventory: *4r-v* blank. *5r-10r* astronomical calendar. *11r* "Tabula ad sciendum quis planetarum regnet in qualibet hora diei". *11v* "Tabula magistri Petri de Dacia ad sciendum in quo signo sit luna et in quo gradu illius signi".

o Roma, libr. of Boncompagni, 157(302), 5r-v. OP 5.67. See §2b, ms. Sx.

n Roma, libr. of Boncompagni, 328(327). Vellum, mm.226 × 168, ff.48, 13th-14th c. Narducci 1892 p.190-1. Eneström (1885,3)24 note 5; *id.* (1885,8)67. OP 5.68. Contents, excerpted from Narducci: *27v* Kal. canon B: letter table+"in ista parva. . .". *28v-34r* calendar. *34v-38r* astrology, including "Aries est primum signum. . ."(=App.6(d4)?). *38v-39v* a lunar table intitulated in a recent hand "Tabula Petri de Dacia", with a canon beginning "Haec tabula docet invenire". *40r-v* the Tabulae Gerlandi. This ms. is not in Stockholm like that just above (librarian).

l Roma, Bibl.Naz.Vitt.Emm., 301, 2r. OP 5.69.

? Rouen, Bibl.Mun., I 55(985). See §2b, ms.Ro. Film possibly incomplete.

e Salamanca, Bibl.Univ., 2662. Vellum, 30½ × 21½, ff.236, end of 14th c. Beaujouan, Manuscrits scientifiques. . .,1962,174-8. OP 4.49;5.70. Contents excerpted from Beaujouan: *-58v* Balduinus, Compotus manualis. *59r-65r* "Incipit canon in kalendarium Lincolniensis episcopi de novo correctum. In primationum cyclo 4 linee descendentes. . ."(=Kal.canon

A). Then the calendar. *65v-66* the Tabulae Gerlandi. *66v* "Tabula Petri Daci de loco lune". *67+* Messehallah, Astrolabium.

e   Stams, Stiftsbibl., 13 ("12" in the refs. below, corrected after information from Hill Monastic Ms. Library). Vellum, 2°, ff.136+12, 15th c. Zinner 1925 no.3828+p.428; *id.* 1932 no.42. OP 4.53. Said to contain a canon to the Calendar besides other matter, at ff.39r-49v.

n   Syon (Middlesex). The Birgittine monastery had a "Tabula magistri Petri de Dacia de medio motu lunae". Jørgensen 1910,260, citing Mary Bateson, Catalogue of the library of Syon monastery,11.

l   Valencia, Bibl.Univ., 216 (902 Gutiérrez), 57v. OP 5.73.

r   Vatican, B.A.V., Reg.lat.1452. Zinner 1936,39. OP 5.75. There is no T.L. in the manuscript. Cf. Preface to the Eclipsorium.

lr   Wien, Oesterr. Nat.-Bibl., 2367, 9v(not 1r/12v). OP 5.76. On Zinner's attempt to attribute the solar tables at 10r-11v to Peter (1925 no.3818+ p.428) see *Introd.* §5b.

§3-5. *Table of conjunctions* (Cycl). *Choice of reference manuscripts.*

§3. *Cycl, numerical variants: general remarks.*

The textual tradition of the table of conjunctions, the only part of the Calendar whose authenticity is not in doubt, will be discussed in §3-5: a list of the manuscripts is in §4a. The results will mainly be of use in the criticism of the pieces which accompany the table and the Calendar in general; in fact, as noted below, the table itself can be re-calculated without extensive sifting of evidence, with results closely corresponding to some of the manuscripts.

The table serves to indicate the times of 940 mean conjunctions of the sun and moon, for the 76 years 1293(Jan.-Dec.)-1368. It is divided into four columns, here termed "cycles", each of them covering 19 successive years denoted 'A'-'T'. Within each cycle, these letters are entered against the dates where conjunctions occur: thus, any cell containing an 'A', in the first cycle, indicates the day of a conjunction during 1293 Jan.-Dec. Within such a cell, a number from 1 to 24 shows the hour after midnight within which the conjunction occurs; and the current quarter of that hour is denoted by a dot in one corner of the cell, beginning with quarter-value 1 at the upper left corner, and continuing clockwise. If there is no dot, this means a

time at the end of the hour (as stated by the canons; in fact, within the last minute). It has happened 15 times that dates within one cycle have coincided: in a cell thus doubly occupied, a red dot ("," in the text here printed) belongs to the rightmost entry of the cell. In all this, except the quarter-dots, our Calendar imitates its predecessor, by Grosseteste (§10 and App.5(j1)).

The table was re-calculated as described in the *Introduction,* §21. There are only some 12 places where the results are contradicted by a considerable part of the manuscripts (§4b), and none of these appear to offer a consistent alternative. Thus it was decided to print the re-calculated values, only following the manuscripts at the four places which were left ambiguous in the calculation (*Introd., l.c.*).

The manuscripts have been collated against the re-calculated table. The collation took account of quarter-values, hour-values, and displacement of whole cells. The letters were ignored, and vertical "slides" within columns tacitly adjusted. Most of the manuscript tables are physically well preserved: see §4a for the larger omissions. At a few isolated places, mostly in the manuscripts Y Wu Pr Ly Kt, where the microfilms were difficult to read, I may have tended to interpret the remains according to the collation copy.

Revised tables are found in Oa, where the hour-values have been augmented by one, and in Bv Mk So Bs, where an attempt has been made to up-date the tables (cf. App.1(c)). In both cases the values were reduced before collating. As concerns Bv Mk So Bs, they follow the canon (e.g. App.2(h2)) in failing to decrement an hour-value when the quarter-dot is shifted from 1 to 4, and they have not revised the quarter-values in cells where they found no quarter-dot. Also, a test of a couple of months showed a fair similarity in errors. Thus they probably all descend from one revision. I have collated only So fully; wherever an error emerged, I followed So unless the three others were against it. The resulting pseudo-majority is called "Z" in the sequel and treated as one manuscript.

The variants cited in §4 are strictly a selection, only meant to give a basis for the classification proposed. Counter-examples are many, due to scribal revisions and fortuitous coincidences; I do, however, believe to have given a fair sample of the variant groupings frequently encountered. I have not cited variants for doubly occupied cells: they are mainly intact in ms.K and the manuscripts of Class a_1, but are

much garbled in most of the other manuscripts. Neither have I cited quarter-variants for the cells expected to lack quarter-dots: for their state of preservation see §4a.

§4. *Table of conjunctions* (Cycl): *classing of witnesses, with a sample of numerical variants.*

§4a. Symbols for classes; commas or semicolons separate some of the sub-classes discussed in §4 b-n.   Comments:

k: K, Sc, Fp V, L S Kr; D N, Pd   Pd: quarter-values missing on days **1-31**

                                        D: days **1-31** missing

a_1: Cj, H, G, P, Q, F, R B, Or   Q: days **1-16** missing

                                        Or: quarter-values missing throughout

a_2: Oc; Y, T W; Sf

a_3: C Ca

b_1: X, Re E Ma, M O, Md; Pl,   Ml: quarter-values missing
       Da; Ml   throughout

b_2: Wu Mf; Mg

c: Mt, Z, Pr Pe   Z   = So, Bv Mk Bs; cf. §3

d: Kt Oa A Fl; Mj, Ly   Mj, Ly: quarter-values occur but are ignored in the following, cf.below.

"a" means the consensus of $a_{1,2,3}$, and "b", the consensus of $b_{1,2}$. "a(>Or Sf)" means "Class a except Or Sf".

Entries are negative except in §4b. An entry such as "**9,1,q4**: (3) Mg; (-) Ma" means "in the cell at day no.9 of the year and in cycle 1, the quarter-value re-calculated as 4 is shown by all witnesses present (cf. Comments above), except that Mg has the value 3, and Ma shows no quarter-dot". An entry beginning like "**9,1,h3**: ..." signals variants in hour-values. In positive entries, used in §4b, symbols for classes or single manuscripts which have the re-calculated value occur just after the colon.

The quality of the manuscripts, leaving contamination and self-correction out of account, can be estimated by comparison with the re-calculated table. Of the 940 hour- and quarter-values, those in the 15 doubly occupied cells were ignored, leaving 910 sets of values compared. The following is an abridged count of errors, including omissions and additions; shifted cells were treated as if in their proper places.

Quarters: 6-15: K F Cj Sc B Q.   18-35: H R P V Fp G.   42-58: W Oc T Z S L. 62-85: D C Ca Mt A Re.   92-125: E Fl N Pe Sf X.   132-147: Ma M O Y Pd Oa.   170-197: Pr Da Wu Mf.   242-291: Md Kr Pl Kt.   480-594: Mg Ly Mj.

Hours: 1-4: K R F B Z P.   5-11: G L Fp H Mt Cj.   13-23: Sc Or Q Re Fl V A. 28-34: N E C Oc Ca Pr.   38-43: Mj Ly X S D Ma.   46-57: Ml T Kt Sf Y M O Da W Pl.   64-99: Md Kr Wu Pd Oa.   101-187: Mf Mg.

Thus, with few exceptions, the most correct values occur in Class a_1 and part of Class k. More than half of the quarter-values in Mg Ly Mj are omitted or wrong; in particular, Ly Mj mostly have values of 2 or 3, apparently at random, so that it was decided to ignore Ly Mj when citing quarter-variants below.

The 14 cells calculated to lack quarter-dots (not counting two which enter into doubly occupied cells) have been supplied with dots in only 0, 1, or 2 cases by the witnesses K H Q G, F P R B Cj, V D; on the contrary, in 13 or 14 cases by L Ma X Oa Kt Mj, E M O Md Pl Da. Thus the most correct witnesses are mainly the same as above. L is peculiar in presenting 9 values of "4", whereas Oa has 6, Kt 5, and all other manuscripts less. Such values may result from attempts at filling in a cell from that situated 14 days earlier: indeed, since 49 synodic months equal 4 years minus 14 days and about 1¼ minute, values will often be found repeated at that distance. It may be guessed that other attempts at correction were made at least in Class d (§4n).

An example of the evidence for an un-dotted cell may be taken from that calculated to stand for a minute-value of just about 59^m, thus:

169,2,q?: (-) k(>L) a(>Oc Sf) A Fl; (4) L; (3) Sf; (2) b c Kt; (1) Oa Oc

§4b. *Errors in several classes. Class k.* The following is a list of those errors which were found to pervade significant parts of several classes, plus a few further ones later referred to:

91,1,q2:   k Oa;   (1) a b c A Fl; (3) Kt

129,2,q4:   *nusquam*;   (3) k($>$D N L) a_1 a_2 c d($>$Kt); (1) a_3 b($>$Mf) N;
                              (2) Kt; (-) D L Mf

164,3,q1:   k Wu Mf Kt; (4) a b_1 Mg c d($>$Kt)

165,3,h23:   L Pl Mj Ly; (22) k($>$L) a b($>$Pl Mf) c Oa A Fl; (21) Mf Kt

178,3,q3:   k G W Sf Da A Kt;
                              (4) a($>$G W Sf) b($>$Da Pl) c Oa Fl; (2) Pl

192,4,q1:   k($>$D);   (2) D a_1($>$P) Sf a_3 b($>$Pl) c d; (4) a_2($>$Sf); (3) Pl;
                              (-) P

243,3,h22:   k R a_3 Pl b_2 Mt Z Mj Ly;
                              (21) a_1($>$R) a_2 b_1($>$Re Pl) d($>$Mj Ly); (12) Pr Pe;
                              def. Re

273,1,q2:   L Mg;   (1) k($>$L Kr) a b($>$Mg) c($>$Mt) d; (-) Kr Mt

299,4,q4:   Fp V S D N; (1) K Sc L Pd a b($>$Ma Mg) c d; (2) Kr; (-) Ma Mg

302,4,h16:   k Ml b_2 c Mj Ly;
                              (15) a b_1($>$Ml) d($>$Mj Ly)

342,4,h20:   k($>$S Pd) a_2 b($>$M Mg) c d($>$Oa),
                              (29!) a_1($>$Q) a_3; (19) Q Oa; (10) M S; (5) Mg; (2) Pd

349,1,q3:   k($>$N) A;   (4) N a($>$Y) b($>$Ma Mg) c d($>$A); (-) Ma Mg Y

349,2,q1:   k($>$L N) Md Kt A;
                              (2) L N a b($>$X Ma Md Da Mg) c d($>$Kt A); (-) X
                              Ma Da; (3) Mg

Class k is the collection of witnesses which are mostly correct at these places, such that the remaining ones form a group against them. Of those which occasionally follow k or are right against it, Pl and Class d have probably been corrected secondarily (§ 4n), as may also be the case for L (§4a).

§4c. *K, Sc, Fp V, S Kr, L (Class k).* The manuscripts assigned to Class k vary much in quality. Manuscript K only has the errors at 129,2; 165,3; 273,1; and 299,4, above, plus three more, namely, 113,3 (q-, alone); 199,1 (q1, with M Oa); 318,3 (q-, with Mf); in each case some manuscripts show other errors. Thus K appears to be independent of all the others.

Fp V S Kr form a group with the sub-groups Fp V and S Kr. Outside Class k, this group as a whole has some inconclusive correspondences with Classes d and b_1. The list below includes most of the variants common to Fp V and to S Kr.

Sc appears to be fairly independent within Class k. It sometimes corresponds with Fp V S Kr, especially with Fp V. Outside Class k, it has quite a number of errors in common with varying parts of Classes d and b_1. The variants repeatedly shared between Sc and other manuscripts are noted below.

L shows some connexion with Fp V S Kr, most often with S Kr. This mainly involves variants which may result from attempts to correct the table from itself. This can be supposed at least concerning L (§4a), but may of course be more common. Outside Class k, L S Kr show relationship with b_2: examples in §4i.

As appears from the examples below, N Pd are loosely connected to Fp V S Kr, and hardly at all to Sc. See §4d for the suggestion that N D Pd form a weakly connected group among themselves.

Quarters: **29,4,q4**: (3) Fp V S Kr N; (-) Ma Wu; (2) Pl Md; *def.* D Pd   **32,1,q4**: (1) Fp V Pd Md; (-) F N; (2) Mg   **35,3,q4**: (3) Sc Fp V S Kr N Pd Da b_2; (-) a_3 X; (2) Pl   **38,4,q2**: (3) Sc X Pr; (-) D Mf Mg   **71,4,q2**: (3) S Kr L Wu Mg; (-) Mf   **110,2,q3**: (2) Fp V S Kr L Pl M O Md Mg; (4) X Wu Mf   **150,2,q2**: (1) Fp V; (-) Mg; (4) Pr   **159,2,q2**: (1) Sc Fp V Kt; (-) N a_3 Md Mg Mt; (3) X **175,4,q4**($\smallfrown$45^m): (3) Fp S Kr Oa; (-) Da Mg; (1) Pl   **194,2,q1**: (2) S Kr; (-) Mg; (4) Z   **214,2,q2**: (1) S Kr M Mg Fl; (-) Wu; (3) T   **214,4,q3**: (2) Fp V; (2+3) Pd; (-) Wu; (1) Mg   **217,3,q1**: (3) Fp V S Kr; (-) Mg   **248,2,q3**: (4) Sc Pd Kt   **269,1,q4**: (3) S Kr; (-) Mt; (1) Pd M   **271,1,q3**: (2) Sc S X Mg; (-) M D   **290,3,q2**: (1) S Kr; (-) Pr   **349,3,q4**: (3) Fp V Pd; (1) A X Kt; (2) Pl Pr Pe

Hours: **40,4,h6**: (16) Fp V S Kr Pd Kt   **77,1,h24**: (14) Fp V D   **86,3,h11**: (12) S Kr L Ml; (21) Mg; (1) Pe   **119,2,h9**: (19) S Kr   **125,3,h19**: (12) S Kr; (16) a_3; *def.*Y   **125,4,h12**: (2) S Kr; (22) Pd; *def.*Y   **195,4,h4**: (5) S Kr L Wu Mf   **214,3,h9**: (19) Fp V S Kr C Ca Da Oa; (2) M O Md Ml   **251,2,h12**: (2) V S; (18) Oa; (13) Mg   **265,1,h19**: (20) S Kr L T W Y Oc; (10) D **280,3,h17**: (7) V Sc O Md Ml   **338,4,h23**: (13) Sc O Oa Da   **346,2,h20**: (24) Fp V; (9) Mg   **346,3,h12**: (22) Fp V N; (13) Wu Mf

§4d. *D, N, Pd (Class k).* As mentioned above, these show scattered connexions with the rest of the class, and may be fairly independent of it. They go together a number of times in various combinations, with each other and with manuscripts mainly belonging to Classes d and b_1. DN are connected both with Class b_1 in general (§4h) and with M O Md in particular. Pd is generally quite faulty, and shows similarities almost everywhere: some double quarter-values (cf. 214,4 above) may be the result of a mixture of some normal text with

readings mainly from various parts of Class k; and coincidences with Da and Class d are found repeatedly. The list below includes those instances where at least two of D N Pd coincide, plus a few further ones.

Quarters: **54,2,q4**: §4h   **59,3,q3**: (4) V; (3+4) Pd; (-) Mt Fp; (2) Pl Kt; *def.* Sf **74,2,q1**: §4h   **75,3,q4**: §4h   **81,1,q4**: (1) D Pd X   **87,1,q4**: (1) D N; (-) Ma Md Mt Pr; (2) Wu Mf   **91,2,q4**: (3) D Da Oa; (-) Kr   **104,4,q4**: (3) D N Pl Kr; (-) Kt; (1) Y Mt; (2) Pd   **108,2,q2**: (1) D N Pd; (3) Pl; (4) Mg Kt **147,2,q3**: (4) Oc Y T W; (3+4) Pd; (2) Kt   **149,1,q3**: (2) S; (2+3) Pd; (-) L **155,2,q4**: (1) N Pd Mg; (1+4) Sf   **207,2,q4**: (2) N Pe; (2+4) Pd; (-) Da M Md; (3) Oa   **226,4,q2**: (1) Kr; (1+2) Pd; (-) Mf; (3) Mg Kt Pr Pe; *def.* Sf **262,3,q2**: (1) D N Pd S Oa Kt; (-) O Mg; (2+3) Mt   **264,1,q2**: (1) D N Pd Mf Kr; (3) Oa   **267,4,q2**: (1) N Pd Q; (3) Md; (4) X; (-) Wu Mf   **293,2,q3**: (4) D N Pd; (-) Kr; (2) A   **326,1,q1**: (2) Kr Pd; (4) Md   **335,3,q4**: (3) Pd Da; (2) Pl

Hours: **29,4,h15**: (5) Pd V C Ca; (16) N X; *def.* D   **68,4,h7**: (17) Pd V **70,3,h3**: §4h   **119,4,h18**: (8) D Pd Ml; (16) Sf; (19) Wu Mf Pr; (?) S **122,2,h18**: (16) Pd Da; (8) Sf Ml Mf Oa; (19) Mt   **124,3,h7**: (5) D Pd Ly; (11) Sf; *def.* Y   **196,4,h17**: (7) D Pd; (10) Da; (18) Pr   **214,2,h17**: (19) Pd T W Oc; (14) Y; (11) Kt   **234,2,h11**: (12) D N; (3) V   **263,3,h16**: (18) D N Pd **274,1,h22**: (21) D A Sf; (20) Oa; (12) Kr

Cells shifted: **61,3-4**: *ad* 2-3 Pd Wu

§4e. *Class a₁.* Cj H G P Q F R B Or have the errors §4b in common with each other and with varying sets of other manuscripts: one may note the senseless error 342,4, shared with C Ca, and with Oa if one further error is assumed to be an attempt at correction. Apart from that, the members of this class are those which have only scattered and incoherent errors, thus appearing to be mainly independent of each other and of the rest. The only exception is R B, with the common errors

15,1,q1: (2) R B; (-) S Md Mg; *def.* Q D Pd   **15,2,q3**: (4) R B; (-) Y Pl Kr; (2) Kt; *def.* Q D Pd   **15,3,q1**: (2) R B N Pl; (-) Md Mg Pr; *def.* Q D Pd   **15,4,q3**: (4) R B; (-) Kr Y C Ca Pr Oa; (2) Mf; *def.* Q D Pd   **76,2,q2**: (1) R B Fl; (-) D Da; (3) a₂ Wu Mf Kt Pe; (4) N

R is right against B in 243,3 (§4b), and has two quarter-errors against B elsewhere. At least these two manuscripts are very close.

§4f. *Class* a_2. A stable group consists of Oc Y T W, with the sub-groups Y T W and T W. In the beginning and end of the text, Sf is fairly constantly associated with this group, as a whole; elsewhere Sf is connected at least to Class d (§4n). The group may be loosely connected to L S Kr and to b_2, but generally it appears to be fairly independent.

Quarters: **17,2,q4**: (3) Oc Y T W Sf Pe; *def.*D Pd   **17,4,q4**: (3) Oc Y T W Sf; (-) Md Pr; (2) Pl Kr; *def.*D Pd   **47,3,q4**: (3) Oc Y T W; (-) Kr   **61,4,q2**: (3) Y T W X Mt; (-) C Ca Md Mg; (1) Fl   **68,3,q2**: (1) Oc Y T W Sf; *def.*X   **99,1,q4**: (1) T W; (3) Kr; (2) Kt   **134,3,q2**: (3) Oc Y T W Kt   **147,2,q3**: (4) Oc Y T W; (2) Kt; (3+4) Pd   **158,3,q2**: (3) Y T W; (-) Mf Kt; (1) Oa Mg   **226,2,q2**: (3) Y T W Mg; (-) Sf; (1) Pd

Hours: **3,4,h11**: (13) Oc Y T W Sf; (1) Re; *def.*D Q   **34,4,h13**: (20) Oc Y T W; (14) Sf; (23) Ml; (24) Mg   **45,3,h11**: (3) Oc Y T W Sf; (16) Mg   **108,4,h3**: (2) Oc Y T W   **114,1,h19**: (10) Oc Y T W   **145,2,h20**: (10) T W   **183,3,h8**: (4) Oc Y T W   **235,2,h23**: (13) T W Da; (17) Mg; (22) Or   **264,4,h4**: (18) Y T W E; (11) Pl   **283,1,h4**: (9) Y T W; (14) Oa   **293,2,h12**: (13) T W Ly Kr; (11) M   **309,4,h10**: (16) T W Kt   **310,4,h23**: (19) Oc Y T W   **346,1,h3**: (2) Oc Y T W Sf   **360,1,h3**: (2) Oc Y T W Sf; (?) O

§4g. *Class* a_3. C Ca are almost twins: they seem to have the same quarter-values, whereas Ca has two errors against C in hour-values at 138,1 and 181,4. It may be remarked that errors are scarce in the second half of the year. The connexions of this group with a_1 and b_1 are exemplified in §4e and §4h. Other instances:

Quarters: **32,4,q3**: (2) a_3; (-) Pr Kt   **40,4,q4**: (3) a_3 Pl Da; (-) Kr   **74,4,q1**: (3) a_3; (-) Mg; (2) Da   **151,1,q4**: (2) a_3 Kt; (1) S Y   **151,4,q1**: (4) a_3; (-) Ma Mg; (3) V; (2) Pd   **344,3,q4**: (3) a_3; (-) Ma; (1) Kr; (2) Kt

Hours: **29,4,h15**: (5) a_3 V Pd; (16) N X; *def.*D   **43,4,h15**: (5) a_3 **54,3,h14**: (23) a_3; (16) E   **59,3,h24**: (14) a_3 M Ma; (?) Pl; *def.*Sf   **76,1,h11**: (2) a_3 **88,2**: §4m   **98,3,h3**: (7) a_3; (4) Mg; *def.*Oa   **138,1,h14**: (19) Ca Sf; (17) O; (13) Mg   **151,4,h16**: (4) a_3; (13) Mg; (56!) Wu   **181,4,h4**: (14) Ca O Mg; (19) Wu   **199,1,h24**: (14) a_3 T W Y Oc M Ma Pd   **207,3,h16**: (10) a_3; (17) Pl; (6) Mg

§4h. *Class* b_1. The stable core is the group Re Ma E M O, called "m" in the following, with the sub-group M O.

These groups are regularly, and apparently independently, joined by X, Da, Md, and Pl. X and Da have errors in common with m as a

whole, but rarely with sub-collections of it; X has no definite affinity elsewhere, whereas Da often joins Class d. Md and Pl have errors in common both with m and with M O in particular. Md is connected with b_2 also, in the later part of the calendar. Pl is only attached to the present class as concerns quarter-values, and is connected to Class d in both kinds of values, so that its assignment to Class b_1 is arbitrary.

Some sparse coincidences, both with m and with M O in particular, are shown by D, N, single manuscripts from Class d, and Ml, the last one of which has been kept in the present class for convenience. Group a_3 also joins m in a few instances.

Quarters: **6,3,q1**: (3) m Md Pl Kt Fl a_3; (-) Y Pr; *def.* D Q Pd   **18,1,q4**: (1) m Md Kt a_3; (-) Kr; *def.* D Pd   **45,4,q2**: (1) O Md Pl; (4) Pr   **48,4,q2**: (1) M O Pl; (-) Wu   **54,2,q4**: (3) Re Ma E Da; (1) M O Md Pl D N; (-) a_3 Mg; (2) Wu Mf Kt   **63,1,q2**: (1) M O Md Pl Da Kt D S; (3) Pr Oa   **74,2,q1**: (2) m(>Re) Md X Da Kt D N Kr; (-) Pr; (4) G   **75,3,q4**: (3) M O Md D N; (-) a_3 Re Mg; (2) Kt   **78,3,q1**: (4) M O D; (-) a_3; (2) Oc   **79,2,q3**: (2) M O Pl Kt; (-) D Md; (4) Mg   **82,2,q2**: (1) M O Md Pl Kt D   **89,2,q4**: (2) m Md X Da Kt D a_3; (-) Kr; (1) A Mg Pr; (3) N; *def.* Pd   **125,1,q3**: (1) M O Md Pl; (-) N   **139,3,q4**: (3) M O Md Fl Pd; (-) N; (2) Pl Mg   **142,1,q3**: (2) m Md X Pl Kt Sf; (1) Da; (4) G   **154,2,q2**: (1) m Md X Da A Fl Sf; (-) Mg; (3) Pr   **159,4,q3**: (1) M O Md Pl; (2) Mg Kr   **164,4,q3**: (1) M O Md Pl; (2) Kt   **188,3,q1**: (3) M O Md Pl; (-) Wu; (4) Mg   **228,4,q3**: (2) M O Md Mf Kr; (-) Mg; (3) T   **237,4,q3**: (2) M O Md Pl Pe; (-) A; (4) Sf   **270,1,q3**: (2) m X Pl Da Kt Kr; (1) L S N Md b_2; (4) Pd   **282,3,q4**: (3) m Md X Pl; (-) b_2; (2) Da; (?) Fl; (1) Kr

Hours: **21,2,h24**: (14) O X Ml   **32,2,h15**: (5) Re Ma E X Da Mg; (25) Md; (2) Mf   **48,4,h13**: (23) E M O Md X Da Oa a_3; (24) D N   **52,4,h10**: (20) M O Md Ml; (19) Mg   **55,1,h18**: (1) M O Md D   **61,4,h13**: (3) m(>M O) Da D   **70,3,h3**: (2) M O Md D N; (4) Mg   **176,3,h14**: (19) m Md Da Fl   **212,3,h21**: (2) m(>E) Md Da Ml; (12) Oa; (16) Mg   **214,3,h9**: (2) M O Md Ml; (19) Fp V S Kr a_3 Oa Da   **217,3,h18**: (8) O Md Ml   **248,1,h11**: (5) M Md Wu Mf; (21) Mg   **280,3,h17**: (7) O Md Ml V Sc   **283,4,h19**: (9) M O Md; (15) Kt   **301,2,h18**: (10) m Md; (20) Da; (17) A; (8) Mf   **311,4,h19**: (11) m(>Re); (17) Wu Mf Md   **340,1,h10**: (16) E M; (18) Ma O Md Mj Ly; (15) Da; (17) Kt; (20) N   **354,4,h11**: (6) m(>Re) Md; (9) Da; (15) Fl; (12) N; (17) Wu Mf; (3) Mg   **355,1,h22**: (2) M O Md; (21) Mg; (20) Kr   **359,1,h7**: (1) m Md X Da Kr

Cells shifted: **59,3-4**: *ad* 2-3 M Ml; **59,3** *om.* Sf

§4i. *Class* b_2. The stable core is the group Wu Mf. These are joined by Mg in the first part of the text, whereas later on the affiliations of Mg vary. Near the end of the text, Md, which normally follows M O, appears to receive readings from b_2. Independently of this, the group is not seldom joined by some of L S Kr. Examples:

Quarters: **26,1,q2**: (3) Wu Mf Mg; (-) Pr S; *def.* D Pd   **40,3,q2**: (4) Wu Mf Mg; (-) Kr   **71,4,q2**: (3) Wu Mg L S Kr; (-) Mf   **85,4,q2**: (3) L Wu Mf; (4) Mg **190,3,q4**: (1) Wu Mf   **211,2,q3**: (2) Wu Mf Mg L Kr R   **312,2,q1**: (2) Wu Mf Md   **324,3,q3**: (2) Wu Mf Md Pd

Hours: **14,3,h10**: (14) Wu Mf Mg; *def.* D Q   **15,3,h23**: (24) Wu Mf Mg S; (13) T; (22) Pd; *def.* D Q   **42,3,h3**: (23) Wu Mf Mg   **170,3,h13**: (12) L Wu Mf; (9?) Oa   **195,4,h4**: (5) Wu Mf L S Kr   **198,3,h21**: (12) Wu Mf **219,3,h7**: (17) Wu Mf S; (8) Pl   **248,1,h11**: (5) Wu Mf Md M; (21) Mg **260,1,h22**: (21) Mf Md Ml; (23) Mg; (4) D   **312,1,h17**: (8) Wu Mf Md; (7) Ml   **312,2,h10**: (1) Wu Mf Md   **321,4,h14**: (24) Wu Mf Md S T **337,3,h10**: (20) Mf Ml; (5) Mg

Cells shifted: **35,2-3-4**: *ad* 3-4-2 Wu Mf Mg; *ad* 1-2-3 Fp   **63,2-3-4**: *ad* 3-4-2 Wu Mf   **96,2-3**: *ad* 1-2 Mg Md O   **149,4**: *ad* 3 Mg Md   **157,2** (*ad* 158,2 L)**-157,3-158,3**: *ad* 157,3-158,3-158,2 Wu Mf   **308,3**: *ad* 4 Wu Mf Md   **309,4**: *ad* 3 Wu Mf Md S

§4k. *Class b.* The core of Class b_1 (Re Ma E M O, called "m") and that of Class b_2 (Wu Mf), each with their accessories as defined in §4h-i, share a lot of errors, mainly in quarter-values. Neither appears to share more than a few errors with any sub-collection of the other. Examples:

Quarters: **106,4,q4**: (3) m Md Da, Wu Mf Mg, Kr; (1) Pl; *def.* Sf   **113,4,q2**: (3) m X Pl Da, Wu Mf Mg; (-) Md Kr   **128,1,q3**: (2) m Md X Pl Da a_3, Wu Mf Mg, Kr; (-) Oa Fl; (4) P   **178,2,q1**: (4) m Md X Da, Wu Mf Mg, Pr Pe; (-) Mt Y   **211,1,q1**: (2) m X a_3, Wu Mg L; (3) Da; (-) Md Mf   **218,4,q1**: (4) m Md X Da, Wu Mf; (-) Mg Kt; (1) Y; (2) Pl Pd   **234,1,q3**: (1) m Md X Pl, Wu Mf Mg; (-) Da   **236,1,q2**: (3) m Md Pl Da, Wu Mf Mg; (-) Kt; (1) G Kr; *def.* X **248,4,q4**: (3) m Md X Pl Da, Wu Mf; (-) Sf; (1) N Kt; (2) Mg   **255,4,q1**: (2) m Md Pl Da, Wu Mf L, Pd; (3) Mg   **259,1,q2**: (3) m Md X Pl N, Wu Mf L; (1) Oa   **266,3,q4**: (1) m Md X Da, Wu Mf Mg; (3) G Pl c; (2) Pd **267,1,q3**: (2) m Md X Pl Da, Wu Mf Mg L, Pd Pe; (1) c(>Pe)   **290,2,q4**: (3) m Md X Pl Da Fl, Wu Mf, Kr Sf; (2) Mg Kt   **295,4,q2**: (1) m Md X Pl Da Fl, Wu Mf; (4) Kt; (3) Oa; (-) Mg   **310,3,q3**: (4) m(>Ma) Md Da Fl, Wu Mf; (1) Ma Kr   **339,3,q2**: (3) m(>Ma) Da, Mf Mg L; (-) Ma Wu   **343,1,q1**: (4) m Md Pl Da, Wu Mf; (-) Kr Fl; (2) Cj   **343,2,q3**: (2) m X Pl Da Fl, Wu Mf, Oc; (-) Md Mg Y   **346,3,q4**: (2) m(>O) Md X Pl Fl N, Wu Mf; (-) O Da Mg; (3) V

Fp A; (1) Kt   **346,4,q2**: (3) m Md X Pl Da Fl, Wu Mf L; (-) G Mg Pr; (1) N A; *def.*Y

Hours: **158,1,h8**: (18) m X Fl, Wu Mf; (19) Md; (4) Mg

§4m. *Class c.* Pr Pe, Mt, Z(=So, corrected from Bv Mk Bs, see §3), form a well-defined group, with the sub-group Pr Pe, but no other clear-cut structure. As a whole it seems to have at most a faint connexion with Classes b and d. Examples:

Quarters: **51,1,q2**: (1) Pr Pe   **60,1,q3**: (4) c; (2) Mg; (1) Md   **153,3,q4**: (2) c N; (-) Mg; (4) Y; (1+4) E   **160,3,q4**: (3) c Pl; (4) Mg; (-) A; *def.*S   **237,1,q4**: (2) Pr Pe; (3) Kt; (-) X Mg   **265,4,q3**: (4) Mt Z X; (2) Pr Pe S Md; (1) Mg; (-) Y Wu   **266,3**: §4k   **267,1**: §4k   **270,2,q1**: (4) b(>Pl Mg), c; (-) Kt **273,2,q4**: (3) c Mg; (1) Pl; (-) Pd   **298,3,q3**: (1) c; (-) Mg; (2) Kt   **314,4,q3**: (4) c Oa; (-) L Mf Mg Y; (2) Md Kr

Hours: **9,1,h3**: (2) Pr Pe; (8) Ma   **11,3,h1**: (2) c   **88,2,h8**: (4) c X; (1) C Ca; (7) Pd   **146,1,h4**: (2) Pr Pe; (5) Mj   **236,4,h8**: (4) Pr Pe; *def.*Wu

Cell shifted: **323,4**: *ad* 322,4 c; *om.*Y

§4n. *Class d.* Kt Oa A Fl often join each other, in varying combinations, and may be thought to constitute a loosely structured group. They were seen often to associate with Group b_1 as a whole, and with Group b_1+b_2, the latter especially as concerns Fl. More particular affinities appear towards Pl Da (Group b_1), Sf (a_2), Kr and D (k), and towards Mj Ly (below). The groupings so formed are quite unstable and cannot apparently be taken to indicate any definite relationship or any structure within the class. This may be partly due to contamination of the table from itself (§4a), examples of which may occur in the hour-variants at 214 and 228 and in the shifted cells at 120 and 134. I cite some groupings which involve at least three of Kt Oa A Fl Pl Da Sf Kr D, Mj Ly (hours), plus some recurrent groupings of two manuscripts only, always containing some of Kt Oa A Fl.

Quarters: **34,4,q2**: (1) Fl Da; (-) Mg Pr Kr; (3) X   **38,1,q3**: (2) Kt A Fl; (1) Y Md; (4) M O   **40,2,q4**: (3) Kt Oa; (?) N   **43,4,q4**: (3) Pl Kr; (-) Re; (2) Mg   **57,2,q3**: (2) Kt Oa; (4) Da   **83,4,q3**: (1) Kt A Fl; (-) D Mg T W Y Sf; (4) Oc   **91,2,q4**: (3) Oa Da D; (-) Kr   **100,4,q1**: (2) Kt Fl Da Md; (-) Mf; (4) Mg   **117,2,q4**: (2) Kt A; (-) O; (4+3) Wu   **127,3,q4**: (3) Kt Oa A Fl Da; (-) Sf; (1) Pd   **155,3,q3**: (2) Kt A Pl Sf; (-) Mf Mg; (1) Q*p.c.*   **165,3,q3**: (2) Kt Pl; (-) M; (4) S   **195,3,q2**: (4) Kt A Sf; (-) Fl Md; (3) Mg   **209,3,q2**: (4) Kt

Oa; (-) Sf **245,1,q4**: (1) A Fl Pl Sf Md; (3) Mf Kr **245,2,q2**: (4) A Fl Pl Sf; (3) Md Mg **245,3,q4**: (2) A Fl Pl; (-) Md Mg; (1) Pr Pe **245,4,q2**: (4) A Fl Sf; (-) Mg; (3) Oa Pl Pr Pe **257,4,q2**: (1) Kt A Fl Sf; (-) Mg Pd **269,4,q1**: (2) Kt Pl; (-) Mg Pd **282,4,q2**: (3) Kt A Da; (-) Wu Mf Mg **307,2,q1**: (2) Fl Da Kr Pd ?Kt; (-) Mf; (4) Md **307,4,q2**: (3) A Fl Pl; (-) D; (1) Oa **318,4,q2**: (3) Kt A Mg; (4) Md **322,3,q4**: (3) Kt Pl Ma; (-) Re; (1) Mg **327,2,q4**: (3) Kt Oa; (2) S **337,3,q2**: (1) Kt A Pl Kr; (3) Mg **347,1,q3**: (4) Kt A; (-) O Md; (1) Kr **357,2,q3**: (2) Fl Da Mg; (-) X Y

Hours: **15,2,h6**: (20) A Fl Pl; *def.*D Q **26,1,h5**: (15) A Fl Ly Da; *def.*D **58,3,h11**: (12) Kt Ly; (21) Mg **72,3,h11**: (12) Kt Ly; (5) Wu Mf Mg Kr **122,2,h18**: (8) Oa Sf Ml Mf; (16) Da Pd; (19) Mt **137,4,h16**: (15) Oa Ly Pl*p.c.*; (6) M **162,2,h22**: (21) Pl Oa **179,3,h23**: (13) Oa Da Mg Pr; (2) M **214,3,h9**: (19) Oa Da Kr, C Ca Fp V S; (2) M O Md Ml **228,3,h10**: (9) Oa Ly; (20) Mg **242,3,h10**: (20) A Fl **246,1,h22**: (21) Oa Pl; (12) Mg **260,4,h24**: (23) Kt Mj; (14) O Pd **266,3,h17**: (18) Ly Pl; (h7) Fl **278,3,h8**: (9) Mj Pl; (18) Oa W **299,2,h22**: (12) Kt Oa **307,3,h21**: (22) Kt Pl **321,1,h12**: (11) Kt Sf Ml **322,3,h17**: (7) Oa Kr **338,4,h23**: (13) Oa Da O Sc **355,3,h7**: (8) Mj Ly Pl; (1) X **363,3,h21**: (22) Kt Pl*p.c.*; (14) Ly; (?) Ma

Cells shifted: **120,3-4**: *ad* 2-3 Oa Kr Md; *om.*S Pd **134,3-4**: *ad* 2-3 Oa Kr

It is seen that Mj Ly may combine with Pl and with some of Kt Oa A Fl. The hour-variants in question are mostly one more or less than normal, a type which is not as frequently seen in the rest of the material. If this is due to some sort of systematical emendation, dependence grows less certain. Most of the variants which connect Mj Ly among themselves are also of this type, e.g.:

Hours: **41,1,h17**: (18) Mj Ly; (15) Wu Mf Mg; (11) Kr; (1) Fp **124,2,h14**: (13) Mj Ly; (24) Wu Mf; (16) Mg; *def.*Y **277,1,h23**: (24) Mj Ly; (13) Wu Md Sf **293,1,h20**: (21) Mj Ly **324,2,h14**: (13) Mj Ly; (4) Sc **340,1,h10**: (18) Mj Ly O Ma Md; (15) Da; (16) M E; (17) Kt; (20) N

Cells shifted: **37,1-2**: *ad* 2-3 Mj Ly (cell 1 filled in with h3,q3) **37,3**: *ad* 4 Mj; *om.*Ly

For convenience Mj Ly may be assigned to Class d together with Kt Oa A Fl. In any event this grouping is unsatisfactory, since the witnesses concerned are quite faulty (§4a), and probably revised and/or contaminated as well: thus, since they are more likely than others to give rise to fortuitous coincidence of readings, this class cannot lightly be adduced as a source for readings in particular cases. It may be safe to assume a connexion with Group b_1, and Pl Da Ml show affinities

both ways. Further, Sf approaches this class at some of the places where it does not follow a_2. Other observations are hardly conclusive.
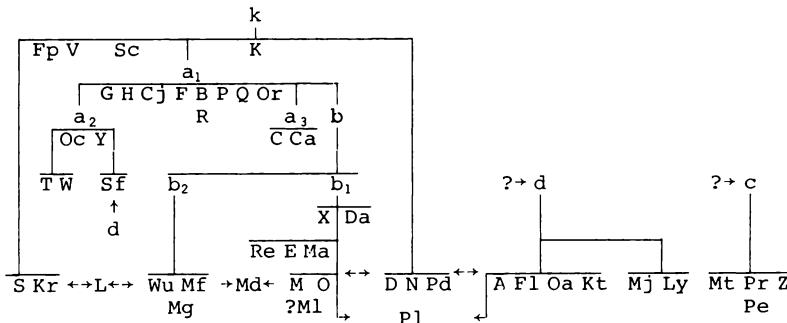
§4p. *Index to the variants cited in §4b-n.* Under each day-number, during the year, the entries mean "cycle number, section(s) of this §". It is not noted whether the variant has to do with hours, quarters, or shifted cells.

3 4f   5 2n   6 3h   9 1m   11 3m   14 3i   15 1-4e 3i   17 2f 4f   18 1h
21 2h   26 1in   29 4cdg   32 1c 2h 4g   34 4fn   35 2i 3c   37 1n 3n
38 1n 4c   40 2n 3i 4cg   41 1n   42 3i   43 4gn   45 3f 4h   47 3f
48 4hh   51 1m   52 4h   54 2dh 3g   55 1h   57 2n   58 3n   59 3dgh
60 1m   61 3d 4fh   63 1h 2i   68 4df   70 3dh   71 4ci   72 3n   74
2dh 4g   75 3dh   76 1g 2e   77 1c   78 3h   79 2h   81 1d   82 2h
83 4n 85 4i   86 3c   87 1d   88 2gm   89 2h   91 1b 2dn   96 2i   98
3g   99 1f   100 4n   103 4d   106 4k   108 2d 4f   110 2c   113 4k
114 1f   117 2n   119 2c 4d   120 3n   122 2dn   124 2n 3d   125 1h
3c 4c   127 3n   128 1k   129 2b   134 3fn   137 4n   138 1g   139 3h
142 1h   145 2f   146 1m   147 2df   149 1d 4i   150 2c   151 1g 4gg
153 3m   154 2h   155 2d 3n   157 2i   158 1k 3fi   159 2c 4h   160
3m   162 2n   164 3b 4h   165 3bn   169 2a   170 3i   175 4c   176
3h   178 2k 3b   179 3n   181 4g   183 3f   188 3h   190 3i   192 4b
194 2c   195 3n 4ci   196 4d   198 3i   199 1g   207 2d 3g   209 3n
211 1k 2i   212 3h   214 2cd 3chn 4c   217 3ch   218 4k   219 3i
226 2f 4d   228 3n 4h   234 1k 2d   235 2f   236 1k 4m   237 1m 4h
242 3n   243 3b   245 1-4n   246 1n   248 1hi 2c 4k   251 2c   255 4k
257 4n   259 1k   260 1i 4n   262 3d   263 3d   264 1d 4f   265 1c 4m
266 3kmn   267 1km 4d   269 1c 4n   270 1h 2m   271 1c   273 1b 2m
274 1d   277 1n   278 3n   280 3ch   282 3h 4n   283 1f 4h   290 2k
3c   293 1n 2df   295 4k   298 3m   299 2n 4b   301 2h   302 4b
307 2-4n   308 3i   309 4fi   310 3k 4f   311 4h   312 1i 2ii   314 4m
318 4n   321 1n 4i   322 3nn   323 4m   324 2n 3i   326 1d   327 2n
335 3d   337 3in   338 4cn   339 3k   340 1hn   342 4be   343 1k 2k
344 3g   346 1f 2c 3ck 4k   347 1n   349 1b 2b 3c   354 4h   355 1h 3n
357 2n   359 1h   360 1f   363 3n

§5. *Summary of the tradition of* Cycl. *Choice of K Sc Fp V a_1 as reference manuscripts.*

In the following suggested stemma, manuscripts or classes related in an indeterminate manner are juxtaposed or connected with horizontal lines. Class c cannot be very definitely located; and distinctions are

hazy between b_1, D N Pd, and d. I have noted only the most obvious contaminations; any unnoticed ones will tend to be located too far up, such as may be the case for X and Da.

When considering the kind of variants used in §4, and thus excluding cells doubly occupied or lacking quarter-values, one efficient way of recovering the values of the table would have been to accept the majority reading of K, Sc (or Fp), and the majority of a_1. This would yield only 3 or 4 errors (§4b, 129,2; 165,3; 273,1; 299,4). In this sense we may confidently expect to possess a faithful picture of the original table.

In trying to determine what sorts of frame-work were used for accommodating the table near the beginning of the tradition (cf.§6, §10), one might, then, choose the manuscripts K Sc Fp a_1 as a basis of reference. This will be done in the following, with inclusion also of V as a supplement to Fp, and occasionally of Oc Y because of the comparative independence of their numerical material. Of Class a_1, Or has been dispensed with, since the change of scribal hands justifies some doubt as to the uniformity of its sources.

§6. *Relation and environment of the Calendar and T.L.*

The following shows the inventory of the reference manuscripts plus Y Oc, lesser notes excluded.

Abbreviations:

K   Calendar
KcA   Kal.canon A
KcB   Kal.canon B

G   Tabula Gerlandi+contratabula (App.5(a))
GcA   Tabula Gerlandi, canon "Quaere" (App.5(a1))
GcB   Tabula Gerlandi, canon "Ad compositionem" (App.5(a2))
GcC   Tabula Gerlandi, canon "Theorica" (App.5(a3))
T   T.L.
Tc   T.L.,canon
*   alternative texts to the above, see notes
Xn   other texts or tables, numbered for each ms.; see notes
(subscript) secondary hands
;   other matter intervening in ms.

Inventory:

K		KcA,		$K+X1_2+KcB_3,X2,GcA,X3_2,G,X_4$; Tc^*,T^*
Sc		KcB,		K,KcA(two versions), X1
H	G,GcA,GcB;KcA+Tc$_2$,		K	
Cj		KcA*,	K,	G,X1,GcB
Fp		KcA+Tc,	K,	G,GcB; $T_2,GcC_2,Tc^*{}_2,X1_2$
V			K,	G,	T, $Tc^*{}_2,GcC_2$
P		KcA, KcB*,K,		G,	T
Q		KcA+Tc,	K,	G,	T
G		KcA+Tc,	K,	G, $\cdot$	T
F		KcA+Tc,GcA,	$K+KcB_2+X1_3,G,Gc^*{}_3,$		T
B	$X1_2,$	KcA+Tc,	K,	G,GcA,	T
R		KcA+Tc,	K,	G,GcA,	T
Y		KcB,	K,		T, KcA+X1+Tc
Oc			K,		T

Notes:

K: X1, a *rota* on Easter limits, App.5(g2). X2, "tabula terminorum",
     App.5(d1), and a canon. X3, a canon (banal) to the solar tables X4 (see
     pa17) and the table of declination appended. Tc*,T*: App.4(b).
Sc: X1, list of Easter limits (App.5(e1)) and some memorial verses.
Cj: KcA*, Grosseteste's canon, adapted, App.1(d). X1: short note on Tab.
     Gerlandi.
Fp: Tc*, T.L.canon(d1). X1: a canon for solar longitude (App.1(a1)).
V: Tc*, T.L.canon(d5).
P: KcB*, letter table only.
F: X1, various notes on computus etc. (one of them in App.1(b)).
B: X1, data as X1 in Sc, above.
Y: X1, on solar longitudes, as in Fp.

The arrangement

	Kc,		K,		G,GcB,	T,Tc,X1

is that of the Grosseteste-calendar App.5(j1) in Wien 2367, with Kc="Ad habendam notitiam", T= the 12 × 12 *Tabula lunae* (App.4(a)); Tc=App.4(a2); and X1= the solar tables 1292-5+a table of declinations (§17a). – Paris St.Geneviève 1043 has a similar arrangement, but with some permutations and extensions, and the old undated solar tables (§17a) for X1.

Thus, the collection *Kal.canon A+T.L.canon*; *Calendar*; the tables of Gerland with some canon; and *T.L.,* may be intended to imitate some version or versions of Grosseteste's calendar. The collection is at least early, being predominant in Class a_1(§5). Thus it is not unlikely that the author intended these elements to be released all at once. However, some quite notable manuscripts omit *T.L.,* a fact which seems to call for comment upon its coherence with the Calendar.

T.L., or at least its canon, no doubt presupposes a version of our Calendar, equipped with the *Cycl*-table and a set of accepted dates for the entrance of the sun into the zodiacal signs ("solar dates" in the following: see §17). Conversely, *Cycl* (and the canons to the Calendar) does not require *T.L.*: in fact, one might copy the values of that table into any frame-work resembling Grosseteste's calendar (see §10), preserving, *i.a.,* the old and obsolete solar dates (at XV Kal.) and/or ignoring any *T.L.* at hand.

Among the manuscripts listed above, something like this may have happened in K Sc Cj H. All of them (plus the first hand of Fp) leave out *T.L.*; and the same four witnesses (plus Oc) are those which keep the old solar dates. The scribe of K, at least, probably did not know *T.L.,* since he annexed another table to the Calendar. Sc shows no trace of *T.L.* or similar tables. Since these two manuscripts appear independent in other respects (§4c), one might take them to represent an earlier stage of the tradition, where the *T.L.* did not yet exist. As concerns Cj H, it is at least fairly certain that some Grosseteste-calendars were the recipients of *Cycl.* Indeed, Cj H are those which consistently retain the headings for *Cycl* from Grosseteste (§12), and Cj even keeps the canon of that calendar. But H, at any rate, had access to *T.L.,* since *T.L.canon* is added by a hand which is probably still the text-hand. The first hand of Fp may simply have had no room for *T.L.*: in fact it curtails *T.L.canon* for a similar reason.

Of the remaining manuscripts which have *Cycl* but not *T.L.,* Kr T Sf O Wu Mf show the old solar dates; Mg Mt Kt Ly have other sets; and

E Da lack the dates as well. Conversely, Oc Pl Pr A have *T.L.* plus the old solar dates. It seems that no conclusion can be drawn.

T.L. often occurs apart from the Calendar, mostly taken over by later calendars (§22). The copies of the *T.L.* with the usual canon which occur apart from calendars (E2 E7 Lh Lp P3) seem to have no stable alternative environment. The remaining loose instances are mostly late and accompany various astrological pieces. *T.L.* is found twice in the company of older calendars; once (M8) as a result of secondary adaptation, and once (O4) as part of a transfer which also includes part of *Kal.canon B.* A third case (Ca) is dubious.

Thus, since *T.L.* is probably meant to depend on the Calendar, and since in any case the practice of uncontrolled copying makes it inherently impossible to demonstrate the priority of one over the other, one should reproduce them as parts of one collection.

Other pieces reproduced: *Kal.canon A* (§7) is the one mostly found at the head of the collection in the reference manuscripts, whereas *Kal.canon B* (§8) is more sparsely attested. I have placed it arbitrarily after *Kal.canon A.* The tables of "Gerland" are reproduced in App.5(a), together with the three canons repeatedly found in the reference manuscripts.

On the whole, then, the environment of the Calendar here printed, with inclusion of the tables of Gerland, reproduces the contents of the collection found in Class a_1, more or less supported by Fp V of Class k. It thus excludes the computistical and astrological additions found in abundance in many other manuscripts. Most of them have been listed in Appendices 5-6; for some pieces with stray ascriptions to Peter of Dacia see App.4(a,c) and App.5(b,c), and cf. *Introd.* §4.

In the reference manuscripts, the wider environment of the Calendar with auxiliaries shows a few recurrent forms, which are all computistical rather than liturgical, and could also be expected for calendars of Grosseteste. The manuscripts begin with these pieces, except V, F, H (only with Balduinus' *Compotus manualis* near the beginning), B (only with Alexander's *Algorismus* preceding). In Sc the collection seems to stand alone. In Fp Cj P it is followed by Balduinus; in R Q H B, by Sacrobosco's Algorism; and in K and possibly G, by Sacrobosco's Compotus (with the *Theorica Planetarum* intercalated in K). For F, V, and the rest of the manuscripts, the descriptions in §2a

and §2b will give an idea of the environments as far as I have had the means to check them.

§7a. *Kal.canon A.*

Manuscripts: KScFp, HGPQFRBC,Y. Sc has two versions, here called Sa and Sb. The occurrence of this canon in significant parts of the classes k and a_1 (§4-5) offers a strong presumption that parts at least are authentic; cf. OP p.21. A dating before 1311 is implied by *l.*19-24.

Ascriptions connected with the text: "mag. Petrum Philomenam de Dacia" (K, concerning Calendar); "mag. Petri de Dacia dicti Philomena" (Sa,Sb, concerning this canon, plus the Calendar in the latter case).

The text of *l.*1-45 looks like a straight adaptation of Grosseteste's canon (App.1(d), in the version of Cj). Some passages are repeated verbatim; additions are *l.*17-26, on reckoning from the year 1292 (extracted by Cj. *l.c.,* and added to Grosseteste's canon), and of course the sections on the quarter-values. Grosseteste's limits 38,57,76 for changing cycle were augmented by one for clarity (and re-introduced by a corrector in F). Our text, like its source, only mentions the table of conjunctions. A loosely attached addition, on William's table of solar longitude, is printed in App.1(a1).

Apart from the revisions mentioned below, and some lesser variants in H Sa (Sb), there seems to be no significant way of structuring the tradition. Thus I print the main text, *ll.*1-45, from the majority of the manuscripts present, recording all variants (§7b).

At *l.*7-28 H Sa have an abbreviated text, which compared with Grosseteste would seem to be an innovation. I have printed this from H, with only two departures.

The additions *l.*46-73 are in H Sa (46-8 also in Sb, probably from Sa like some readings elsewhere), Y (some text including 46-8 having disappeared in a homoeoteleuton); *l.*49-65 are in K in a slightly different version. The instructions for renewing the calendar give the first new conjunction as 1369 Jan.8, 21^h plus 5-6 minutes after midnight (K; hours one less in H Sa Y). This value, within one or two minutes, can be obtained both from the Toledan Tables and by extrapolation from the Calendar (*Introd.* §21). Thus the correction for the difference in longitude between Toledo and Paris has disap-

peared in some way or been neglected, a fact which throws doubt upon the authenticity of the "tabulas meas supra Parisius (HSa; latitudinem *add.* K,*inepte*)" at *l.* 49-50, and thus on the whole passage. But still the manuscript evidence is good. I reproduce these additions from K and from the majority of H Sa Y, recording all variants.

A fragment of our text (*l.* 17-23, *col.* a) is in Cj, as mentioned above. Another one, *l.* 43-45, on the renewal of the Calendar, was fetched into the versions of *Kal.canon B* shown by Oa, Pr Bo Pe, Mt, Sf, Bv Mk So (see App.2(f2,h1-2)), and was used in the actual revision transmitted by Bv Mk So Bs (see App.1(c)). Variants from these fragments are not recorded in the apparatus.

§7b. *Apparatus to Kal.canon A.*

Testes: K Fp, Sa Sb (=*prima et secunda versio codicis* Sc), H G P Q F R B C Y. *Glossas quasdam nullius momenti quas praebet* F *neglexi.*

Inscriptiones: ars istius kalendarii facti per magistrum petrum philomenam de dacia K; primus canon petri de dacia pro renovatione sui calendarii Sa *man.alt.*

1-6 *omnes* (*mutilus* Q) **1** primationum: -nis Sa,Sb*p.c.*; -nem Y **2** quibus: quo Sa lunae: aetas lunae et eius H Sa cum sole co.: co.c.s. Sa **3** medios: -icos Sa Sb; eorum *add.* G igitur: ergo Y te: *om.* H Sa **4** quoto: quo G horum: istorum Sa cyclorum: cycli magni H Sa; *om.* Sb P Y **5** cum: anno *add.* Sa dividas: -de H Sa Fp; -dis(?) P **6** res. si: s.r. Y **20** fu.: f.20 Sa Q; 20 est P(*p.c.*?)

7-30 (col.a) *omnes exceptis* H Sa **7** annus: *om.* Y **8** quantum: quam R; quem C; est *add.* Sb, F*p.c.* resid.: de r-duo F*p.c.*; fuerit *add.* Y si: *om.* C fuerit: *om.* Fp **9** tamen: quam *add.* Fp **39**: 38 F(*p.c.*?) **10** cyclo: et *add.* Sb quantum: quam F*a.c.* R B; quem C; est *add.* F*p.c.* resid.: de r-duo F*p.c.*; fuerit *add.* Y **11** demptis 19: d. prius 19 K; 19 amotis Sb fu. plus: p.f. Fp **12** autem: a. quam Fp; tamen Q; tamen quam G **58**: 57 F*p.c.*; 78 Y; *n.l.* F*a.c.* **12-14** abiectis--tertii: est annus ille in tertio cyclo totus quantum est residuum demptis 38 Fp **12** abiectis: abicis C **13** ostendet: -dat Y anno sis: scis C **14** tertii: termini C fuerit: quam *add.* G **15** tamen: autem Fp **77**: 76 F(*p.c.*?) erit: est Q **16** eiusdem: cycli *add.* G totus: *om.* Y quantum: quam R; quem C resid.: est r. Fp; fuerit r. G; r. fuerit Y **19** q.c.f.: sis cycli alicuius G **20** istos: hos Fp **21** minus: annus P **24** 1292: 12 quia(!) Y dabit tibi: t.d. C; d. Y **25** cum quo: q.c. C **26** quotusc.: quotiensc. P igitur: ergo Y; annus *add.* Sb **27** fu.an.: a.f. Y; f. Sb **29** haec: hoc(?) R G Y **30** vel ut pr.: *om.* Sb

7-28 (col.b) H Sa **10** a 19 et in: minus Sa **11** abiec.: adiec. Sa **13** totam: *ante* litteram (*l.12*) Sa **15** 38 et: 38 Sa **16** abiec.: adiec. Sa res.qu.: q.r. Sa **21** 57--77: *om.* Sa demptis 57: 57 d. Sa **22** et cet.: *om.* H **23** lin.qu.: q.l. Sa **24** descendente: *om.* H si etiam: et si Sa **26** te: tunc Sa

31-40 *omnes (post l.40* horae *abscinditur* Q) **31** primationis: prima H   scias: quod *add.*H   **32** cui deservit: instantem H Sa   lu.pr.: p.l. Q   die: *om.*Sb; *om.* & *ins.* G; eius *add.*Y   ascripto: aspecto P   **33** praec.: *om.*Q   ipsum: diem *add.*K Sa·Sb   seu quantus: *om.*H Sa   **34** numerus: *om.*Sa   lit.inv.: l. Sa; i. Y   **35** litterae: h( )e P   punctus: K Sa Sb H; -tum *cett.*   a sin.: an sin. Y; *om.*Sb   **36** qui: que Y   **37** cella: cellula H Sa   **38** in eundem--ceciderunt: in eadem cella inveniuntur et eodem angulo G   in ipsa comp.: *om.*Sb   comp.: computatione Y   ceciderunt: -rint Y   **39** etiam: autem Y   punctum: puncpum Sa   **40** complemento: -tum K; fine H Sa   coniungetur: -gitur Sb; -gentur C

41-42 H Sa   **41** inducet: ducet H

43-45 *omnes*; *subseciva* Q; *ex l.43* demantur *def.*Y   **43** quod erit: scilicet H Sa **44** in: *om.*P

46-48 H Sa Sb, *def.*Y   **46** et nota quod: quod H; et Sa   devit.: evit. Sb **47** lit.or.hunc: h.o.l. Sb   **48** sequetur: -itur Sb

49-51 K H Sa; *ex l.51* quaeras *revertitur* Y   **50** supra: super Sa   Parisius: latitudinem *add.*K   anni: an(te) H

52-65 (col.a) H Sa Y   **52** invenies: -ias Y   **53** minuto: -ta H   **54** a igitur scr.: s.i.a Sa   **55** linea: littera H   **56** 8ᶦ: octavo Sa   ipso: ipsa Sa   **57** punctum: ponas Y   primo: *om.*Sa   **59** supra: super Y   29: dies *add.*H **60** et 3: 23 Y   **61** agg-ato: -a Y   **62** mensis: *om.*Sa   **63** 9: 19 Y   **64** nihil: *om.*H Y

52-65 (col.b) K   **54** e: ex K   **61** et 3: 53 K

66-73 H Sa Y   **66** diei: die Y   **67** igitur: ergo Y   **69** nunc: no(n) Sa **70** sic: sicut H   primi: primo H Y; *om.*Sa   scribas: -bis Y   sic in: et sic in Y **71** et cet. in: *vacat* Sa   **73** domini: *om.*Sa

Subscriptiones: explicit primus canon magistri petri de dacia dicti philomena Sa; explicit secundus canon magistri petri de dacia dicti philomena supra kalendarium suum ab eo noviter compilatum *post l.48* Sb

§8a. *Kal.canon B* "Quaere".

Manuscripts:

(a) Text as printed:

F,S,K(secondary hand)

Y,Sf,T W – Omissions in *l.*29-30 and 40.

C,Ca   – Omissions in *l.*8-10; *l.*40-42 abbreviated.

The passage *l.*37-8"scilicet--sinistrae" is in F; TW have another version, and the rest omit it.

(b) *l.*23-27 missing:

Sc E Ma Or M Pl Fl Bf

Tr Ef – Compare *l.*44 "in complemento"

(c) *l.*18-27 missing:

> Mt Mj Ly Pd, A O4

(d)-(l) For the texts not readily collatable with that adopted, see Appendix 2.

Ascriptions connected with the texts of Classes (a)-(c) above, either in the heading (*l.*1-2) or in some subscription, or both:

> mag. Petrus Dacus(*om.*W): T W
>
> (mag.) Petrus de Dacia: F, M Pl Bf Tr Ef, Mt Ly
>
> mag. Petrus de Dacia dictus Philomena: Sc Ma Or,
>
> E(+de civitate Parisius), Mj A

(Declension ignored; of several names in one text the longest was chosen.) All these ascriptions concern the Calendar, not the canon itself.

The sources of our text include the canon App.1(d) to Grosseteste's calendar (for *l.*32-35), and *Kal.canon A* (for *l.*34-37, 42-46). The canon App.5(a3) to the Tabula Gerlandi, used by a Dane not much later than 1290, may have contributed to *l.*3-14, 18-19, but it is hardly well enough attested to show which way the connexion goes. I cannot find any origin for the "parva tabula", which constitutes the innovation of our text against *Kal.canon A*.

As concerns the manuscript evidence, Class (a) above may form a group and (b,c) another one, with F either contaminated or in some way independent. The comparative merits of the (a)-manuscripts, even when discounting K, speak for adopting the full text found in them. I have followed F almost everywhere, and noted all variants except trifles.

On the whole, this canon is less well authenticated than *Kal.canon A*. Of the reference manuscripts (§5,§6) only Sc has it in the place where it is normally found in the later manuscripts; F and K show it as a marginal note to the Calendar, and K at least in a secondary hand. The rest omit it, except P, which has the table only. Thus it appears to be secondary to *Kal.canon A*. There seem to be no ascriptions nor other evidence to connect it with our author. Still it might not be too unsafe to consider it the author's own improved version, especially if some weight is assigned to its connexion with App.5(a3) mentioned above.

For the additions to this canon see generally Appendices 1 and 2, and §7a, last section. Secondary adaptations for use with other calendars are found in O4,59r (variants, except those following from systematic revision, recorded below), and in Sg p.13. The "parva tabula" is found alone in P Ml Pr.

§8b. *Apparatus to Kal.canon B.*

Testes: a=(F, K, S, a$_2$=(Y T W Sf), a$_3$=(C Ca)),
    b=(Sc E Ma Or M Pl Fl Bf Tr Ef),
    c=(Mt Mj Ly Pd A O4).

Ly tabulam et *ll.*5-37, O4 tabulam et *ll.*1-35 tantum exhibent, Bf turbatus est; quorum trium testium lectiones selectae tantum afferuntur. Additamenta codicum Mt Sf in App.2(h1), codicis Pd in descriptione quaerantur. Codices L Mf Mg Wu, N(69v), X, Oa, O Md St, Pr Bo Pe (Mt Sf), Bv Mk So Bs, N(69vb) D, Re Ro Kt, Pd(56v) Da in Appendice 2 exscripsi.

1-6 (col.a) *omnes(>*K Pd a$_3$)
1 in--tabula: hic S   ista: praemissa(?) Tr   parva: prima Ma Mt; *om.*Y Pl
2 quattuor: *om.*Sf   cycli sive lineae: l.s.c. Pl; circuli c.s.l. Fl; l.s.circuli O4; primationum *add.*W   **3** sciendum: informendum(!) Bf   quae litt. est: q.e.l. M; q. sit l. S; litteram Mt   **4** primationum: -nis S a$_2$ Mt Pl   **5** lunae: *om.*M; in sequenti kalendario *add.*O4; omni anno *add.*Mt   **5-6** et hoc--domini: in quolibet anno S   **5** hoc: *om.*Mt Mj Ly
8-32 (col.a) *omnes*
8-12 *ordine 12-8* S; *in 2 coll. disponit* Tr   *ante* **8** habent anni domini sunt F Ma A; hic sunt anni domini Jh.Chr., primus cyclus...quartus S; primus cyclus... quartus cyclus, anni domini (Jh.Chr. *add.*Y) Y Sf; anni domini (a.d. *gem.*T), primus cyclus...quartus cyclus T W; primus...quartus a$_3$ Mt; anni collecti domini E; anni domini O4; *post* **12** habent cyclus 1...cyclus 4 E; primus... quartus Ma Fl: numerus quattuor cyclorum O4   **8** 1292: 1291 E Sf; 1392 T **9** 1387: 1380 Ef   **10** 1444: 1470(?) Ef   1463: 1403 Mj   1482: 1442 Mj **11** 1539: 1639 T; 1529 Pl   1558: 1551 Mt   **12** *lineam om.*K; 1672...1729 (1723 Sf) *add.*T W Sf Or*p.c.*   1634: 1534 T; 1639 Sf
1-2 (col.b) F W b(>Pl) c(>Ly Pd O4)
1-2 canon s.k.--dacia: incipit c. super k. magistri petri W; incipit c.s.k. Fl **1** supra: super Or M Ef   **2** dacia: dicti philomena *add.*Sc Or Mj A; dicti philomenae de civitate parisius *add.*E; de primationibus lunae *add.*Mt
3-17 (col.b) *omnes*
3 quaere: -rere W   numeros: annorum domini *add.*W*p.c.*; appositos *add.*Sf **4** positos: primationis Y Sf; *om.*T W*a.c.* M   unum n.: n.u. M; n. a$_3$ **5** illis: his W; aliis S   qui: *om.*Y; inter alios (illos Sf) numeros *add.*a$_2$ maxime: *incipit* Ly; magis Tr Ef   similis est: e.s. W Sf M; sit s. T; s.sit Mt   domini: *om.*Pd **6** et (si Y)--domini: *om.*K Fl   sit minor: semper sit propinquior Sf   quam anni domini: annis d. Mt; q.a. A O4   **6-9** si forte--comple: *del.*Pl *sed leguntur* **6** si: et si T W Mt   **7** domini: *om.*O4   compl. non inv.: n.c.i. S; c.i.Pl; n.i.c.

Fl   ibi: et a₃   **8-9** qui--domini: *om.*a₃   **8** fo.mi.est: e.f.m. Pl; f.e.m. Sf; forsan m.e. M; f.e. Y   **9** domini: *om.* T M   comple et: complete et Bf; et O4(*erasum*)   **9-10** et--domini: *om.*a₃   **10** scilicet: *om.* K   **11** a sursum: s. S Pl; adversum Bf   ad: *om.* a₂ a₃ Or M Bf Mt O4   **12** lit. illa: i.l. T W; illa linea a₃; l. Tr Ef   de litteris: de littera Fl*a.c.*; de illis l. Pd; *om.*a₃   huius: illius Pd   quae: *ante* de lit. M   **13** perfecerit: -fecit Mt; -ficit K Ef; -ficiet a₂   primationis erit: F b c(>Mt Pd); erit littera p. illius anni K; erit littera p. huius anni de quo quaeris S; littera p. erit Y Sf; erit littera p. (lunae *add.*W) T W; et littera erit littera p. a₃; erit littera p. lunae in toto illo anno Mt; p. Pd   **14** si: *om.* Fl*a.c.*   praecise: preciose Sf   inveneris: conv. Pd   annos dom.: nos d. Y; completos *add.*Mt   **15** tunc: *om.*Pl   ultima: -mae W Sc E Pd   lineae: litterae S; primae *add.*Sf   praecedentis: scilicet .t. *add.*Mt   **16** sinistram: partem *add.*Mt; I(=?) *add.*Fl   erit: est T Sf   littera: *om.*S Pl   primationis: lunae *add.*T W*p.c.* b(>M) c   illius anni: a.i. Bf; huius anni S; in illo anno Mt

18-23 verbi--anni: a, b; *om.*c

18 verbi gratia: *om.*W   esto: posito Sf   **18-19** anni d.(*om.*S) s. 1311: anno d. (1311º) Pl   **19** sint 1311: sunt 1311 K; 1311 s. Y; 1311 Bf; s. 1330 Sf   eos: *om.*E   sec.lin.: l.s. S; tertiae l. Sf   **20** dextram: F Sf; sinistram (*?in ras.* Ca; partem *add.*Bf) *cett.*   **21** et ideo: et haec Ma(*?, in ras.*)   lit.u.lin.pr.sc.t: u.lit.sc.t lin.pr. W   ultima: -mae Sc E Ef   lineae: litterae S   primae: *om.*Sc; praecedentis *add.*Sf   **22** scilicet: *om.*Y   t: tabulae Ef; *om.* & *ins.*Ma   lunae: *om.*K S Sf   **23** illius: [[istius]] i. W; huius S   anni₁: *om.*Sc

23-27 sed--illius anni: a, Ma*p.c.*; *om.* b, c

23-24 sed--scilicet: sed quando anni essent S   **23** sed: .s.Et *habet* Y; et T W Sf   quando: *om.*Y   anni₂: anno Ma   **24** linea: littera Sf   **25** vel 1520 vel 1596: 1520 1596 Sf; vel 1510 K; *om.*a₃   litt.ult.: l. ultimae S Y; u.l. Ma   li.qu.sc.t: li. S; sc.t W; li.qu.subit Ma   **27** lunae: *om.*S W a₃ Ma; lineae Y

28-46 quacumque--praecedente: *omnes* (37-45 nam si--coniungetur *om.*Or)

28 igitur: enim M   primationis: lunae *add.*W Tr Ef Mt   **29** scias: *om.*Ma   in₁: scilicet Sf; *om.*Y   est: es K T W Sf; *om.*Tr Ef; *post* linea S Pl   **29-30** vel--linea: *om.*a₂   **29** vel: sive Fl   **30** tunc: *om.*a₂   in tali c.: *om.*Pd   **31** kalendarii: vel in tali linea in k-rio Mt; habebis coniunctiones *add.*S   **32** et: *om.*Sc   sciendum quod: sc. est quod K a₃ Ma Pl Mj Ly Pd; *om.*E   ubicumque: ubique a₃   **33** primationis: impr. Sf; -nem Ly; lunae *add.*Sc Pl Tr Ef c   de: *om.*Pd   **34** tali: *om.*Mj   die: *om.*Ma   luna p-tur: p.l. S Pl; p. M; l.p-t W   numerus: ibidem *add.*K; niger *add.*Sf   **35** subscriptus: <. .>(*latet*)-tus K   horam: numerum horarum K   ipsius ostendit: o.i. S; i.o-det M; i.descendit C; o. a₂ a₃   ostendit: *explicit* O4   quarta horae: q.hora S Pd; quadra h. Mt; q. Rᵉ Ma; hora ascripta K; q. Sf; q(ue)re W; *om.*YT   **36** qualem: aequalem Ma Tr   an. punctus (pectus Pd) oc.: o.a.p. S   occupat: -averit T W; scilicet *add.*Pl   **36-37** ab--sinistro: sursum Pl   **37** sinistro: -trae Ef Mt   pr.an.oc.: o.p.a. Sf   angulum: *desinit* Ly   occupat: -averit a₂; *om.*Mj   **37-38** scilicet in (*om.*Mj)--sinistrae: F b c; in superiori parte versus sinistram T W; *om.cett.*   **38** sinistrae: parte M   tunc: tun Y   luna primatur: p. *habent* b c(>Mt); coniunctio erit Mt   parte: horae ascriptae K, *add.*Mt; illius horae ascriptae *add.*S Y Sf a₃   si: si vero W; et si Mt; nam si Pd   **39** ang.occ.: a.

Mt; *om.* S a_2 a_3 scilicet: quia a_3 superiori: parte *add.* S Bf   dextrae: -ra a_3
39-41 tunc--inf.dextrae: *om.* Mj   **39** tunc: luna *add.* K a_2 primatur: ponatur
Bf; coniunctio erit Mt   **40** parte: horae ascriptae *add.* K a_3; illius horae
ascriptae *add.* S; illius horae *add.* Sf; horae *add.* Mt   **40-42** si tertium--quarta
p.h.a.: et sic de aliis a_3 **40** si: et si K Mt; nam si Pd   angulum occ.: o.a. M;
o. S; *om.* a_2 scilicet: *om.* S Y   in: *om.* F T Sf E A Fl   inf.dex.: i.parte d. S;
superiori sinistrae Bf; superiori d. Pd   **41** tunc: luna *add.* T W   primatur:
om. Y Sf; ponatur Bf; coniunctio erit Mt   parte: horae *add.* S; illius horae
add. Mt; horae ascriptae *add.* Fl   **41-42** et si est in q.--quarta p.h.a.: et sic de
quarto angulo S   **41** et si est in quarto: si quartum (4 Y) a_2; et s.i.q. K M Pl
Bf Tr Ef; s.est i.q. A Mj; si quarta Pd; et si quartum angulum occupat Mt
41-42 in inf-i (superiori Pd) sin-ae: inf.s. F K E Fl A; inf.sin-o M Bf; versus
sin-um Y T W   **42** tunc: luna *add.* T W Sf   primatur: *om.* Y; coniunctio erit
Mt   horae ascriptae: h.subscr. Pl; *om.* K a_2 Ef; cuilibet numero *add.* Pd   **43**
duo puncta: secundo puncto Bf   eadem: eande(!) Sf   cellula: cella S
inv-antur: -atur Bf; -entur Mj; reperiantur tunc W; id est(!) duo numeri
add. K   rubeum: rubeus C; rubens Ca; punctum *add.* T W Sc M Bf Tr Ef Mj
Pd   **44** litterae: lineae Sf Tr; horae Bf; *om.* S   attinebit: id est rubeus
numerus computabitur cum ultima littera *add.* K   autem: vero Mt   invene-
ris: tunc *add.* S   in complemento: incomplete Tr Ef   **45** ascriptae: tu
W   luna: linea M Ef   soli c-etur: c.s. K; s.c-entur a_3; s.c-itur S Mj;
s.adiungetur Tr   **45-46** et sciendum--praecedente: *alia* Mt   **45** et sciendum
est: et sc. S a_2 Or M Fl Tr Ef; et est sc. Ma; sc.est Sc; que(!) secundum est Pd;
et scias a_3 quod: quia Pd   **46** et: in Sf   horae: hora S   inc-unt: -mus(?)
Bf; *post* praecedente M   in: a *legunt* K S a_2 media: *om.* Ef

Subscriptiones: explicit canon supra kalendarium magistri petri de dacia dicti
philomena Ma; e.c.s.k. magistri petri daci T; e.c. super k.m. petri de dacia deo
gratias Pl; e.c. super tabulam lunae primationum S

§9a. *T.L.canon* "Ad locum".

Manuscripts:

(a) Reading "sinistrum" (*l.* 9), and mostly the full explicit at *l.* 16-19:

    F Q G H C Oa(151v) Fp(3rb) Lh
    R B P3 (omission in 13-14)
    Y W   (omission in 11-12; W lacks explicit)

(b) Reading "et in toto" (*l.* 14):

    Ma E2 (full explicit as above)
    Mj E7 (variant explicit)
    A O4   (no explicit)

(c) Reading "solis in signum" (*l.* 2):

    M M8 So(142v) (no explicit)

(d) Last sentence (*l.* 18-19) missing, readings otherwise closest to (a):
    Lp Ca (Ca with variant ending)

The paraphrases of this canon, and the other canons found with the *T.L.*, with their ascriptions, are reproduced in Appendix 3.

Ascriptions connected with the witnesses cited above, declension ignored:

.p.da.: Ca(?, at end of text)

(mag.) Petrus de Dacia: P3 E2 c

mag. Petrus de Dacia dictus Philomena: Mj A O4,
    Ma(in common with Kal.canon B)

All these, except that of Ca, occur in titles referring to the *T.L.* Further, manuscript G has an anonymous subscription common to Kal.canon A and the present text. There are no titles or subscriptions of note in Class a except G P3, nor in E7 Lp.

This canon is fairly well authenticated by its presence in many of the reference manuscripts, as cited under Class a. It is there generally coupled to Kal.canon A and is probably meant to belong together with it, cf. §6.

The text here printed rests on Class a and especially on F, but with the correction to "dextram" in *l.*9. All variants are indicated except some glosses.

§**9b.** *Apparatus to T.L.canon.*

Testes: a=(F Q G H C Oa Fp Lh, R B P3, a$_2$=(Y W))
    b=(Ma E2 Mj E7 A O4)
    c=(M M8 So)
    d=(Lp Ca)

Q ab initio ad *l.*10 mutilus est. Fp *l.*15 deficiente spatio desinit. Additamentum codicis Lh in App.1(a) quaeratur. Codices Lo, Le Ow Od, Bv Mk, Pl N(69va) Re, Ny(16r-v) Pe Od(7r), Wi Sx, Pn Bx Pd, Fp(96r) P3(primam versionem) S Or N(70r), X So(56v), N(70va), V, Oa(152r), Mz, Ny(16r) Pr in Appendice 3 exscripsi.

Inscriptiones: canon supra tabulam magistri petri de dacia ad sciendum in quo gradu signi sit luna omni die (ve)l a medio <. .> incepto et in quo gradu illius signi P3; incipit canon supra tabulam ipsius magistri Ma (*praecedente nomine* mag. petri de dacia dicti philomena); canon tabulae petri de dacia E2; canon supra tabulam magistri petri de dacia dicti philomena Mj A O4; canon super tabulam magistri petri de dacia (praepositam *add.*M8) c

1-10 *omnes*(>Q)

1 ad--habendum: *om.* Ca   ad locum etiam: ad loc. H Fp Lh W c Lp; et ad loc. E2   habendum: inveniendum Oa   videas: vide Fp Ca   **1-2** quota--eiusdem signi: in quo gradu signi Lp   quota--coniunctionis: quotus c-onis sit dies E2   **1** quota: «dies mensis» *add.* F   coniunctionis: <?>nis M; solis et lunae *ins.* Oa   **2** signi: solis in signum c   est: sol *add.* E2 A O4 O*ap.c.*   et: *om.* Oa*a.c.*   toto: quoto Mj   eiusdem signi: eiusdem Ca; illius W   sol: *om.* Y   **3** coniungentur: -etur R B; -untur Y Lp   ita--lunae: hoc est quo G   habebis: -bit Mj; habes Lh   lunae: eius Ca   **4** quod si--diem: si vero ad alium diem locum lunae Ca   eius: lunae E7   quemcumque: quemlibet Y E2   alium diem quaes.: a.q.d. G; d.a.q. P3   **5** dierum: ipsius lunae *add.* Lp   in: *om.* Lp   tabulam meam (me C): t. G Fp Lh R B a$_2$ d; t-a mea Oa   **6** de--inveniendo: lunae Lh; *om.* Lp   inveniendo *om.* Y   e: a E2   directo: eius signo *add.* Y(*ditt.*)   **7** descendens: descenderes M So; d-des et O4   **7-8** in angulo--et in: *om.* E2   **7** in$_1$: ab M So   sign.inv.: i.s. P3   invenies: -ens Ma   in$_2$: *n.l.* M   **8-10** erit luna--verum est: gradu signi sit luna per numerum graduum a sinistro stantium et hoc G   **8** erit: est Ca; est vel e. P3   luna: *om.* c   quoto: -ta Y   eiusdem (eius C) signi gr.: g.e.s. Mj E7 A O4; s.e.g. M8   fuerit: *om.* W Ca; *latet* P3   **9** versus: -tus(?) Y   dextram: sinistrum (-ram C; -ram vel(!) s. P3) a; lineam *add.* E2   stantium: statium Oa; statim Y; stans E2   numeri: -rum E2 Mj   **10** hoc$_1$: ?hic C; ?haec O4 F   ostendet: -dit Y E2 O4   hoc$_2$: ?haec F   verum est: e.v. P3 b c   coniunctio: (con)°no Mj; est *add.* Y   primo gradu: principio Oa   signi: *exinde integer* Q

10-15 *omnes*

11 fuerit: *ante* in primo G; *om.* P3   c-cumque: c-d(ebet) Y   sin: si Oa ?E7   supra: super Y E2 c Ca **11-12** iam--graduum: *om.* a$_2$ **12** signi: *om.* & *ins.* Ma **12-13** perfectorum--in tali gradu signi: *om.* W   **12** addas: add<. .> M   **13** aggregatum: -tio Y   vel: aut C; *n.l.* E7   **13-14** in tali gradu signi--30 fuerit: *om.* R B P3   **13** inventi: invenienti W; *om.* Ca   erit: est d   luna: -am E2   **14** autem: vero Ca   plus: quam *add.* Ca   30 fuerit: f.30 Mj; 30 affuerit Oa   abiectis 30: abiecti<. .> M; -tos 30 Ma; adiectis 30 Lp; abscisas 30 et C   ostendet: -dit C E2; tibi *add.* P3   in quoto: in quo C P3 c d; et in toto b   **15** sequentis: descendendo per rectam lineam *add.* Lp   erit: *om.* E2   erit luna: *explicit add.* Fp *et desinit*

15-16 *omnes*(>Fp)

15 quaesito: 4° Y   **16** a: *om.* So   die incepta: i.d. Oa; d. inita Y; d. incepto Ca; diei incepto Lp; i. So

16-18 si etiam--computabis: a(>Fp W) Ma d; *om.* W A O4 c; et pro duabus horis unum gradum computabis (etc. *add.* E7) Mj E7; et si locum eius ad alias horas eiusdem diei scire volueris super prioribus horis unum gradum computabis E2   **16** etiam: autem C d   **17** alia hora: h.a. Y   diei (die Ca) scire *add.* Oa d   pro duabus horis: p.d. Ca; *om.* Y   **18** gradum: -duum Oa Y Ma   c-tabis: c-ta Ca

18-19 locum--lunae: a(>Fp W) Ma E2; *om.* W Mj E7 A O4 c Lp; et gradum lunae habebis ad locum Ca   **18** voco: noto Oa   locum: -cos Y   epic. lunae: *om.* E2

Subscriptiones: explicit canon in kalendarium novum correctum G; explicit Ma, Fp (*l.*15); .p.da. Ca

§10a. *Calendar: ascriptions, title, locations and datings.*

For the attribution, evidence is abundant. Besides the headings of *Kal.canon B* (§8) one has, more significantly, the heading in K to *Kal.canon A* (§7) "ars istius kalendarii facti per magistum Petrum Philomenam de Dacia"; the testimony of the author of K's lunar table, App.4(b), "quaere in kalendario magistri P.de Dacia qui magis appropinquat veritati" (OP p.23,31); and the subscription in Sc "..canon magistri Petri de Dacia dicti Philomena supra kalendarium suum ab eo noviter compilatum" (§7). Later on, several dependent testimonia can be found in different contexts, such as the "Omnis creatura" (App.6(a)). In Bv Mk So this is appended to the version of the Calendar updated by Jo. de Palmis (see description of So, §2b), who gives his own testimony (App.1(c1)). In some later manuscripts the attribution was transferred to detached parts of the Calendar: cf. §§16 and 17, to *Grad* (in Ba) and *Qdie* (in Ba,Sg), both originally from William of St Cloud; and §§17 and 20, to the entries for solar signs and the figures for day-lengths, in L.

To extend the title of the Calendar, one might consider the "kalendarium...noviter compilatum" of Sc, above, or the secondary "..Kl. noviter factum Parisius" of K; cf. also the subscription in G, "...canon in kalendarium novum correctum"; the "canon in kalendarium Lincolniensis episcopi de novo correctum", to *Kal.canon A*, reported from Salamanca 2662 (§2c); and the heading in N to the lunar table App.4(c), "...per magistrum Petrum de Dacia correptorem huius kalendarii". The less central manuscripts X and Pr say "kalendarium novum magistri Petri de Dacia", cf. the reference "secundum novum kalendare" in the canon App.4(a4) to the lunar table of L. Thus there is no stable title except the banal one of *Kal.canon B*.

Locations to Paris emerge sparsely, earliest perhaps in the addition of K Sc H to *Kal.canon A*, mentioning the otherwise unknown "tabulas meas coniunctionum supra Parisius" (§7, and *Introd.*§3b,§21, with discussion). Paris is also mentioned by a secondary hand in K (above); in the extended rubric to *Kal.canon B* "kalendarium magistri Petri de Dacia dicti Philomene de civitate Parisius" of E; and most explicitly,

but least reliably, in the subscriptions of Bv So to *Kal.canon B* ".kalendarium magistri Petri de Dacia compositum ad meridianum Parisiensem" seen by Zinner (1936,324) in Bv (cf.OP p.9). Thus the express evidence, even if distinct, is scattered and has hardly followed the tradition of the Calendar proper. One more location is shown by the planet-table of Lo (App.6(b)). See generally *Intr.* §8.

Datings, to the year 1292 and concerning *Cycl,* are found in the canons of Oa Bv Mk So Bs (App.2(f2,h2), App.1(c2)). Oa has "et fuit iste kalendarius factus anno domini 1292, et iste numerus ponitur in principio primi cycli". Thus the year was obviously read off the letter table of *Kal.canon B.*

§10b. *Sub-tables and arrangement of Calendar.*

There is one express testimony, in Par.lat.7281 (14th c.),146v, in a gloss on William of St Cloud's canon for the *Kalendarium reginae* (seen by E.Poulle):

> Petrus Dacie fecit similiter kalendarium, in quo ponit 4^{or} cyclos primationum, incipiendo anno Christi 1292 pro litteris inveniendis, deservientibus annis usque ad 1653. In kalendario ponit primo illos 4^{or} cyclos decennonales cum litteris, numero horarum et punctorum; deinde numerum aureum; deinde litteras feriales; deinde numerum idus nonarum kalendarum; deinde festa sanctorum; deinde quantitatem cuiusque diei artificialis; deinde altitudinem solis meridianam. Et incipit diem et horas eius a media nocte praecedente.

The author of the gloss appears to have seen a copy of the Calendar with Canon B and the sub-tables (Cycl,Naur,D,Dfes(+Comp?),Qdie, Alts), which, if exactly rendered, would point to a copy like the mid-14th c. French Pl Mj (or the German or Swiss M Md Bv Mk So). In other words there is nothing to show that this testimony goes beyond our tradition.

Thus, the only first-hand evidence seems to be the silence of both Canon A and B about any sub-table but *Cycl,* as contrasted, e.g., to William's complete inventory of his calendar (App.5(j2)) including the tables *Alts,Qdie,* and *Qnoc* appearing in many of our manuscripts. The presumption is, then, that only the table *Cycl* (plus *Dfes,* carrying the solar dates to be used with the *T.L,* see §6) need have been provided for from the beginning.

The following recapitulates the inventories of the first hands in the reference manuscripts. *"Will"* stands for the conjunction table of William's calendar.

```
K              Cycl,      D, Dfes,Comp,Naur, Dmen,Dann
Sc             Cycl,Naur,D, Dfes+Comp,       Dmen,Dann
V              Cycl,      D, Dfes+Comp,Naur,Decl,Grad,(Dmen,Dann)
Cj     Will,   Cycl,      D, Dfes,Comp,       Dmen
Fp            Naur,Cycl,  D, Dfes,Comp
H             Naur,Cycl,  D,(Dfes),Comp,     Dmen,Dann
P   (Naur),Naur,Cycl,     D, Dfes,Comp,      Dmen,Dann
Q             Naur,Cycl,  D, Dfes,Comp,      Dmen,Dann
F             Naur,Cycl,  D, Dfes,Comp,      Decl
B             Naur,Cycl,  D, Dfes,           Grad,Decl
R             Naur,Cycl,  D, Dfes,           Alts,Qdie,Qnoc
G             Naur,Cycl,Qdie,Qnoc,D,Dfes+Comp,Decl,Grad,Dmen,Dann
(Y            Naur,Cycl,  D, Dfes,Comp,      Decl,Grad,Dmen,Dann)
(Oc   Will, Naur,Cycl,    D, Dfes,Comp,      Qdie,Qnoc,Alts,Decl,Grad,
                                             Dmen,Dann)
```

The collection

```
              Naur,Cycl,  D, Dfes,Comp,      Dmen,Dann
```

is that of Grosseteste's calendar in, e.g., Stockholm K.B.,X 767 and Wien Oe.N.B.,2367. The configuration starting with *Cycl* might of course be obtained by grafting *Cycl* on any ecclesiastical calendar; in fact this is the usual pattern in later manuscripts. Finally, there seems to be no regular way of arranging the extra tables. Apparently they could be attached to Grosseteste-calendars just as well: cf. §17a, and §2b on ms.M8,57r+.

On the whole, then, nothing indicates that any care was taken to fit *Cycl* into any particular environment including a fixed set of extra tables. It should rather be supposed that a user would imitate or even re-use the frame-work of, e.g., Grosseteste's calendar as a handy recipient. This was obviously the case in Cj or an immediate ancestor, where Grosseteste's canon has been kept as well (§6; seen by OP p.21), with some secondary adjustments.

Thus, without attempting to restore any kind of original, I print *Cycl* in a frame-work resembling Grosseteste's, sufficient to illustrate the common use of the Calendar. For *Dfes* and *Comp* I mainly follow F (see §13-14). – Since the extra tables (§15-18) might be useful for reference, they are printed alongside with the Calendar, in the order *Alts, Qdie, Qnoc* (from William's calendar), *Grad* (from William's Almanach), *Decl* (as yet unidentified). For some more tables occasionally found, see §20.

§11-20. *Sub-tables of Calendar.*

§11. *Naur* (sub-table of golden numbers). Manuscripts used: K Sc Fp V G H F B R P Q Oc. Not in Cj, where its place is apparently meant to be taken by William's table of conjunctions. Heading: "Aureus numerus" ("num.aur." Sc(Febr.),P). The table has been printed from K Sc F, which only show insignificant variants. The series is that common in any calendar from the time. Among the rest of the manuscripts examined, renewed values apparently occur in W,Bs(cf.to 12v) and in Ca.

An extra column of golden numbers for February is in K Sc, Fp(secondary hand), V H P, with the headings: "aureus numerus (a.n. *om.* Sc) in anno bissextili (-ti Sc) Sc Fp V H; "numerus aureus" P; "b'" K. The numbers are entered one day later than normal, beginning with 19 (K H P) or 11 (Sc V Fp) and ending in 9.

§12a. *Cycl* (sub-table of conjunctions), headings in the reference manuscripts and Oc:

"Cycli (-lus Q G Oc) primationum (-nis Oc) lunae": K, Sc, Oc, P(once), Q(7 times), G(3 times). – "Quattuor cycli lunares": R(8 times),B(6 times),F(3 times). – "Quattuor cycli primationum lunae" (*om.* F once): V, R(4 times),B(4 times),F(5 times). – "Cyclus cyclorum (primationis *add.* G once) lunae": Fp, F(once),P(11 times),Q(4 times),G(9 times). –

"Quattuor cycli naturalis computi (comp.nat. B once, F twice)": Cj, H, B(twice),F(3 times).

The headings show no stability. The last-mentioned is from Grosseteste; if there is a single one peculiar to the Calendar, it would probably be the first. The sub-heading is "1us--4us" in all manuscripts here cited.

Details on the edition of the *Cycl*-table itself can be found in §3 above.

§12b. *D* (column of Sunday letters and Roman dates.) In most manuscripts. Headings: "litterae feriales" K,Sc,Fp(2 omissions), G,H,Cj,F,RB,P,Q,Oc; (no heading) V.

§13a. *Dfes* (sub-table of fixed feasts). In all the mss. K Sc Fp V G, H (empty), Cj F R B P Q Oc, and in most others. Headings:

(Number of days:) "(month) habet dies (nn)" Fp V G H Cj F R B P Q Oc; (month) K (over *Comp*), Sc. - (*lunationes:*) "lunat(iones)" Fp G H Cj F R B Q Oc; "lunatio" P; (no entry) K,Sc,V. - (*reg.sol.:*) "regularis sol(aris)" Fp,G,H,Cj(3 times, and "r-ares s-ares" 3 times),F,R,B,P(10 times),Q("ferialis" once),Oc ("r-ares s-ares" twice, rest variously abbreviated); "regularis ferialis" K,Sc,V,Cj (5 times, and once "r-es f-les"),P(twice). - (*reg.lun.:*) "regularis lunaris": all mss. except for: "r-ares l-ares" Cj(6 times); "lunaris" Q(8 times), Fp(3 times, two of them with "vero" or "etiam"; and once "lunares").

The commonest set turns out to resemble the headings usual in Grosseteste's calendar, faintly altered in K,Sc, and partly in V. I have kept to the common readings in this case.

§13b. *Dfes,* feast-days. The martyrologies in the manuscripts vary according to locality or monastic order, at any rate for manuscripts used in liturgy. Some feasts which are taken to be locally significant have been cited in §2b under each manuscript (cf. §2b, preamble). No specifically Danish feasts have been found, except perhaps in Sf.

As concerns the reference manuscripts, the martyrologies of K Sc V are rather non-descript, whereas those in Fp, P Q G, F R B share significant features with each other and with Or, but with no other manuscript examined. These features, for which cf. §2b under ms.R, point to an origin in Paris or Northern France. It was decided to print a martyrology representing these manuscripts, since a closer location of them might be interesting, even if open to various interpretations, since none of them appear to have been liturgically used from the beginning.

Accordingly, the inventories of the first hands of Fp P F B are printed here, with inclusion also of K. Rubricated feast-days could not be discerned in the film of F, and only with uncertainty in that of Fp. I do not reproduce the words "sanctus", "beatus"; and I abbreviate as space demands. For word-order and the choice of epithets F is followed. The following symbols are used with the entries in the martyrology printed, except that rubrication of vigils is ignored:

(no symbol): occurring in all of K Fp P F B. Entry italicized if rubricated in K (Fp) P B.

a: occurring in Fp P F B. Entry italicized if rubricated in (Fp) P B.

Elsewhere the manuscripts carrying the entry are mentioned, in italics if they rubricate the feast.

List of cases not covered by this notation (day-numbers during the year):

13 Firmini: remigii K   **22** *nigrum* K   **32** *rubrum* Fp   **66** & Felic.: *om.* P **80** *rubrum* K   **92** *ad* 91 F   **115** Marci ev.: *nigrum* P   Lit.mai.: ieiunium K **121** *om.* P   **123** *om.* P   **126** *rubrum* PB   **129** *rubrum* Fp   **135** adventus s. spiritus in apostolos K   **162** *nigrum* P   **185** *rubrum* Fp   **201** *rubrum* B **217** *rubrum* B   **236** *nigrum* K   **240** *?rubrum* Fp   **241** *nigrum* P   **274** *rubrum* P   **277** *nigrum* PB   **282** *nigrum* K   **306** comm. omnium fidelium K **327** *?nigrum* Fp   **329** *nigrum* K   **338** S.Barbare K*p.c.*   **360** *nigrum* K **362** *nigrum* K

§14. *Comp* is a separate column from *Dfes* in K, Sc (no dividing line), Fp H Cj F P Q Oc; the two are merged in V G, and in R B, which lack most of the entries. – Headings: P Q F have "sol in (nn) gradu (sign)", where nn = 18,19,17(Mar-Jul),18(Aug-Dec). Fp V Cj H have occasional information on the start of different computistical cycles, either above this column or as general headings to pages. For other additions, which are few in these manuscripts, see §20b.

Where the columns *Comp* and *Dfes* are separate, entries may still be crowded from one into the other. I have kept the feasts proper in *Dfes* and referred the rest to *Comp*. This arrangement presupposed, the inventory printed is basically that of the first hand in F. Entries are unmarked where F is supported by at least one of K Fp P, and marked with "F" where F stands alone against the silence of the rest. Entries where a second hand in F ("F*p.c.*" for this purpose) is supported by one or more of K Fp P, are adopted selectively, and a note is made below in such cases. Secondary hands in K Fp P are ignored, as are most of the instances of consensus among these witnesses against F. Notes, referring to day-numbers during the year: **3** 4us: F; 2us Fp P   **38** primus terminus 40e *add.* F*p.c.*   **77** primus dies saeculi Fp, F*p.c.*   **83** loc.concurr.: K Fp P; cyclus conc. F*p.c.*   **167** *hic* K F; *ad* 166 Fp P, F *deletum*   **211** inst.7. (4 Fp*p.c.*): P, F*p.c.*; saltus lunae (in *add.* Fp) ultimo anno cycli 19lis *add.* Fp P, F*p.c.*   **267** hic renovatur indictio Fp P; *om.* K F   **334** finit 5us embol. F, *cf.335*   **336** inc.p.emb.: Fp F; et est error vicissi-tudinis *add.* F   **365** f.p.e.: Fp P, F*p.c.*

For the varying series of dates for the entrance of the sun into the zodiacal signs, see §6 and particularly §17.

§15. *Alts* (sub-table of meridian altitude of sun). The values for the meridian altitude of the sun, corresponding to the geographical

latitude of 48°;50 and thus valid for Paris, are the same as those included in the Kalendarium Reginae of William of St. Cloud (Harper 1966, 155-80, col.6, cf. William's canon "posui altitudinem solis in meridie in septimo climate", *op.cit.*98. See Zinner 1936,325, and contrast OP p.23). Further, judging merely from the distribution in the manuscripts, this table, like those following, is unlikely to have been present from the beginning of the tradition (cf. Zinner, above).

Manuscripts: R Oc, and some others, of which I have used C. Headings: "Altitudo solis meridiana" C, R(except once); "Altitudo solis in meridie" Oc, R(once). For the figures R was followed except twice, namely, **137** 62°: Oc C; 61 R and **322** 20°: Oc C; 19 R. – Oc and C depart simultaneously from R twice elsewhere, namely, **59** 36°: 35 Oc C and **91** 39′: 30 Oc; 29 C. – There are a few unsystematic departures from Harper's edition of William.

The "tabula graduum altitudinis solis et minutorum eius in meridie cuiuslibet diei secundum P. de Dacia", which occurs by itself in Ba, 149v, has values as in *Alts* and is no doubt an extract from the Calendar.

Tables with values which may be rounded or truncated from those of *Alts* are in the calendars of Ly, Mj, N; and tables adapted to other latitudes are in Bo,Ca,Ma,Oa, and secondarily in Cj. In Bo, Ca, and Oa, adapted *Qdie*-tables also occur (§16).

§16. *Qdie, Qnoc* (sub-tables of lengths of day and night). Like the table above, these tables are identical to those included in William of St. Cloud's Kalendarium Reginae (Harper 1966, 155-80, col.4-5; cf. William's canon "in tertia autem columna est quantitas dierum. artificialium mensis in directo cuiuslibet diei collocata. . .in quarta vero columna est quantitas noctis illius diei in directo cuius est posita", *op.cit.* 97-8. Cf. Zinner 1936,325; OP p.24).

Manuscripts: R G Oc, and several others. Headings: "Quantitas diei artificialis / Quantitas noctis ipsius" R G Oc. When accepting some secondary corrections in these manuscripts, the tables present few variant readings. R has been followed except at the only place where G Oc go against it together, namely, **141** 26′: G Oc: 25′ R.

Isolated tables with these values, attributed to Peter, occur twice, namely, as "Quantitas diei artificialis secundum magistrum Petrum de Dacia", in Ba,150r, with values for three dates in each month,

unevenly spaced, mostly corresponding to those of *Qdie*; and as
"Tabula quantitatum dierum artificialium in horis et minutis secun-
dum Petrum de Dacia", in Sg,29r, with all the values of *Qdie* (noted
by Eneström (1885,3) 25 no. 17; cf. O. Pedersen 1976, 36 no. (9.2)).
These are probably both extracted from the Calendar.

Tables of day-lengths for other latitudes are in the calendars of Bo,
Ca, Oa, and secondarily in F, cf. descriptions in §2b.

§17a. *Grad* (sub-table for solar longitude). The values in *Grad*
correspond to those in William of St.Cloud's *Almanach* for the dates
"1296" Jan.-Feb. (=our A.D.1297), and 1296 Mar.-Dec. (=our A.D.
1296). For the dating see also the testimony App.1(a1-2). These
values, like other selections of solar longitudes from William's
Almanach or older sources, often occur elsewhere in the form of
separate tables: examples of their contexts can be found in §6,
Introd.§5b, App.5(g1), and below. Such tables, including *Grad,* have
been analysed by R.P.Mercier (see List of References).

Manuscripts: V B G Oc, and some others. – Headings: "Gradus
solis" B, V (9 times), G(once), Oc; "Gradus solis in quolibet die" G(4
times); "Gradus solis in quolibet signo (gradu signi V(once))" G(4
times), V(3 times); "Gradus solis omni die" G(twice). – For the values
I have followed V unless noted, and further noted all variants in more
than one of the manuscripts mentioned.

5 23°: 33 V   **12-15** 35'-38': 36-39 BG   **64** 22°: 23° *omnes*   **74** 50': 40 V
151 17°: 18 V   **159** 46': 47 BG   **161** 26°: 24 V   **163-4** 35',32': 37,35 G;
35,37 B   **197** 0°: 1 V G Oc   **218** 13': 12 BG   **236** 40': 39 G Oc   **338-65**
(minute values left out by V: the majority of B G Oc was used)   **351-65** 8'--
21',22': 7,8--21 G

The values thus determined show three major deviations from the
copy of William's *Almanach* in Vat.lat.4572, namely: **64-85,** minute-
values mainly one less than *Almanach,* but no systematic slide of
column.   **182-212** 44',37',--,25',23': *Grad*; 42,39,37--,25 *Almanach.*
299-304 11',--,11': *Grad*; 12,12,13,13,14,15 *Almanach.*

A copy of *Grad* detached from the Calendar may be seen in the
anonymous table in S,21r, accompanying the Calendar, and showing
the errors of *Grad* above. The last is also true for a table found
together with *Decl* (§18) within the Grosseteste-calendar of Paris
St.Geneviève 1043,35r+ (cf.§6), of the early 14th century; since this

witness does not seem to depend on Peter's Calendar in other respects (§2c), it may be safer to assume some common source for the *Grad*-values including the errors. Lastly one should mention the set of tables for 4 years, accompanying Peter's Calendar in K,46v-48r: these show the values of the *Almanach* as against *Grad,* and are adapted to our year-reckoning so as to begin in Jan.1296. They cannot represent a source for *Grad,* since, as was seen, this rests on a table beginning in March.

§17b. *Dates of the sun's entrance into the zodiacal signs* (cf.§14). In the classification attempted below, one or two deviations in single manuscripts are ignored.

The original series was no doubt the old one of (*a*) *XV Kal.* in each month, left over from the framework of Grosseteste's calendar. Among all the manuscripts examined, this is found in K Sc L Kr, H Cj, T W Oc Sf, O, Wu Mf, A Pl Oa (second hand only), Pr. The entries generally have the form "sol in (sign)", additionally "secundum antiquos" (T W), "secundum Rupertum Linconiensem" (L); TWL have alternative series, cf. below.

The series (*b*) *12,11,13,12,14,14,15,16,15,15,14,13* is the one given by the *Grad*-table. It is in the manuscripts V L D, Ma Re, Mg, Mt Bv Mk Bs (except for one or two variants somewhere, and several in Mg Bs). For February and March, P Q have these dates as alternatives, and F C as the only ones; further, Sc has one as an alternative in February, and C one in April. The entries generally run "sol in (sign)","sol intrat/ingreditur (sign)", additionally "secundum Petrum Dacum" (L), "secundum verum motum eius"(Bs).

The series (*c*) *14,13,16,15,15,14,14,14,13,14,13,14* is in the manuscripts Fp, Or, and preponderant in P Q F C. The entries are "sol in primo gradu (sign)", or just "sol in (sign)" (Fp). I cannot determine the source of this series.

Other less common sets are: (*d*) *12,11,13,13,14,14,16,16,16,15,13,14,* in T W ("sol intrat (sign) primum gradum") and Y ("sol intrat (sign)", with a set of "sol in primo gradu (sign)" on the subsequent dates); (*e*) *12,11,13,13,14,14,16, 14,15,16,14,14,* in R B ("sol in(trat) (sign)"), corresponding, except for August, to the entries in William's Kalendarium Reginae; and (*f*) *14,12,13,13,14,14,14, 14,15,14,13,14* in Mj Ly. The rest of the manuscripts show no entries, or else their series are not comparable to the above or to each other. The set of Ca may, however, be that of C augmented by one.

The series of solar positions at the beginning of each month, quoted in §14, does not fit any of the series above, nor the table within the Old Quadrant (Tannery 1922,164).

§18. *Decl* (sub-table for solar declination). Manuscripts: V G F B Oc, and some others. – Headings: "Declinatio solis" V G F B Oc; "in quolibet gradu" *add.*V(twice); "omni die" *add.*G(3 times); "in quolibet signo/die" *add.*G(twice). – A further copy of the table occurs, alongside with *Grad* (§17a) in the Grosseteste-calendar of Paris St.Geneviève 1043 (§17a), here called Pg. I do not know of any other parallels. As in the case of *Grad,* it may be rash to assume that Pg had its values from a copy of Peter's Calendar.

For the text printed, the consensus of V Oc was followed where possible. I have noted all non-singular variants and an arbitrary choice of others.

32 28': FB; 38 V; 18 G; 34 Oc   **52** 37': 36 Oc; 39 G   **57-9** 50',20',59': 20,55,16 B   **61** 59': 50 FBG   **98** 10': 14 FBG   **114** 23': 33 Oc; 13 G   **119-20** 47',7': 33,31 B   **166-81** 33',31'--33': 31--33,32 G Oc   **171-2** 24',21': V,Oc(shifted); 21,20 FBG   **197** 20°: 19 FB; 10 Pg   **202** 48': 45 FB   **220** 13°: 14 FBVG; (shifted) Oc   **223** 12°: 13 *omnes*   **226** 12°: 11 *omnes* (and further inconsistencies in the degree-column, possibly due to shifts both here and in the minute-column)   **233** 26': 36 FB   **241** 25': 45 FB   **251** 57': 22 FB   **265** 50': 40 FB   **274** 12': 2 V; 0 G   **283** 45': 25 FB   **291** 40': 30 FB   **306** 20': 24 FB   **321** 20°: 21 FB   **328** 22°: 21 FB   **351-2** 29',27': 30,29 FB; 29,29 G   **360-1** 22°: 23 G Oc

Apparently G,FB form a group apart. At the points mentioned (except 197), the readings chosen turn out to be those of Pg, which, on the whole, seldom departs from the text printed.

When deleting the entries which are the arithmetical mean between their neighbours and could thus have been found by interpolation, the minute-values remaining show some preponderance of multiples of 10 and 12. At a guess, they might have been read off an astrolabe or some such instrument. In any case the values appear to be independent of those in *Grad,* which seems to exclude William as a possible origin. The source had better be left in doubt.

Manuscript A has a sub-table with the *Decl*-values truncated to degrees. No other variants of the table have been found.

§19. *Dmen.* Manuscripts: K Sc, G H Cj P Q, and others. – Headings: "dies mensis" Sc G H P Q, K(twice); "dies (month)" K(10 times); "numerus dierum" Cj.

Dann. Manuscripts: K Sc, G H P Q, and others. – Headings: "dies anni" K, Sc(4 times), G,H,P,Q(9 times); "dies mundi" Q(3 times); "dies totius (a principio Sc(once)) anni" Sc(8 times).

Both these tables were common in the calendar of Grosseteste and could have been improvised or taken over from some such framework.

§20a. *Other sub-tables of Calendar* (first hands).
Conjunction table from William of St.Cloud's *Kalendarium Reginae,* in Cj Oc Re: see App.5(j2).

At the appropriate places, columns for determining the dates of the five moveable feasts may be introduced, containing golden numbers (P,D,Pe) and/or the 35 possible tabular letters (D,L).

Lunar letters, for use with the lunar tables App.4(e): Bs Kt Pe. Cisiojanus, one syllable for each day, cf. App.5(f1): Bs Kr. For some other late additions see under Ml, Bs, Pd.

§20b. *Other additions to the Calendar,* usually occurring as entries to each month, are generally numerous and disparate, and should be sought in the descriptions §2b or in App.5 and 6. Those in the text-hands of the reference manuscripts are mentioned here.

The manuscripts K R B have no particular additions to the tables as printed here, with the modifications of §10ff.; and F P Q only add the headings "sol in (. .) gradu (sign)" (§14).

The entries "nox habet horas (. .), dies (. .)" for each month, with the day-lengths 8,10,12,14,16,18,16,14,12,10,8,6, are in V, Sc(Feb.-May), Fp(Jan.-Mar., secondary), and are frequent elsewhere. They may have been introduced from any calendar current. An attribution "secundum Petrum Dacum", in L, may be explained by the assumption that L used an ascribed copy of the Calendar in addition to another source: for a parallel see §17b(a-b).

A table "Quantitas crepusculi" with two values for each month, labelled "in principio huius mensis" and "in medio huius mensis", is in G, R(Jan., secondary), and in L Oc Re Oa Bs. The values of Oc are $2^h;2$ $2^h;0$ / 1;56 1;54 / 1;52 1;53 / 2;2 2;11 / 2;31 2;55 / 3;47 4;0 / 3;32 2;53 / 2;24 2;8 / 1;56 1;52 / 1;52 1;53 / 1;56 2;0 / 2;4 2;6. The values of G are the same but for several scribal errors. – The table, and the values except for two deviations of 1', are those of William's *Kal.reginae* (Harper 1962,155+, mentioned in William's canon, *op.cit.* 99-100).

Some computistical information, at the top of a page or heading the column *Comp,* occurs as follows: (January, H V Fp:) "Hic

renova(n)tur littera dominicalis, aureus numerus et claves termino-
rum". (March, H V:)"Hic incipiunt regulares solares et concurrentes".
(September, V:) "Hic incipiunt epacta et regular.lunar."; (H:) "Hic
incipiunt regulares lunares et epactae et embol. etc." – Differently
arranged, in Fp to January and in V to February, one has "Primus
annus Christi incepit in die Sabbati; primus annus Arabum incepit in
die Iovis(om.V); primus annus Graecorum incepit in die lunae".

Other additions occur in plenty in the later manuscripts. Since, as
was seen, the reference manuscripts either have well-defined and
common additions or lack them altogether, no reason was found to
adopt any of them in the text printed.

§21-22. *T.L.* "Tabula Petri Daci de loco lunae inveniendo. . ."

§21. *T.L. in the reference manuscripts.* Considering only the reference
manuscripts, *T.L.* is found in V, G F R B P Q, Fp(secondarily).
Comments on its occurrence and its coherence with the Calendar can
be found in §6.

Headings: as printed: V F R B P Q Oc, and G(om."a media--in-
cepto"); "Tabula magistri Petri de Dacia ad sciendum in quo signo sit
luna et(!) quolibet die anni a media nocte sui incepto" Fp. – Sub-
headings: "aetas lunae / gradus lunae (om.F; signi Q)": F R B Q; "dies
perfecti aetatis (aetas Fp) lunae / gradus signi in quo est luna" Fp P
Oc; "aetas lunae / ⟨ ⟩ in quo est luna" G; "dies / gradus ad initium
signi" V.

A row of month-names March--February is added by G (above
heading) and by Fp Oc (above first row of signs). This is not
presupposed by the canon and must have been taken over from the
old lunar table (see below). In the first row of the body of V's table,
a second hand has added short notes on the properties of the signs.

The orientation of the sign-names in the body of the table printed
is as in GFRBPQ. In Oc the upper left "aries" and its analogues have
been given a half turn; in Fp, the names in odd columns have been
written ↘ and those in even columns ↗, all standing on the
diagonal; the same holds for V, but the directions are ↗↘.

For the origin of the table, an easy guess is the old 12 × 12
Tabula lunae, common in our period (see App.4(a)). The right column
of degree-values may have been taken from a contemporary one-
dimensional lunar table (App.4(c)), which happens to occur in ms.N

appended to the Calendar. A different value for the lunar velocity is shown by the table in William of St.Cloud's calendar (App.4(d)).

§22. The details of the *T.L.* vary much in the remaining manuscripts. The following only presents some salient features, to be found in more detail in §2a and §2b.

A common alternative heading is some variant of "Tabula magistri Petri de Dacia (dicti Philomena *add.* Lp Ma P3) ad sciendum in quo signo sit luna (l.s. qualibet die Lp) et in quo gradu illius (*om.* Lp) signi (*om.* Ma)": A Mj O4 E7,Lp,Ma,P3,O5,La,Om; "Tabula magistri Petri de Dacia dicti Philomena" C, M M8 So(142v). Significant similarities are also shown by Bv Mk So(56v); Ba Pc; L S Ro; Pr(24v) Pe; Le Ow. The label "Tabula medicorum", in some context, is found in Ro,Pl,E2,L. This may be traditional: see, e.g., App.4(a2) note 2, and cf. *Intr.,* note 11. The commonest sub-headings to the left and right columns are still "Aetas lunae / Gradus lunae".

The upper row of month-names (§21) is a common feature. See App.4(a) for some further instances of mixture with the 12 × 12 lunar table.

The right column, of degrees, often has the form "13,26,. . .,5", or 1 degree less than normal. For parallels one has the Compotus Orbicularis, cf. App.4(d), and the statement "Compotus Cy(rome-tralis) habet sic" of Kh,151r. This set of values is shown by Bv Mk So(56v) Bs, Pr(I^r and 24v) Pe, X, Ml, all of which are anonymous but accompany the Calendar; by Wi, Bx, Pf, Vp, which have ascriptions in a heading or canon; and by Kh Md Pn.

A specifically English group seems to consist of the lunar tables where, using the symbols of §2a, the right column shows (c) degrees and minutes, mostly beginning with 13°10'; or where (d) it is split up into about 11 columns; the first of these mostly has the degree-values "13,26,. . .", which are then incremented by 3° in each succeeding column, turning from 30° to 1°. Degree-values belonging to different signs may be separated by red lines, cf. the canon App.3(g). None of all these tables have ascriptions to Peter except that of Lo. Their contexts are as follows: *Calendar of Elvedene* and astrology: Lo(c), ascribed to Peter and with the canon App.3(a1) much resembling the T.L.canon. *Tables of Will. Reed,* or astrology: Le(d); Ow(d); Od,53r(c, 13 rows and columns), all with the canon App.3(a2) not unlike Peter's. *Calendar of Nicholas of Lynn:* Lr(c);Ln(c), both with 13 rows, no canons. *Calendar of John Somer:* Pr,22r(d, also a normal right col.); Ny(c+d), both of them with the canon App.3(g), and Ny also with App.3(c1) which accompanies the Calendar

elsewhere (in Pe). *Other contexts*: Od,7r-v(?garbled), with the canon just mentioned, and astrology like Lo. Further, Ew(c+d), in no determinable context; Mz(c), to a German calendar App.5(j9), with canon App.3(f); B, in a later addition (c); and Par.lat.11252(c, French: §2b). A further English example of type (d) is shown by Bober 1948, Plate 11*d* and p.26 n.6, from the folding-out calendar London B.L. Sloane 2250, where it is accompanied by a sign-man with the canon App.6(d8). The connexion of all these lunar tables with the *Calendar* or *T.L.* is, on the whole, indicated in several ways, but clearly they constitute one or a few isolated groups, so that neither their form and context, nor specifically the other ascriptions (App.6(b)) carried by Lo, should give rise to inferences about the textual history of the authentic *T.L.*

Kal.canon A : p.331-33
T.L.canon   : p.333
Kal.canon B : p.334-35

Kalendarium : p.336-59
T.L.   : p.360

Sectiones praefationis,
ubi cuiusque rei testes citantur,
paragraphi indicabunt.

In hoc primationum cyclo 4 lineae descendentes 4 cyclis decenno-
vennalibus deserviunt, in quibus lunae cum sole coniunctio secun-
dum medios motus invenitur. Ad hoc igitur sciendum scire te
oportet, in quoto cyclo horum 4 cyclorum sis et in quoto anno cycli
5 eiusdem. Annos igitur domini cum imperfecto per 76 dividas, et
residuum si minus 20 fuerit,

est annus instans in primo cyclo totus
quantum residuum; et si fuerit plus 19,
minus tamen 39, est annus instans in
10 secundo cyclo totus quantum resi-
duum, demptis 19; si autem fuerit plus
38, minus autem 58, abiectis 38 resi-
duum ostendet, in quoto anno sis cycli
tertii; si vero plus fuerit 57, minus
15 tamen quam 77, ultimus cyclus erit et
annus eiusdem totus quantum resi-
duum, demptis 57. – Si autem ex
abrupto scire volueris, in quoto anno
quoti cycli fueris, sine divisione, pro
20 prima revolutione kalendarii scias istos
versus: 'Mille minus cum ducentis
nonaginta duobus Ex annis domini
quaeratur littera cycli'. Ab annis igitur
domini demas 1292, et residuum dabit
25 tibi annum, cum quo invenies litteram
primationis. – Quotuscumque igitur
quoticumque cycli fuerit annus, litte-
ram in ordine alphabeti totam quae-
ras, et haec erit littera primationis anni
30 praesentis vel ut praesentis.

(*H Sa*:) litteram totam in
ordine alphabeti quaeras
in linea prima descenden-
te; et si a 19 et in 39,
abiectis 19 residuum quan-
tum fuerit, litteram in or-
dine alphabeti totam quae-
ras in secunda linea des-
cendente; et si inter 38 et
58, abiectis 38 residuum
quantum fuerit, litteram in
ordine alphabeti totam
quaeras in linea tertia des-
cendente; si vero plus fue-
rit 57 et minus 77, demptis
57 residuum – et cetera –
quaeras in linea quarta
descendente. Si etiam nihil
remanserit facta divisione,
scias te esse in anno ultimo
cycli totalis, et tunc T pri-
mationis litteram quaeras.

Quacumque igitur littera primationis inventa, scias per totum
annum, cui deservit, lunam primam esse die e directo eius ascripto,
et a media nocte praecedente ipsum hora tota, quotus [seu quantus]
est numerus litterae inventae subscriptus; immo in horae ultimae
35 quarta tota, quotum angulum cellae litterae punctus occupat, a sini-
stro qui sursum est per dextram computando. Si etiam duo puncta in
eadem cella inveniantur, rubeum posteriori litterae attinebit. Quando
etiam duo puncta in eundem angulum in ipsa compositione ceci-
derunt, per angulum bipertitum designavi. Si etiam nullum punctum
40 inveneris, in complemento horae ascriptae luna soli coniungetur.

(*H Sa:*) Nec bissextus aliquam immutationem in perpetuum
inducet, sed semper luna primabitur ubi primatio est ascripta.

Transactis autem 76 annis, quod erit anno domini 1369, demantur
de horis 6, et puncta ad proximos angulos in antea situentur, et
45 current primationes sicut prius.

(*H Sa Sb, def. Y:*) Et nota quod si vitium scriptoris devitare
volueris, litterarum ordinem hunc habeto, quia octava in
ordine alphabeti ab assumpta eam sequetur.

(*K H Sa, Y:*) Si etiam ipsum de novo componere volueris, per tabulas
50 meas coniunctionum supra Parisius primam coniunctionem anni
domini 1369^i quaeras,

(*H Sa Y:*) et invenies eam 8° die
Ianuarii, 21ª hora, et 6° minuto
illius horae. 'A' igitur scribas in
55 prima linea descendente e direc-
to 8^i diei Ianuarii, et sub ipso 21,
et punctum in primo angulo su-
periori versus sinistram. Deinde
supra 8 dies addas 29, et supra
60 horas 12, et supra minuta 44 et 3
secunda, et ab aggregato tollas
dies mensis Ianuarii, scilicet 31,
et remanebunt 7 in diebus, 9 in
horis et 50 in minutis et nihil in
65 secundis.

(*K:*) et eam invenies 8° die Ianua-
rii, 22ª hora, lapsis 6 minutis.
Scribas igitur 'A' e directo 8^i diei,
et sub eo 22, et punctum in
angulo superiori versus sini-
stram. Deinde, scriptis 8 diebus
21 horis et 6 minutis in pulvere,
eis subscribas tempus lunationis,
scilicet 29 dies 12 horas 44 minu-
ta et 3 secunda, quod sufficit, et
primis addas, quodlibet alteri sui
generis, et ab aggregato tollas dies
Ianuarii, et remanebunt 7 in die-
bus, 9 in horis et 50 in minutis.

(*H Sa Y:*) Scribas igitur 'A' e directo 7^i diei Februarii, et sub eo 9, et
punctum in sinistro angulo inferiori. Semper igitur supra residuum
addas sicut primo, et ab aggregato tollas dies mensis, in quo ultimo
nunc scripsisti; caveas etiam, ut in anno bissextili pro diebus
70 Februarii tollas 29. Et sic per omnes menses anni primi scribas A, sic
in secundo B, et sic deinceps usque ad T, et tunc iterum A et B et
cetera in secunda linea, et sic quousque 4 cycli compleantur, scilicet
anno domini 1444°.

Ad locum etiam lunae habendum videas quota est dies coniunc-
tionis ab ingressu signi, in quo est; et in toto gradu eiusdem signi sol
et luna coniungentur, et ita habebis locum lunae ad diem coniunc-
tionis. Quod si locum eius ad quemcumque alium diem quaesieris,
5 cum numero dierum a die coniunctionis perfectorum in tabulam
meam de loco lunae inveniendo intres, et e directo eius sub signo
coniunctionis descendens in angulo communi signum invenies, in
quo erit luna; et in quoto eiusdem signi gradu fuerit, numerus
graduum versus dextram stantium e directo numeri dierum vel signi
10 hoc ostendet. Et hoc verum est, si coniunctio in primo gradu signi
fuerit cuiuscumque; sin autem, supra numerum graduum iam inven-
torum numerum graduum signi coniunctionis perfectorum addas; et
aggregatum si 30 vel minus fuerit, in tali gradu signi inventi erit luna;
si autem aggregatum plus 30 fuerit, abiectis 30 residuum ostendet in
15 quoto gradu signi sequentis erit luna, die quaesito, hora consimili
horae coniunctionis, a media nocte die incepta. Si etiam locum eius
pro qualibet alia hora eiusdem diei volueris, pro duabus horis
gradum computabis. Locum autem lunae voco locum centri epicycli
lunae.

In ista parva tabula sunt quattuor cycli sive lineae ad sciendum quae littera est primationum lunae, et hoc per annos domini.

1292	1311	1330	1349
1368	1387	1406	1425
1444	1463	1482	1501
1520	1539	1558	1577
1596	1615	1634	1653
A	A	A	A
B	B	B	B
C	C	C	C
D	D	D	D
E	E	E	E
F	F	F	F
G	G	G	G
H	H	H	H
I	I	I	I
K	K	K	K
L	L	L	L
M	M	M	M
N	N	N	N
O	O	O	O
P	P	P	P
Q	Q	Q	Q
R	R	R	R
S	S	S	S
T	T	T	T

CANON SUPRA KALENDARIUM MAGISTRI PETRI DE DACIA.

Quaere inter numeros in superiori parte istius tabulae positos unum numerum ex illis, qui maxime similis est annis domini, et sit minor quam anni domini. Si forte annos domini complete non inveneris ibi, tunc illum numerum, qui forsitan minor est annis domini, comple et fac eum aequalem annis domini, scilicet computando a sursum usque ad deorsum; et littera illa de litteris huius tabulae, quae perfecerit annos domini, primationis erit. Et si praecise inveneris annos domini, tunc littera ultima lineae praecedentis versus sinistram erit littera primationis illius anni.

[Verbi gratia, esto quod anni domini sint 1311: eos invenies in capite secundae lineae versus dextram computando a sinistra, et ideo littera ultima lineae primae, scilicet T, erit littera primationis lunae illius anni. – [Sed quando anni domini erunt in prima linea, scilicet 1368 vel 1444 vel 1520 vel 1596, tunc littera ultima lineae quartae, scilicet T, erit littera primationis lunae illius anni.]]

Quacumque igitur littera primationis inventa, scias in quo cyclo est vel in qua linea, et tunc quaeras eam in tali cyclo kalendarii.

Et sciendum quod ubicumque invenitur littera primationis deserviens illi anno, de

quo quaeris primationem, in tali die luna primatur, et numerus
35 subscriptus horam primationis ipsius ostendit; et in tali quarta horae,
qualem angulum punctus occupat, computando ab angulo superiori
sinistro. Nam si punctus primum angulum occupat, scilicet in
superiori sinistrae, tunc luna primatur in prima parte; si secundum
angulum occupat, scilicet in superiori dextrae, tunc primatur in
40 secunda parte; si tertium angulum occupat, scilicet in inferiori
dextrae, tunc primatur in tertia parte; et si est in quarto, scilicet in
inferiori sinistrae, tunc primatur in quarta parte horae ascriptae. Si
autem duo puncta in eadem cellula inveniantur, rubeum posteriori
litterae attinebit. Si autem nullum punctum inveneris, in comple-
45 mento horae ascriptae luna soli coniungetur. Et sciendum est quod
dies et horae incipiunt in media nocte praecedente.

IANUARIUS HABET DIES 31
LUNATIONES 30
REGULARIS SOLARIS 3
REGULARIS LUNARIS 9

Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litterae feriales			
	1us	2us	3us	4us				
3	.s 14	s 6.	.s 23	s 15.	A		*Circumcisio domini*	D' hora 11^a
			g. 19		b	4 N'		
11	.g 10	g .2		g .11	c	3 N'	Genovefe virg. KFB	Inc. 4us emb.
	p .22	p. 15	.p 8	p 24.	d	2 N'		
19				d 20.	e	NONAS		
8	.d 19	d 11.	.d 4		f	8 ID	*Epiphania domini*	
		m. 24	m .16	m. 9	g	7 ID		Locus clav. 70^æ
16	m 7.				A	6 ID		
5	a .3	a. 20	a .12	a 5.	b	5 ID		
	i 16.			.i 18	c	4 ID	Willelmi Bituric. KFB	
13		.i 9	i 1.		d	3 ID		
2	r. 5	r .21	r. 14	r .6	e	2 ID		
			f .17		f	IDUS	Hilarii ep. KFB Firmini FB	
10	f. 1		f 10.	.f 3	g	19 KL		Sol in primo gradu aqu.
	.o 14	o 6.	.o 23	o 15.	A	18 KL	Mauri ab. a	
18			c. 19		b	17 KL		
7	.c 10	c .2		c .11	c	16 KL		Clav.minores et prim.term.70^æ F
	l .22	l. 15	.l 8	l 24.	d	15 KL	Prisce virg. a	Prima 70^a F
15			t 20.		e	14 KL		
4	t. 11	.t 4		t. 13	f	13 KL	Fabiani et Sebastiani KFpFB	
		h. 24	h .16	h. 9	g	12 KL	Agnetis virg. a	
12	h .7			.q 22	A	11 KL	*Vincenti mar.*	
1	q. 20	.q 13	q 5.		b	10 KL		
	e 16.			.e 18	c	9 KL	Matthei disc. Pauli F	
9		.e 9	e 1.		d	8 KL	*Conversio Pauli*	D' hora 6^a
	n. 5	n .21	n. 14	n .6	e	7 KL		
17			b .17		f	6 KL	Iuliani ep. KFB	
6	b. 1		b 10.	.b 3	g	5 KL	Agnetis secundo Fp	Locus clav. 40^æ
	.k 14	k 6.	.k 23	k 15.	A	4 KL		
14			s. 19		b	3 KL		
3	s .2		s .11	s. 4	c	2 KL		

Altitudo solis meridiana	Quantitas diei artificialis	Quantitas noctis ipsius	Gradus solis	Declinatio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
18 57	8 18	15 42	19 24	22 6	1	1
19 6	8 20	15 40	20 25	21 59	2	2
19 15	8 21	15 39	21 26	2̇1 48	3	3
19 25	8 23	15 37	22 27	21 40	4	4
19 35	8 25	15 35	23 29	21 30	5	5
19 45	8 27	15 33	24 30	21 20	6	6
19 56	8 29	15 31	25 31	21 10	7	7
20 7	8 32	15 28	26 32	20 58	8	8
20 19	8 34	15 26	27 33	20 48	9	9
20 31	8 36	15 24	28 34	20 35	10	10
20 43	8 38	15 22	29 35	20 20	11	11
20 56	8 41	15 19	0 35	20 15	12	12
21 9	8 43	15 17	1 36	20 0	13	13
21 23	8 46	15 14	2 37	19 40	14	14
21 37	8 48	15 12	3 38	19 30	15	15
21 51	8 51	15 9	4 39	19 9	16	16
22 6	8 53	15 7	5 39	19 0	17	17
22 21	8 56	15 4	6 40	18 48	18	18
22 36	8 59	15 1	7 41	18 30	19	19
22 51	9 2	14 58	8 42	18 18	20	20
23 7	9 5	14 55	9 42	18 0	21	21
23 24	9 8	14 52	10 43	17 40	22	22
23 41	9 11	14 49	11 44	17 28	23	23
23 58	9 14	14 46	12 44	17 5	24	24
24 15	9 17	14 43	13 45	16 48	25	25
24 32	9 20	14 40	14 46	16 33	26	26
24 50	9 23	14 37	15 47	16 14	27	27
25 8	9 27	14 33	16 47	15 58	28	28
25 26	9 30	14 30	17 48	15 40	29	29
25 44	9 33	14 27	18 48	15 27	30	30
26 3	9 36	14 24	19 48	15 0	31	31

Alts §15   *Qdie* §16   *Qnoc*   *Grad* §17a   *Decl* §18   *Dmen* §19   *Dann*

FEBRUARIUS HABET DIES 28
LUNATIONES 29
REGULARIS SOLARIS 6
REGULARIS LUNARIS 10

	Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litterae feriales		Sancti	Comp
		lus	2us	3us	4us	es			
		g .22	g 15.	. g 8	g 24.	d	KL	Brigide virg. a	\<Finit 4us emb.\>
	11			p 20.		e	4 N'	*Purificatio Marie*	
	19	p 11.	. p 4		p. 13	f	3 N'	Blasii ep.	Instantia prima
35	8		d 24	. d 16	d. 9	g	2 N'		D' hora 8^a
		. d 7			. m 22	A	NONAS	Agathe virg. *Fp*FB / Agnetis P	
	16	m. 20	. m 13	m 5.		b	8 ID		Prima incensio lunae 40^{æ} F
	5	a 16.			a. 18	c	7 ID		Clav.minores 40^{æ} F
			. a 9	a 1.		d	6 ID		Primum 40^a
40	13	i. 5	i .21	i 14	i . 6	e	5 ID		
	2	r 17			r 19.	f	4 ID	Scholastice v. *Fp*FB	
			r 10.	. r 3		g	3 ID		Sol intrat pisc.
	10	. f 14	f 6.	. f 23	f .15	A	2 ID		
			o. 19			b	IDUS		
45	18	o . 2		o .11	o. 4	c	16 KL	Valentini mar. a	Noviss.term.70^{æ} F
	7	c .22	c 15.	. c 8	c 24.	d	15 KL		
				l .20		e	14 KL	Iuliane virg. KP FB	
	15	l 11.	. l 4		l. 13	f	13 KL		
	4	t. 24	t .16	t. 9		g	12 KL		Finis 70^{æ} F
50					.,ht 22²	A	11 KL		
	12	h. 20	. h 13	h 5.		b	10 KL		
	1			q. 18	q .10	c	9 KL		Ultima 70^a
		. q 9	q 1.			d	8 KL	*Cathedra Petri*	Ver oritur
	9	e. 5	e .21	e. 14	e . 6	e	7 KL		
55		. n 18	n 10.		n 19.	f	6 KL	*Matthie ap.*	Locus bissexti
	17			,bn 23³		g	5 KL		
	6	. b 14	b 6.		b .15	A	4 KL		D' hora 10^a
		k. 19	k .11			b	3 KL		
	14	k . 2		s 24.	k 4.	c	2 KL		

Naur	Cycl	D	Dfes	Comp
§11	§3-5,12a	§12b	§13	§14

Altitudo solis meri- diana	Quantitas diei arti- ficialis	Quantitas noctis ipsius	Gradus solis	Decli- natio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
26 23	9 40	14 20	20 49	14 28	1	32
26 42	9 43	14 17	21 49	14 20	2	33
27 2	9 46	14 14	22 50	14 0	3	34
27 22	9 49	14 11	23 50	13 30	4	35
27 42	9 52	14 8	24 50	13 16	5	36
28 2	9 56	14 4	25 51	13 0	6	37
28 22	9 59	14 1	26 51	12 50	7	38
28 43	10 3	13 57	27 51	12 38	8	39
29 3	10 6	13 54	28 52	11 59	9	40
29 24	10 9	13 51	29 52	11 36	10	41
29 45	10 13	13 47	0 52	11 20	11	42
30 6	10 16	13 44	1 52	10 58	12	43
30 28	10 20	13 40	2 52	10 24	13	44
30 50	10 23	13 37	3 52	10 10	14	45
31 12	10 26	13 34	4 52	9 50	15	46
31 34	10 30	13 30	5 52	9 28	16	47
31 56	10 33	13 27	6 52	9 6	17	48
32 18	10 37	13 23	7 52	8 46	18	49
32 41	10 40	13 20	8 52	8 24	19	50
33 4	10 44	13 16	9 51	8 10	20	51
33 27	10 47	13 13	10 51	7 37	21	52
33 50	10 50	13 10	11 51	7 18	22	53
34 13	10 54	13 6	12 50	6 57	23	54
34 36	10 58	13 2	13 50	6 20	24	55
34 59	11 2	12 58	14 50	6 0	25	56
35 23	11 5	12 55	15 49	5 50	26	57
35 47	11 9	12 51	16 49	5 20	27	58
36 11	11 13	12 47	17 49	4 59	28	59

Alts	Qdie	Qnoc	Grad	Decl	Dmen	Dann
§15		§16	§17a	§18		§19

KL · MARTIUS HABET DIES 31 · LUNATIONES 30 · REGULARIS SOLARIS 5 · REGULARIS LUNARIS 5

	Aureus numerus	lus	2us	3us	4us	Literæ feriales		Festivals	Comp
60	3	s 15.	.s 8		.s 17	d		Albini ep. FB	D' hora prima
				g .20	g. 13	e	6 N'		
	11	g 11.	.g 4			f	5 N'		
		p. 24	p .16	p. 9	.p 2	g	4 N'		
	19	.d 20.			.d 22	A	3 N'		Inc. 7us emb.
65	8		.d 13	d 5.		b	2 N'	Iuliani ep. FB	Inc. 3us emb.
		.m 9		m. 18	.10 m	c	NONAS	Perpetue et Felicitatis a	Prima accensio lunae paschal.
	16		am .211			d	8 ID		
	5	a. 5		a. 14	.a 7	e	7 ID		
		.i 18	i 10.		i 19.	f	6 ID		
70	13		r. 23	.i 3		g	5 ID		Loc.clav.paschæ
	2	r 6.		r .15	r. 8	A	4 ID	Gregorii pp.	
			f. 19	f .11		b	3 ID		Sol intrat arietem F
	10	f .2		o 24.	f. 4.	c	2 ID		Ultima 40a
		o 15.	.o 8		.o 17	d	IDUS	Passio Iacobi a	
75	18			c .20	c. 13	e	17 KL		Æquinoct.vernale
	7	c 11.	c. 4			f	16 KL		
		l. 24	l .16	l. 9	l 2	g	15 KL		
	15			.t 22	t 14.	A	14 KL	Trl. Magdalene a	
	4	.t 13	t 5.			b	13 KL		
80		.h 9		h. 18	.10 h	c	12 KL	Benedicti ab.	Prim.term.pasch.
	12	q .21	h. 1		q 23.	d	11 KL		Primum pascha Sedes epactarum
	1		q. 14	q 7		e	10 KL		Adam creatus Inc. cycl.19'lis
		.e 18	e 10.		e 19.	f	9 KL		Loc.concurrent.
	9		n. 23	.e 3		g	8 KL	*Annuntiatio dominica*	Crucifixio
85		n .6		n. 15	n. 8	A	7 KL		
	17		b. 19	b 11		b	6 KL		Resurrect.prima
	6	b .2		k 24.	b. 4.	c	5 KL	Alexandri cf. a	D' hora 2a
		k 15.	.k 8		.k 17	d	4 KL		
	14		s .20	s. 13		e	3 KL		
90	3	s. 4			.s 5	f	2 KL		

Naur §11   *Cycl* §3-5,12a   *D* §12b   *Dfes* §13   *Comp* §14

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Altitudo solis meri- diana	Quantitas diei arti- ficialis	Quantitas noctis ipsius	Gradus solis	Decli- natio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
36 37	11 17	12 43	19 2	4 23	1	60
37 1	11 20	12 40	20 1	3 59	2	61
37 24	11 24	12 36	21 1	3 37	3	62
37 47	11 28	12 32	22 0	3 31	4	63
38 11	11 31	12 29	22 59	2 25	5	64
38 34	11 35	12 25	23 58	2 14	6	65
38 58	11 38	12 22	24 57	1 49	7	66
39 22	11 42	12 18	25 56	1 30	8	67
39 45	11 46	12 14	26 56	1 18	9	68
40 9	11 50	12 10	27 54	0 50	10	69
40 32	11 53	12 7	28 53	0 35	11	70
40 56	11 57	12 3	29 52	0 10	12	71
41 20	12 0	12 0	0 51	0 0	13	72
41 43	12 4	11 56	1 51	0 25	14	73
42 7	12 8	11 52	2 50	0 50	15	74
42 30	12 12	11 48	3 49	1 20	16	75
42 54	12 15	11 45	4 48	1 47	17	76
43 18	12 19	11 41	5 47	2 18	18	77
43 41	12 23	11 37	6 46	2 40	19	78
44 4	12 26	11 34	7 45	3 6	20	79
44 27	12 30	11 30	8 44	3 20	21	80
44 51	12 34	11 26	9 43	3 48	22	81
45 14	12 37	11 23	10 42	4 12	23	82
45 37	12 41	11 19	11 41	4 30	24	83
46 0	12 45	11 15	12 40	4 54	25	84
46 23	12 48	11 12	13 39	5 20	26	85
46 46	12 52	11 8	14 38	5 39	27	86
47 8	12 55	11 5	15 37	6 0	28	87
47 31	12 59	11 1	16 36	6 20	29	88
47 53	13 2	10 58	17 34	6 55	30	89
48 16	13 6	10 54	18 32	7 16	31	90

Alts   Qdie   Qnoc   Grad   Decl   Dmen   Dann
§15   §16   §17a   §18   §19

APRILIS HABET DIES 30
LUNATIONES 29
REGULARIS SOLARIS 1
REGULARIS LUNARIS 10

Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Literae feriales		Saints	Notes
	1us	2us	3us	4us				
	g. 24	g .16	g. 9.	. g 2	g			
11			. p 22	p .14	A	4 N'	Marie Egyptiace a	
	. p 13	p 5.			b	3 N'		Finit 7us emb.
19	d. 9		d. 18	d .10	c	2 N'	Ambrosii ep.	Finit 3us emb.
8	m .21	d 1		m 23.	d	NONAS	Isidori mar. a	
16		m. 14	. m 7		e	8 ID		Instantia 2^{a}
5	. a 18	a 10.		a 19.	f	7 ID		Term.paschae Γ
		i. 23	. a 3		g	6 ID		
13	i . 6		i .15	i. 8	A	5 ID		
2	r. 19	. r 12		. r 21	b	4 ID		D' hora prima
			fr 244.,		c	3 ID	Leonis pp. a	
10	f. 15.	. f 8		f. 17	d	2 ID		
		o .20	o. 13		e	IDUS		
18	o. 4			. o 5	f	18 KL	Tiburtii mar. a	
7	c. 24	c 16	c 9.	. c 2	g	17 KL	Kalixti pp. PFB	Clav.rogationum Sol primo gr.tauri
			. l 22	l .14	A	16 KL		
15	. l 13	l 5.			b	15 KL		
4		t. 18	t .10	t. 3	c	14 KL	Valerii mar. a	Ult.term.paschæ Γ
	ht .211			h 23.	d	13 KL		
12		h 14.	. h 7		e	12 KL	Victoris pp. a	D' hora 11^{a}
1	q 10.		q .19	q. 12	f	11 KL		
		,eq. 233			g	10 KL		
9	e . 6		e .15	e. 8	A	9 KL	Georgii mar.	
	n. 19	. n 12		. n 21	b	8 KL		
17			bn 244.,		c	7 KL	*Marci evang.* Litania maior F	Ultimum pascha Clav.min.rogat. F
6	b 15.	. b 8		b. 17	d	6 KL		Primæ rogationes
		k .20	k. 13		e	5 KL	Anastasii pp. FB	
14	k. 4			k . 5	f	4 KL	Vitalis m. a	
3	. s 17	s 9.	. s 2	s 18.	g	3 KL	Germani ep. PFB Petri mar. KPFB	Clav.pentecost.
			g. 22	g .14	A	2 KL		

Altitudo solis meri- diana	Quantitas diei arti- ficialis	Quantitas noctis ipsius	Gradus solis	Decli- natio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
48 39	13 9	10 51	19 30	7 28	1	91
49 1	13 13	10 47	20 28	8 0	2	92
49 23	13 16	10 44	21 26	8 24	3	93
49 45	13 20	10 40	22 24	8 44	4	94
50 7	13 23	10 37	23 23	9 9	5	95
50 29	13 26	10 34	24 21	9 30	6	96
50 51	13 30	10 30	25 19	9 48	7	97
51 12	13 33	10 27	26 17	10 10	8	98
51 33	13 37	10 23	27 15	10 32	9	99
51 54	13 40	10 23	28 13	10 52	10	100
52 15	13 43	10 17	29 12	11 13	11	101
52 35	13 47	10 13	0 10	11 35	12	102
52 55	13 50	10 10	1 8	11 58	13	103
53 15	13 54	10 6	2 6	12 24	14	104
53 35	13 57	10 3	3 4	12 30	15	105
53 55	14 0	10 0	4 2	12 55	16	106
54 15	14 4	9 56	4 59	13 14	17	107
54 35	14 7	9 53	5 57	13 30	18	108
54 54	14 10	9 50	6 55	13 52	19	109
55 13	14 13	9 47	7 53	14 10	20	110
55 32	14 16	9 44	8 51	14 28	21	111
55 51	14 19	9 41	9 48	14 48	22	112
56 10	14 22	9 38	10 46	15 9	23	113
56 28	14 25	9 35	11 44	15 23	24	114
56 46	14 28	9 32	12 42	15 35	25	115
57 3	14 31	9 29	13 40	16 0	26	116
57 20	14 34	9 26	14 37	16 17	27	117
57 37	14 37	9 23	15 35	16 35	28	118
57 54	14 40	9 20	16 33	16 47	29	119
58 11	14 43	9 17	17 31	17 7	30	120

| *Alts* §15 | *Qdie* §16 | *Qnoc* | *Grad* §17a | *Decl* §18 | *Dmen* §19 | *Dann* |

	Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litteræ feriales	MAIUS HABET DIES 31 / LUNATIONES 30 / REGULARIS SOLARIS 3 / REGULARIS LUNARIS 11		
		lus	2us	3us	4us				
	11	·g 13	g 5.			b		Philippi & Iacobi app.	
		p. 18	p .10	p. 3		c	6 N'	Anastasii ep. FB	
	19	dp ,211			d 23.	d	5 N'	*Inventio crucis*	D' hora 6[a]
	8		d 14.	· d 7		e	4 N'		
125		m 10.		m .19	m. 12	f	3 N'		
	16		,am. 233			g	2 N'	Iohannis ante portam Latinam	
	5	a . 6		a .15	a. 8	A	NONAS		
		i 19.	· i 12		· i 21	b	8 ID		
	13		r .24	i 4.		c	7 ID	Transl. Nicholai	Min.clav.pent. F
130	2	· r 8		r. 17	r . 9	d	6 ID	Gordiani et Epimachi FpB	Primum pentecost.
			f .20	f. 13		e	5 ID		
	10	f. 4			f 5	f	4 ID		Term.rogation. F
		· o 17	o 9.	· o 2	o 18.	g	3 ID	Servatii ep. PFB	
	18			c. 22	c .14	A	2 ID	Bonifatii pp. a	
135	7	· c 13	c 5.			b	IDUS		Sol in primo gradu gemin.
			l. 18	l .10	l 3.	c	17 KL		
	15	l . 1		t 23.	t 16	d	16 KL		
	4	t 14.	· t 7			e	15 KL		
		h 10.		h .19	h. 12	f	14 KL	Potentiane virg. a	
140	12	q. 23	·. h 3			g	13 KL		
	1		q .15	q.. 8	· q 1	A	12 KL		
		e 19.	· e 12		· e 21	b	11 KL	Helene regine FB	
	9		n .24	e 4.		c	10 KL		Ult.term.rogat. F
		· n 8		n. 17	n 9	d	9 KL		
145	17		b .20	b. 13		e	8 KL	Urbani ep. KPFB	D' hora 10a Aestas oritur
	6	b. 4			· b 6	f	7 KL	Augustini Anglor. a	Term.pentecost. F
		· k 17	k 9	· k 2	k 18.	g	6 KL		
	14			s. 22	s .14	A	5 KL	Germani ep. KFB	
	3	s 5.			s. 7	b	4 KL		
150			g. 18	g 10	g 3.	c	3 KL	Felicis pp. F	Ult.rogationes
	11	g . 1		p 23.	· p 16	d	2 KL	Petronille virg. a	

Naur	Cycl	D	Dfes	Comp
§11	§3-5,12a	§12b	§13	§14

Altitudo solis meri- diana	Quantitas diei arti- ficialis	Quantitas noctis ipsius	Gradus solis	Decli- natio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
58 27	14 46	9 14	18 28	17 20	1	121
58 43	14 49	9 11	19 26	17 24	2	122
58 59	14 52	9 8	20 24	17 58	3	123
59 15	14 55	9 5	21 21	18 15	4	124
59 30	14 58	9 2	22 19	18 25	5	125
59 45	15 1	8 59	23 16	18 40	6	126
59 59	15 4	8 56	24 14	18 53	7	127
60 13	15 6	8 54	25 11	19 9	8	128
60 27	15 9	8 51	26 9	19 13	9	129
60 40	15 11	8 49	27 6	19 37	10	130
60 53	15 14	8 46	28 4	19 50	11	131
61 6	15 16	8 44	29 2	20 8	12	132
61 18	15 19	8 41	29 59	20 15	13	133
61 30	15 21	8 39	0 56	20 35	14	134
61 42	15 23	8 37	1 53	20 50	15	135
61 54	15 25	8 35	2 51	21 0	16	136
62 5	15 27	8 33	3 48	21 10	17	137
62 16	15 29	8 31	4 45	21 21	18	138
62 27	15 31	8 29	5 42	21 28	19	139
62 37	15 33	8 27	6 39	21 41	20	140
62 47	15 34	8 26	7 37	21 50	21	141
62 56	15 36	8 24	8 34	21 59	22	142
63 5	15 37	8 23	9 31	22 8	23	143
63 14	15 39	8 21	10 28	22 23	24	144
63 22	15 41	8 19	11 26	22 31	25	145
63 30	15 43	8 17	12 23	22 38	26	146
63 37	15 45	8 15	13 20	22 46	27	147
63 44	15 46	8 14	14 18	22 50	28	148
63 51	15 48	8 12	15 15	22 57	29	149
63 57	15 49	8 11	16 12	22 59	30	150
64 4	15 50	8 10	17 9	23 2	31	151

Alts   *Qdie*   *Qnoc*   *Grad*   *Decl*   *Dmen*   *Dann*
§15   §16   §17a   §18   §19

Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litteræ feriales		IUNIUS HABET DIES 30 / LUNATIONES 29 / REGULARIS SOLARIS 6 / REGULARIS LUNARIS 12	
	1us	2us	3us	4us				
	p 14.	. p 7			e		Nicomedis mar. a	
19	d 10.		d .19	d. 12	f	4 N'	Marcelli et Petri mar. K	
8	m 23	d. 3			g	3 N'		
16		m .15	m 8.	. m 1	A	2 N'		Instantia 3^{a}
5	a 19.	. a 12		. a 21	b	NONAS	Bonifatii ep. a	
			i .24	a 4.	c	8 ID		Ult.lunat.pent.
13	. i 8		i. 17	i . 9	d	7 ID		
2	r .20	r. 13		r 22.	e	6 ID		
			. r 6		f	5 ID	Supplicii cf. a	
10	. f 17	f 9.	. f 2	f 18.	g	4 ID		D' hora 6^{a}
		o. 22	o .14		A	3 ID	Barnabe ap.	
18	o . 5			o. 7	b	2 ID		
7		c. 18	. c 11	c 3.	c	IDUS	Trl. Bartholomei FB / Antonii K,Fpp.a	
	c . 1		l 23.	l. 16	d	18 KL	Basilii ep. FB	Sol in primo gradu cancri
15	l 14.	. l 7			e	17 KL		
4		t .19	t. 12	t . 4	f	16 KL		D' hora 4^{a}
	ht., 233				g	15 KL		
12		h 15	h 8.	. h 1	A	14 KL		
1	. q 12		. q 21	q .13	b	13 KL	Gervasii & Protasii	
		eq .24 4			c	12 KL		
9	e. 8		e. 17	e . 9	d	11 KL	Albani mar. a	
	n .20	n 13.		n 22.	e	10 KL		
17			. n 6		f	9 KL	Vigilia	
6	. b 17	b 9.	. b 2	b .18	g	8 KL	*Iohannis baptiste*	
		k. 22	k .14		A	7 KL	Eligii ep. a	
14	k . 5			k. 7	b	6 KL	Iohannis & Pauli FpPF	
3	s. 18	. s 11	s 3.	. s 20	c	5 KL		
			g 23.	g. 16	d	4 KL	Leonis pp. PFB / Vigilia	
11	g 14.	. g 7			e	3 KL	*App. Petri et Pauli*	
		p .19	p. 12	p 4	f	2 KL	Commemoratio Pauli	

Naur §11 *Cycl* §3-5,12a *D* §12b *Dfes* §13 *Comp* §14

Altitudo solis meridiana	Quantitas diei artificialis	Quantitas noctis ipsius	Gradus solis	Declinatio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
64 10	15 51	8 9	18 6	23 4	1	152
64 15	15 52	8 8	19 3	23 7	2	153
64 19	15 53	8 7	20 0	23 10	3	154
64 23	15 54	8 6	20 57	23 14	4	155
64 27	15 55	8 5	21 55	23 17	5	156
64 30	15 56	8 4	22 52	23 20	6	157
64 33	15 56	8 4	23 49	23 23	7	158
64 35	15 57	8 3	24 46	23 25	8	159
64 38	15 58	8 2	25 44	23 27	9	160
64 40	15 58	8 2	26 42	23 30	10	161
64 42	15 59	8 1	27 39	23 31	11	162
64 43	15 59	8 1	28 35	23 32	12	163
64 43	16 0	8 0	29 32	23 33	13	164
64 43	16 0	8 0	0 29	23 33	14	165
64 43	16 0	8 0	1 27	23 33	15	166
64 42	16 0	8 0	2 24	23 31	16	167
64 41	16 0	8 0	3 21	23 30	17	168
64 39	15 59	8 1	4 18	23 29	18	169
64 37	15 59	8 1	5 15	23 26	19	170
64 35	15 58	8 2	6 13	23 24	20	171
64 33	15 58	8 2	7 10	23 21	21	172
64 30	15 57	8 3	8 7	23 17	22	173
64 26	15 57	8 3	9 4	23 15	23	174
64 22	15 56	8 4	10 2	23 10	24	175
64 18	15 56	8 4	10 59	23 6	25	176
64 14	15 55	8 5	11 56	23 1	26	177
64 9	15 54	8 6	12 53	22 53	27	178
64 3	15 53	8 7	13 50	22 47	28	179
63 56	15 52	8 8	14 47	22 39	29	180
63 50	15 51	8 9	15 44	22 33	30	181

Alts   *Qdie*   *Qnoc*   *Grad*   *Decl*   *Dmen*   *Dann*
§15   §16   §17a   §18   §19

Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litteræ feriales	IULIUS HABET DIES 31 / LUNATIONES 30 / REGULARIS SOLARIS 1 / REGULARIS LUNARIS 13	
	lus	2us	3us	4us			
19	dp., 233				g	Oct. Iohannis a	
8	. d 16	d 8.	. d 1		A	6 N'	
	. m 12		. m 21	m .13	b	5 N'	
16		am .244			c	4 N'	Transl. Martini a
5	a. 8		a. 17	a .9	d	3 N'	
	i .20	i 13.		i 22.	e	2 N'	Octave apost. F
13			. i 6		f	NONAS	Trl.Thomæ archiep. FB / Nicostr. & Symphor. Fp	Inc.canicular.
2	r. 9.	. r 2	r .18	r. 11	g	8 ID	
		f. 22	f .14		A	7 ID	
10	f .5			f. 7	b	6 ID	Septem fratrum FB
	o. 18.	o 11	o. 3.	o 20	c	5 ID	Transl. Benedicti
18			c 23.	c. 16	d	4 ID	
7	c 14.	. c 7			e	3 ID		D' hora 12ᵃ
		l .19	l. 12	l 4	f	2 ID		Sol primo gradu leonis
15	l. 3			t 17.	g	IDUS	Divisio apostolorum FpPF
4	. t 16	t 8.	. t 1		A	17 KL	
	. h 12		h 21	h .13	b	16 KL	
12	q .24	h 4.			c	15 KL	Arnulfi ep. PFB
1		q 17	q. 9	q 2.	d	14 KL	
	e 20	e 13.		e 22.	e	13 KL	Margarete virg.
9			. e 6		f	12 KL	Praxedis virg. FB
	n. 9.	. n 2	n .18	n. 11	g	11 KL	*Marie Magdalene*	D' hora 11ᵃ
17		b. 22	b .14		A	10 KL	Apollinaris mar. B
6	b .5			b. 7	b	9 KL	Christine virg. a / Vigilia a
	k 18.	k 11	k. 3.	k 20	c	8 KL	*Iacobi ap.* / Christophori m. K
14		s .23	s. 16		d	7 KL	Transfig.domini FpP
3	. s 7			s .8	e	6 KL	VII dormientium FB
		g .19	g 12	g. 5	f	5 KL	Anne matris Marie FB
11	g. 3			p 17.	g	4 KL	
19	. p 16	p 8.	. p 1		A	3 KL		Instantia 7ᵃ
	. d 12		d. 21	d .13	b	2 KL	Germani Altiss. KFpFB

Left margin line markers: 185, 190, 195, 200, 205, 210

Altitudo solis meridiana	Quantitas diei artificialis	Quantitas noctis ipsius	Gradus solis	Declinatio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
63 44	15 49	8 11	16 44	22 30	1	182
63 37	15 48	8 12	17 37	22 24	2	183
63 29	15 46	8 14	18 34	22 16	3	184
63 21	15 45	8 15	19 31	22 7	4	185
63 13	15 43	8 17	20 29	21 59	5	186
63 4	15 41	8 19	21 26	21 49	6	187
62 55	15 40	8 20	22 23	21 39	7	188
62 46	15 38	8 22	23 21	21 28	8	189
62 36	15 36	8 24	24 18	21 20	9	190
62 26	15 34	8 26	25 15	21 8	10	191
62 16	15 33	8 27	26 12	20 54	11	192
62 5	15 31	8 29	27 9	20 42	12	193
61 54	15 29	8 31	28 7	20 30	13	194
61 42	15 27	8 33	29 4	20 25	14	195
61 30	15 25	8 35	0 2	20 15	15	196
61 18	15 23	8 37	0 59	20 7	16	197
61 5	15 21	8 39	1 56	19 48	17	198
60 52	15 19	8 41	2 54	19 35	18	199
60 39	15 16	8 44	3 51	19 10	19	200
60 26	15 14	8 46	4 49	19 5	20	201
60 12	15 11	8 49	5 46	18 48	21	202
59 58	15 9	8 51	6 44	18 40	22	203
59 43	15 6	8 54	7 42	18 28	23	204
59 28	15 4	8 56	8 39	18 16	24	205
59 13	15 1	8 59	9 37	17 55	25	206
58 57	14 58	9 2	10 34	17 42	26	207
58 41	14 55	9 5	11 31	17 22	27	208
58 25	14 52	9 8	12 29	17 7	28	209
58 8	14 49	9 11	13 27	16 51	29	210
57 51	14 46	9 14	14 25	16 30	30	211
57 35	14 43	9 17	15 23	16 19	31	212

Alts	*Qdie*	*Qnoc*	*Grad*	*Decl*	*Dmen*	*Dann*
§15	§16		§17a	§18	§19	

Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litteræ feriales	AUGUSTUS HABET DIES 31 / LUNATIONES 29 / REGULARIS SOLARIS 4 / REGULARIS LUNARIS 14		
	1us	2us	3us	4us				
8	m .24	d 4.			c		Ad vincula S.Petri	D' hora prima
16		m. 17	m .9	m 2.	d	4 N'	Stephani pp. PFB	<Inc.6us embol.> Instantia 4a
5	.a 21	a 13.		a 22.	e	3 N'	Inventio Stephani	
			.a 6		f	2 N'		
13	i 9.	i. 2	i .18	i. 11	g	NONAS	Dominici conf.	
2	r. 22	r .14		.r 24	A	8 ID		
			r 7.		b	7 ID		
10	f 18.	.f 11	f 3.	.f 20	c	6 ID		
		o .23	o. 16		d	5 ID	Romani mar. a Vigilia	
18	.o 7			o .8	e	4 ID	Laurentii mar.	
7		c .19	c. 12	.c 5	f	3 ID		
	c. 3			l 17.	g	2 ID		
15	.l 16	l 8.	.l 1		A	IDUS	Hippolyti mar. a	
4		t. 21	t .13	t. 6	b	19 KL	Vigilia	Sol in primo gradu virg.
	ht .244				c	18 KL	Assumptio Marie	
12		h. 17	.h 10	h 2.	d	17 KL		
1	q 13.		q 22.	.q 15	e	16 KL		Finiunt canicul.
		.q 6			f	15 KL		
9	e 9.	e. 2	e .18	e. 11	g	14 KL		
	n. 22	n .14		.n 24	A	13 KL	Bernardi abb.	
17			n 7.		b	12 KL		
6	b 18.	.b 11	b 3.	.b 20	c	11 KL	Symphoriani mar. a	Autumnus oritur
		k .23	k. 16		d	10 KL		
14	k. 7			k .8	e	9 KL	Bartholomei ap.	
3	s .19	s 12.	s 5	s 21.	f	8 KL	Ludovici conf. FB	
				g 17.	g	7 KL		
11	.g 16	g 8.	g 1		A	6 KL		
19		p. 21	p .13	p. 6	b	5 KL	Augustini doctoris	Instantia 8a
	dp .244				c	4 KL	Decollatio Iohannis	
8		d. 17	.d 10	d 2.	d	3 KL		D' hora 7a
	m 13.		m 22.	m. 15	e	2 KL		Finit 6us embol.

Left margin: 215, 220, 225, 230, 235, 240

Altitudo solis meri-diana	Quantitas diei arti-ficialis	Quantitas noctis ipsius	Gradus solis	Decli-natio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
57 18	14 40	9 20	16 24	16 0	1	213
57 1	14 37	9 23	17 22	15 40	2	214
56 43	14 34	9 26	18 20	15 24	3	215
56 25	14 31	9 29	19 17	15 5	4	216
56 7	14 28	9 32	20 15	14 48	5	217
55 49	14 25	9 35	21 13	14 29	6	218
55 30	14 22	9 38	22 11	14 12	7	219
55 11	14 19	9 41	23 9	13 53	8	220
54 52	14 16	9 44	24 7	13 31	9	221
54 33	14 13	9 47	25 5	13 15	10	222
54 13	14 10	9 50	26 3	12 54	11	223
53 53	14 7	9 53	27 1	12 30	12	224
53 33	14 4	9 56	28 0	12 23	13	225
53 13	14 0	10 0	28 58	12 10	14	226
52 53	13 57	10 3	29 56	11 55	15	227
52 33	13 54	10 6	0 54	11 39	16	228
52 12	13 50	10 10	1 52	11 19	17	229
51 51	13 47	10 13	2 51	10 50	18	230
51 30	13 43	10 17	3 49	10 29	19	231
51 9	13 40	10 20	4 47	9 47	20	232
50 48	13 37	10 23	5 45	9 26	21	233
50 26	13 33	10 27	6 43	9 0	22	234
50 4	13 30	10 30	7 41	8 46	23	235
49 42	13 26	10 34	8 40	8 22	24	236
49 20	13 23	10 37	9 38	7 58	25	237
48 58	13 20	10 40	10 37	7 47	26	238
48 36	13 16	10 44	11 36	7 18	27	239
48 14	13 13	10 47	12 34	6 51	28	240
47 51	13 9	10 51	13 33	6 25	29	241
47 29	13 6	10 54	14 32	5 59	30	242
47 6	13 2	10 58	15 30	5 42	31	243

Alts	*Qdie*	*Qnoc*	*Grad*	*Decl*	*Dmen*	*Dann*
§15		§16	§17a	§18		§19

SEPTEMBER HABET DIES 30
LUNATIONES 30
REGULARIS SOLARIS 7
REGULARIS LUNARIS 5

	Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litteræ feriales			
		lus	2us	3us	4us				
	16		·m 6			f		Egidii ab. KPFB	
245	5	·a 9	a· 2	a ·18	a· 11	g	4 N'	Antonii mar. FB	Inc. 2us embol.
		i· 22	i 14		·i 24	A	3 N'		D' hora 17a
	13			i 7·		b	2 N'	Marcelli mar. K	
	2	·r 11	r 3·	·r 20	r ·12	c	NONAS		
			f ·23	f· 16		d	8 ID		
250	10	f· 7			f ·8	e	7 ID		
	18	o ·19	o· 12	·o 5	o 21·	f	6 ID	*Nativitas Marie*	
					c ·17	g	5 ID	Audomari conf. a	
	7	·c 16	c 8·	·c 1		A	4 ID		
			l· 21	l ·13	l· 6	b	3 ID	Proti et Iacinti FB	
255	15	l ·4			·t 19	c	2 ID		
	4	t· 17	·t 10	t 2·		d	IDUS		Sol primo gradu librae
		h 13·	h 22·	h· 15		e	18 KL	*Exaltatio crucis*	
	12			·h 6		f	17 KL	Nicomedis mar. FB	Aequinoctium
	1	q· 2	q ·18	q· 11	q ·3	g	16 KL		
260		e· 22	·e 15		·e 24	A	15 KL	Lamberti ep. a	
	9			e 7·		b	14 KL		
		·n 11	n 3·	n· 20	n ·12	c	13 KL		
	17		b ·23	b· 16		d	12 KL	Amandi ep. FB / Vigilia	
	6	b· 7			b ·8	e	11 KL	*Matthei ap.*	D' hora 4a
265		k 19	k 12·	·k 5	k 21·	f	10 KL	Mauricii cum sociis B	
	14			s ·17		g	9 KL		
	3	s 8·	·s 1		s· 10	A	8 KL	Conceptio Iohannis	
			g· 21	g ·13	g· 6	b	7 KL		
	11	g ·4			·p 19	c	6 KL		
270	19	p 17·	·p 10	p 2·		d	5 KL	Cosme et Damiani mar.	Instantia 9a
		d 13·		d ·22	d· 15	e	4 KL		
	8			·d 6		f	3 KL	*Michaelis archangeli*	
		m· 2	m ·18	m· 11	·m 4	g	2 KL	Ieronymi presb. a	

Altitudo solis meridiana	Quantitas diei artificialis	Quantitas noctis ipsius	Gradus solis	Declinatio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
46 43	12 58	11 2	16 29	5 26	1	244
46 20	12 54	11 6	17 28	5 16	2	245
45 57	12 50	11 10	18 27	4 30	3	246
45 34	12 46	11 14	19 26	4 20	4	247
45 11	12 42	11 18	20 25	3 48	5	248
44 47	12 38	11 22	21 24	3 20	6	249
44 24	12 34	11 26	22 23	3 21	7	250
44 1	12 30	11 30	23 22	2 57	8	251
43 37	12 26	11 34	24 21	2 33	9	252
43 14	12 22	11 38	25 20	1 54	10	253
42 50	12 18	11 42	26 19	1 28	11	254
42 26	12 14	11 46	27 18	1 8	12	255
42 2	12 10	11 50	28 18	0 38	13	256
41 38	12 6	11 54	29 17	0 18	14	257
41 14	12 2	11 58	0 16	0 0	15	258
40 51	11 58	12 2	1 15	0 24	16	259
40 27	11 54	12 6	2 14	0 50	17	260
40 3	11 50	12 10	3 14	1 20	18	261
39 40	11 46	12 14	4 13	1 40	19	262
39 16	11 43	12 17	5 13	1 52	20	263
38 53	11 39	12 21	6 12	2 27	21	264
38 29	11 36	12 24	7 11	2 50	22	265
38 6	11 33	12 27	8 10	3 18	23	266
37 42	11 30	12 30	9 10	3 40	24	267
37 18	11 27	12 33	10 9	4 0	25	268
36 55	11 24	12 36	11 9	4 26	26	269
36 32	11 21	12 39	12 8	4 40	27	270
36 9	11 18	12 42	13 8	5 12	28	271
35 46	11 15	12 45	14 8	5 36	29	272
35 22	11 12	12 48	15 8	5 59	30	273

Alts	Qdie	Qnoc	Grad	Decl	Dmen	Dann
§15		§16	§17a	§18		§19

Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE				Litteræ feriales	KL OCTOBER HABET DIES 31 LUNATIONES 29 REGULARIS SOLARIS 2 REGULARIS LUNARIS 5		
	lus	2us	3us	4us				
16	a. 22	. a 15		. a 24	A		Remigii ep.	Finit 2us embol. F
5 *(275)*				a 7.	b	6 N'	Leodegarii mar. KPFB	
13	.i 11	i 3.	i. 20	i .12	c	5 N'		D' hora 5^a / Instantia 5^a
2	r .23	r. 16			d	4 N'	*Francisci conf.*	
			r . 8	r 1.	e	3 N'		
10	.f 20	f 12.	f 5	f 21.	f	2 N'		
(280)				o .17	g	NONAS		
18	o 8.	o. 1		o. 10	A	8 ID		
7		c. 21	c .13	c. 6	b	7 ID	*Dionysii et sociorum eius*	
	c . 4			. l 19	c	6 ID		
15	l 17.	.l 10	l 2.		d	5 ID		
4 *(285)*		t .22	t. 15	t . 7	e	4 ID		
	. t 6				f	3 ID		
12	h. 2	h .18	h. 11	.h 4	g	2 ID		Sol primo gradu scorp.
1	. q 15		. q 24	q 16.	A	IDUS	Kalixti pp. FpPF	
		q 7.			b	17 KL	Oct. Dionysii F	
9 *(290)*	. e 11	e . 3	e. 20	e .12	c	16 KL		
	n .23	n. 16			d	15 KL	*Luce evang.*	
17			n 8	n 1.	e	14 KL		
6	. b 20	b 12.	b 5	b 21.	f	13 KL		
				k .17	g	12 KL	Undecim milia virg.	
14 *(295)*	k. 8.	k. 1		k. 10	A	11 KL		D' hora 9^a
3	s. 21	s .13	s 6.	. s 23	b	10 KL	Severini ep. PFB	
				. g 19	c	9 KL	Maglorii PB	
11	g 17.	. g 10	g 2.		d	8 KL		
19		p .22	p. 15	p . 7	e	7 KL	*Amandi ep. PFB*	Instantia 10^a
(300)	. p 6				f	6 KL	Vigilia	
8	d 2	d .18	d. 11	d 4	g	5 KL	*Apostolorum Simonis et Iude*	
	. m 15		. m 24	m 16.	A	4 KL		
16		m 7.			b	3 KL		
5	.a 11	a . 3	a. 20	a .12	c	2 KL	Quintini mar. a / Vigilia	

Altitudo solis meridiana	Quantitas diei artificialis	Quantitas noctis ipsius	Gradus solis	Declinatio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
34 59	11 9	12 51	16 7	6 12	1	274
34 36	11 5	12 55	17 7	6 44	2	275
34 13	11 2	12 58	18 7	7 7	3	276
33 50	10 58	13 2	19 7	7 33	4	277
33 27	10 54	13 6	20 6	7 54	5	278
33 5	10 51	13 9	21 6	8 18	6	279
32 42	10 47	13 13	22 6	8 38	7	280
32 20	10 44	13 16	23 6	8 52	8	281
31 57	10 40	13 20	24 6	9 26	9	282
31 35	10 37	13 23	25 6	9 45	10	283
31 13	10 33	13 27	26 6	10 7	11	284
30 51	10 30	13 30	27 7	10 32	12	285
30 29	10 26	13 34	28 7	10 50	13	286
30 7	10 23	13 37	29 7	11 15	14	287
29 46	10 20	13 40	0 7	11 35	15	288
29 25	10 16	13 44	1 8	11 55	16	289
29 4	10 13	13 47	2 8	12 34	17	290
28 43	10 9	13 51	3 8	12 40	18	291
28 22	10 6	13 54	4 9	12 54	19	292
28 1	10 3	13 57	5 9	13 16	20	293
27 41	9 59	14 1	6 9	13 34	21	294
27 21	9 56	14 4	7 10	13 59	22	295
27 2	9 52	14 8	8 10	14 18	23	296
26 43	9 49	14 11	9 10	14 36	24	297
26 24	9 46	14 14	10 11	14 54	25	298
26 5	9 43	14 17	11 11	15 26	26	299
25 47	9 40	14 20	12 11	15 34	27	300
25 29	9 36	14 24	13 11	15 52	28	301
25 11	9 33	14 27	14 11	16 10	29	302
24 53	9 30	14 30	15 11	16 27	30	303
24 35	9 27	14 33	16 11	16 47	31	304

| Alts §15 | Qdie §16 | Qnoc | Grad §17a | Decl §18 | Dmen §19 | Dann |

Aureus numerus	QUATTUOR CYCLI PRIMATIONUM LUNAE lus	2us	3us	4us	Literae feriales	KL NOVEMBER HABET DIES 30 / LUNATIONES 30 / REGULARIS SOLARIS 5 / REGULARIS LUNARIS 7	Festivitas	
305	i .23	i. 16			d		*Festivitas omnium sanctorum*	
13			. i 9	i 1.	e	4 N'	Commemoratio animarum	Inc. 5us embol.
2	r 12.	. r 5	r 21.	r. 14	f	3 N'	Marcelli ep. FB	
			f .17		g	2 N'		
10	f 8.	f. 1		f. 10	A	NONAS		D' hora 8^{a}
310	o. 21	o 13	o 6.	. o 23	b	8 ID	Leonardi ab.	
18				. c 19	c	7 ID		
7	c 17.	. c 10	c 2.		d	6 ID	Quattuor coronat. FB	
		l .22	l. 15	l .7	e	5 ID	Theodori mar. FpPB	
15	l. 6			t 20.	f	4 ID		
315 4	t .18	t 11.	. t 4		g	3 ID	*Martini ep.*	
	. h 15		. h 24	h .16	A	2 ID		
12		h 7.			b	IDUS	Bricii ep. a	Sol in primo gradu sagitt.
1	. q 3	q. 20	q .12	q. 5	c	18 KL		
	e .23	e. 16			d	17 KL		
320 9			. e 9	e 1.	e	16 KL	Eadmundi archiep. FB	
	n 12.	. n 5	n 21.	n. 14	f	15 KL	Aniani ep. PFB	
17			b .17		g	14 KL		
6	b .8	b. 1		b. 10	A	13 KL		
	k. 21	. k 14	k 6.	. k 23	b	12 KL	Eadmundi regis FB	
325 14			s. 19		c	11 KL		
3	. s 10	s 2.		s .11	d	10 KL	Cecilie virg. a	
		g .22	g. 15	g .7	e	9 KL	*Clementis pp.*	Hiems oritur
11	g. 6			p 20.	f	8 KL	Chrysogoni mar. FB	
19	p 18	p 11.	. p 4		g	7 KL	*Katherine virg.*	Instantia 11^{a}
330	. d 15		. d 24	d .16	A	6 KL	Genovefe virg. FB	
8		d 7.			b	5 KL		Primus adventus
	m .3	m. 20	m .12	m. 5	c	4 KL		D' hora 5^{a}
16	a .23	a. 16			d	3 KL	Vigilia	
5			. a 9	a 1.	e	2 KL	*Andree ap.*	

Naur	Cycl	D	Dfes	Comp
§11	§3-5,12a	§12b	§13	§14

Altitudo solis meri- diana	Quantitas diei arti- ficialis	Quantitas noctis ipsius	Gradus solis	Decli- natio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
24 16	9 24	14 36	17 16	17 0	1	305
23 58	9 20	14 40	18 17	17 20	2	306
23 41	9 17	14 43	19 18	17 36	3	307
23 24	9 14	14 46	20 18	17 50	4	308
23 7	9 11	14 49	21 19	18 10	5	309
22 51	9 8	14 52	22 20	18 24	6	310
22 35	9 5	14 55	23 21	18 40	7	311
22 19	9 2	14 58	24 22	19 0	8	312
22 4	8 59	15 1	25 22	19 10	9	313
21 50	8 56	15 4	26 23	19 18	10	314
21 36	8 53	15 7	27 24	19 36	11	315
21 22	8 51	15 9	28 25	19 50	12	316
21 9	8 48	15 12	29 26	20 10	13	317
20 56	8 46	15 14	0 27	20 15	14	318
20 43	8 43	15 17	1 28	20 30	15	319
20 30	8 41	15 19	2 29	20 40	16	320
20 18	8 38	15 22	3 30	20 57	17	321
20 7	8 36	15 24	4 32	21 7	18	322
19 56	8 34	15 26	5 33	21 18	19	323
19 46	8 32	15 28	6 34	21 28	20	324
19 36	8 29	15 31	7 35	21 40	21	325
19 26	8 27	15 33	8 37	21 50	22	326
19 16	8 25	15 35	9 38	21 59	23	327
19 6	8 23	15 37	10 39	22 7	24	328
18 57	8 22	15 38	11 40	22 15	25	329
18 48	8 20	15 40	12 41	22 24	26	330
18 40	8 19	15 41	13 42	22 30	27	331
18 32	8 17	15 43	14 43	22 40	28	332
18 25	8 16	15 44	15 44	22 57	29	333
18 19	8 14	15 46	16 45	22 53	30	334

Alts §15   *Qdie* §16   *Qnoc*   *Grad* §17a   *Decl* §18   *Dmen*   *Dann* §19

QUATTUOR CYCLI PRIMATIONUM LUNAE

KL

DECEMBER HABET DIES 31
LUNATIONES 29
REGULARIS SOLARIS 7
REGULARIS LUNARIS 7

Naur	Aureus numerus	lus	2us	3us	4us	Litt. fer.	Dies	Feast (Dfes)	Comp
335		i 12.	·i 5	i .21	i. 14	f		Eligii ep. a	Finit 5us embol.
	2 13		r .17			g	4 N'		Inc. primus emb. / Instantia 6a
		r. 1		r. 10	r 2	A	3 N'	Benedicti ab. FB	
	10	f. 21	·f 14	f. 6.	·f 23	b	2 N'	Barbare virg. a	
				o. 19		c	NONAS		
340	18	·o 10	o 2.		o .11	d	8 ID	*Nicholai ep.*	
	7		c .22	c. 15	c .7	e	7 ID	Oct. Andree FB	D' hora 16a
		c. 6			l 20.	f	6 ID	*Conceptio Marie*	
	15	·l 19	l 11.	·l 4		g	5 ID		
	4		·t 24	t .16	t. 9	A	4 ID	Damasii pp. FB / Iuliane virg. K	
345		t. 7.				b	3 ID		
	12	h ·3	h. 20	·h 12	h. 5	c	2 ID		
	1	q 16.			·q 18	d	IDUS	*Lucie virg.*	
			·q 9	q 1.		e	19 KL	Nicasii ep. PFB	Sol in primo gradu capric.
	9	e 12.	·e 5	e .21	·e 14	f	18 KL		O sapientia
			n .17			g	17 KL		Solstit. hiemale
350	17	n. 1		n .10	·n 3	A	16 KL		
	6	b. 21.	·b 14	b. 6.	·b 23	b	15 KL		
				k. 19		c	14 KL		
	14	·k 10	k 2.		k .11	d	13 KL		
355	3	s .22	s. 15	s 7	s 24.	e	12 KL	*Thome ap.*	
					g 20.	f	11 KL		D' hora 6a
	11	·g 19	g 11.	·g 4		g	10 KL		
	19		·p 24	p .16	p. 9	A	9 KL	Vigilia	Instantia 12a
		p. 7.				b	8 KL	*Nativitas D. N. / Ihesu Christi*	
360	8	d ·3	d. 20	·d 12	d 5.	c	7 KL	*Stephani protomar.*	
		m 16.			·m 18	d	6 KL	*Iohannis ap. & evang.*	
	16		·m 9	m 1.		e	5 KL	*Innocentium*	
	5	a 12.	·a 5	a .21	·a 14	f	4 KL	*Thome archiep. & mar.*	
			i .17			g	3 KL	Transl. Iacobi ap. B	
365	13	i. 1		i .10	·i 3	A	2 KL	Silvestri pp.	Finit primus emb.

Altitudo solis meri- diana	Quantitas diei arti- ficialis	Quantitas noctis ipsius	Gradus solis	Decli- natio solis	Dies mensis	Dies anni
Gr Mi	Ho Mi	Ho Mi	Gr Mi	Gr Mi		
18 13	8 12	15 48	17 46	22 59	1	335
18 8	8 11	15 49	18 48	23 7	2	336
18 3	8 9	15 51	19 49	23 9	3	337
17 58	8 8	15 52	20 50	23 12	4	338
17 53	8 7	15 53	21 51	23 17	5	339
17 49	8 6	15 54	22 53	23 21	6	340
17 45	8 5	15 55	23 54	23 24	7	341
17 42	8 4	15 56	24 55	23 26	8	342
17 40	8 3	15 57	25 57	23 28	9	343
17 39	8 2	15 58	26 58	23 30	10	344
17 38	8 1	15 59	27 59	23 32	11	345
17 38	8 1	15 59	29 1	23 33	12	346
17 37	8 0	16 0	0 2	23 33	13	347
17 37	8 0	16 0	1 4	23 33	14	348
17 37	8 0	16 0	2 5	23 32	15	349
17 38	8 1	15 59	3 6	23 31	16	350
17 39	8 1	15 59	4 8	23 29	17	351
17 41	8 2	15 58	5 9	23 27	18	352
17 43	8 3	15 57	6 10	23 24	19	353
17 46	8 3	15 57	7 11	23 20	20	354
17 50	8 4	15 56	8 12	23 18	21	355
17 54	8 4	15 56	9 13	23 14	22	356
17 59	8 5	15 55	10 14	23 10	23	357
18 3	8 6	15 54	11 15	23 6	24	358
18 8	8 7	15 53	12 16	23 1	25	359
18 13	8 8	15 52	13 17	22 54	26	360
18 18	8 9	15 51	14 18	22 33	27	361
18 24	8 11	15 49	15 19	22 26	28	362
18 30	8 12	15 48	16 20	22 19	29	363
18 37	8 14	15 46	17 21	22 10	30	364
18 45	8 16	15 44	18 22	22 3	31	365

Alts	*Qdie*	*Qnoc*	*Grad*	*Decl*	*Dmen*	*Dann*
§15	§16		§17a	§18	§19	

Ætas lunæ	TABULA PETRI DACI DE LOCO LUNAE INVENIENDO IN QUOLIBET DIE ANNI A MEDIA NOCTE SUI INCEPTO.												Gradus lunæ
1 2	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	14 27
3 4	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	10 23
5 6	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	Taurus	6 20
7 8 9	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	Taurus	Gemini	3 16 29
10 11	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	Taurus	Gemini	Cancer	12 25
12 13	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	Taurus	Gemini	Cancer	Leo	9 22
14 15	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	5 18
16 17 18	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	1 14 28
19 20	Sagitt.	Capric.	Aquar.	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	11 24
21 22	Capric.	Aquar.	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	7 20
23 24 25	Aquar.	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	4 17 30
26 27	Pisces	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	13 26
28 29	Aries	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	9 23
30	Taurus	Gemini	Cancer	Leo	Virgo	Libra	Scorp.	Sagitt.	Capric.	Aquar.	Pisces	Aries	6

Appendices

Appendix 1. Texts concerning sub-tables of Calendar. Canon to calendar of Grosseteste.

Variant canons to Peter's Calendar have been registered in App.2. Notes on up-dating the Calendar, or on finding conjunctions generally, are also in Pe,24v and Pd,38r-v.

(a1) Canon to the tables *Grad* and *Decl* in the Calendar. Manuscripts: Y, 296rb; and Fp, 96r, in a secondary supplement to the ms.; the Calendar of Fp (first hand) does not contain the tables in question. See description of Fp for a heading, and §17 for the provenance of *Grad*.

Nota quod per hoc (hunc Fp) kalendarium poteris scire locum solis in nona sphaera e directo cuiuslibet diei, et hoc ad meridiem ipsius (*om.* Fp), et declinationem solis e directo cuiuslibet gradus. Est autem haec aequatio solis (*om.* Fp) facta ad primum annum post bissextum, scilicet anno domini 1296 (1297 Fp). Igitur si scire volueris (si sc.v.: sc.si si v. Y; si v.habere Fp) ad secundum annum post bissextum, scias quod locus solis repertus ad meridiem (a.m.: nunc Fp) anticipabitur per 6 horas, et in tertio anno post bissextum per 12, et in quarto (4 Y) per 18 (8 Y), qui quartus est bissextilis; unde in primo (secundo Y) anno post bissextum prior aequatio revertetur, nisi quod sibi addatur motus octavae sphaerae in quolibet anno. – Et ut habeas altitudinem solis meridianam in qualibet regione (m-am i.q.r.: i.r.q.m-a Y), scias altitudinem arietis in regione illa (i.r. Fp), cui, si sol fuerit in signis septentrionalibus, declinatio est addenda, (et *add.* Fp) si in (*om.* Y) meridionalibus, subtrahenda (explicit *add.* Fp).

(a2) Same subject. Manuscript: Lh, 217v, in a secondary addition to the T.L.canon.

Scias quod gradus solis in kalendario fuit aequatus ad primum annum post bissextum, scilicet anno domini m°cc°nonagesimo sexto, in meridie. In secundo anno tunc anticipat⟨ur⟩ per 6 horas et in tertio per 12 et in quarto per 18, qui quartus bissextilis est; et tunc revertitur prior aequatio, nisi quod in quolibet anno addatur motus octavae sphaerae, qui est unum minutum in anno. Elevatio arietis Brugis est 38 graduum, et motus octavae sphaerae in anno 1296° fuit 10 gr. 17 mi.

(b) On doubly occupied cells in *Cycl,* and canons to *Decl* and *Qdie.* Manuscript: F, in a scribe's note at 233v-234r, apparently meant to continue Kal.canon B. The Calendar of F correctly shows a doubly occupied cell at Aug.29, left out in the list below; the table *Qdie* is for Naples, in the same hand as the present note.

Si autem duae litterae in una cellula erunt, tunc in eadem cellula possunt esse duae lunationes. Si vero in ea erunt duo puncta, punctus niger correspondet litterae rubeae, et si punctus fuerit rubeus, correspondet litterae nigrae. Simili modo intellegendum est de hora.

Et est sciendum quod, quando duae lunationes sunt in una cellula, tunc est necessarium ut sint in diversis temporibus, scilicet quando una litterarum erit ostendens coniunctionem, tunc erit in illo tempore, et quando alia littera ostendet coniunctionem, erit similiter in illo tempore. – In kalendario sunt septem menses, in quibus sunt cellulae cum duabus litteris, et sunt in locis 14 in diversis cyclis, ut inferius in tabula patet:

Menses	Loca	Die				Cycli		
Frebur.(!)	2	19	25			3	4	
Martius	1	8				2		
Aprilis	4	11	19	22	25	2	3	1
Maius	2	3	6			1	2	
Iunius	2	17	20			1	2	
Iulius	2	1	4			1	2	
Augustus	1(!)	15	⟨29⟩			1		
	Sunt 14 loca.							

Si scire desideras quanta sit declinatio solis in quolibet die anni, et etiam quot horas habeat quilibet dies anni, scilicet de horis aequalibus, intra in kalendario cum illa die quam vis, et in directo illius diei ⟨quod invenies⟩ in linea transversali sub titulo "Declinatio solis" de gradibus et minutis, tanta erit declinatio solis in illa die, id est quantum sol distat ab aequinoctiali. Et sub titulo horarum et minutorum in illo directo invenies quot horas illa dies habet.

(c1) Jo. de Palmis, on his revision of *Cycl,* making it valid for the years 1369-1444. Manuscript: So,45v, note in text-hand appended to Kal. canon B(h).

Notandum igitur quod cum, anno domini 1368 completo, revoluti sint anni 76 ab anno compositionis istius kalendarii, et per consequens quaelibet lunatio de cetero falleret in 6 horis si non corrigerentur, idcirco ego Johannes de Palmis, huiusmodi fallaciam volens praevenire, correctioni et emendationi

ipsius kalendarii cum diligentia qua potui institi, non cum propria industria, cum ad hoc paucitas mei ingenii non sufficiat, sed iuxta doctrinam traditam a reverendo magistro Petro de Dacia, huius kalendarii ut fertur compositore: a qualibet lunatione in kalendario reperta 6 horas subtraxi, et punctum quemlibet repertum in angulum anteriorem proximum situavi, per quam subtractionem et punctorum anteriorationem verificatae sunt lunationes ipsius kalendarii iterum pro annis 76 incipientibus ab anno domini 1369, quibus elapsis, qui tunc in humanis degat, correctioni ulteriori similiter faciendo si ı placet insistat.

(c2) Same subject, anonymous. Manuscript: Bs, solitary note at f.2v and again at f.6r, with insignificant variants; I reproduce the latter version.

Notandum est quod magister Petrus de Dacia fecit tabulam sequentem anno domini 1292 de coniunctione solis et lunae; et ab illo tempore semper elapsis 76 annis demi debent 6 horae a qualibet coniunctione, et puncta inventa in angulis ad proximos angulos in antea situari debent, et sic coniunctiones possunt perpetuari. Una ergo revolutio 76 annorum completa fuerat 1368 (f.2v; 1360 *hic*), et tunc coniunctiones correctae fuerant ad aliam revolutionem, in qua nunc sumus, quae terminabitur anno domini 1444.

(d) T&K 55: canon to the calendar of Grosseteste. The present text reproduces Cj,4r. It thus includes some secondary revisions, by the scribe himself or at least in a contemporary hand, applied in order to adapt this canon to the calendars of Peter Philomena and of William of St.Cloud. The secondary parts are printed in italics, and in [[ ]] if written over erasure. The text is essentially that printed by Lindhagen 1916-7 p.15-16, from Stockholm K.B., X 767, where it ends at "...civitatis volueris" and is followed by a lengthy marginal gloss.

(Hdg.:) Canon super 4 cyclis verae primationis lunae. (Txt:) Ad notitiam huius kalendarii habendam, sciendum quod 19 litterae alphabeti secundum ordinem in 4 lineis pro aureo numero ponuntur, ita quod A pro unitate, B pro binario, C pro ternario, et sic deinde. Et deserviunt hae 4 lineae quattuor cyclis decemnonalibus, ita quod prima linea primo cyclo, secunda secundo, et sic deinceps. – Unde, ad habendum primationem veram alicuius lunationis secundum astronomos, scito, in quoto cyclo horum quattuor cyclorum sis et in quoto anno eius, sic: annis [[*domini perfectis adde annum imperfectum et*]] totum collectum divide per 76. Et si remanserit 19 vel minor numerus, sumus in prima linea, et in totali anno illius cycli quantum fuerit residuum. Si vero remanserit plus quam 19 et minus quam 38, sumus in secunda linea, et in toto illius cycli anno quanto plus fuerit quam 19. Si autem plus quam 38 et

minus quam 57 remanserint, sumus in tertia linea, et in toto anno cycli illius quantum plus fuerit 38 (34 Cj). Si autem remanserint plus quam 57 et minus quam 76, sumus in 4. linea, et in toto illius cycli anno quanto plus est quam 57. – [[Hoc etiam est notandum quod, secundum institutionem huius auctoris, oportet semper addere ad residuum annorum domini a principio Septembris usque ad nativitatem domini unitatem, quia littera designans aureum numerum semper renovatur in Septembri.]] – Et sciendum quod, ubicumque invenitur littera deserviens illi anno de quo quaeris primationem, in tali die primatur luna; et numerus litterae subscriptus horam primationis ipsius ostendit. (Rubric:) Explicit capitulum. – (Txt:) Et notandum quod tam dies quam horae primationis lunae in quattuor cyclis huius kalendarii fiunt secundum mediam coniunctionem luminarium super meridiem Parisius, ut credo: unde, si diem et numerum horae primationis lunae verificare volueris, hoc facere poteris intrando tabulas coniunctionis solis et lunae, tam in annis collectis quam in annis expansis, et in mensibus si oporteat, et adaptando horas primationis longitudini cuiuscumque civitatis volueris. – Et nota quod, elapsis quibuslibet 76 annis, demantur 5 horae et 48 minuta, et habebis semper propositum.

Et si ex abrupto scire volueris, in quoto cyclo et quoto anno cuiuscumque cycli fueris, saltem pro prima revolutione kalendarii, ab annis domini, pro quibus quaeris primationem, remove 1292, et residuum ostendet propositum absque omni calculatione. Unde versus:

Mille minus cum ducentis nonaginta duobus

Ex annis domini quaeratur littera cycli.

Notandum praeterea quod in quolibet mense in hoc kalendario in duabus primis lineis apponuntur litterae primationum cum numero horarum primationis secundum magistrum Guillelmum de Sancto (?)clado, et incepit ab anno 1292°, cui deservi[un]t A.

Appendix 2. Variant canons to Calendar.

These are mostly recognizable as adaptations of Kal.canon B: thus, the group-names (d)-(l) below continue those used in *Pref.* §8 for the classes of witnesses to the standard text.

Synopsis:

(d1) L,2v; Mf,7v.   **(d2)** Mg,163v+170r-v.   **(d3)** Wu,1r-2r(fragment).
     Nearest to Class (a) of the standard text.

(e) N,69v.   Almost collatable with Class (a).

(f1) X,2r.   **(f2)** Oa,151r-v.
     Possibly unrelated. One insertion in Oa may be from Class (h1).

(g) O,1v; Md,72r; St,24r.
     Nearest to Class (b) and especially to ms. M.

(h1) Pr,34v; Bo,167v; Pe,25r-v. (Mt p.232; Sf,1r.)
     Pr Bo Pe resemble Class (b), with the addition of a passage also found in
     Mt Sf (and cf. (f2) and *Pref.*, end of §7a). The main texts of Mt Sf are
     standard.

(h2) Bv,10v; Mk,1v; So,45r. Quite close to (h1).   **(h3)** Bs,12v.

(j1) N,69vb; D,13r-v.   **(j2)** Re,1r.   **(j3)** Ro,63v-64v.
     Nearest to Class (b), especially (j2-3), which are in French.

(k) Kt,1r.   In French; some of the wording close to standard.

(l1) Pd,56v+58r.   **(l2)** Da,173v.
     Possibly unrelated, and connexions dubious.

Further canons occur singly in Bs,12v (from William of St.Cloud?); Oa,151r; and V,61r (table, relation to Calendar dubious).

(d1) Manuscripts: L,2v; Mf,7v. L is followed in the common passages.

(*L:*) (Letter table with the years 1292-1653 above the table and 1672-2033 below. Hdg.:) Hii sunt quattuor cycli ad sciendum quae sit littera tabularis primationis lunae omni anno.

(*Mf:*) (Letter table 1292-1577 (written 1477). Below the year-numbers:) Hii sunt cycli ad sciendum quae sit littera tabularis.

(*L, Mf:*) Quaere inter numeros annorum domini in superiori parte istius tabulae positos unum numerum in quacumque linea, qui maxime accedit[1] in quantitate ad annos incarnationis[2] domini, quod tamen ille sit minor[3] annis domini; et tunc fac ipsum[4] aequalem annis domini, a sursum usque deorsum

computando in alphabeto sibi supposito[5]; et littera illa[6], quae compleverit annos domini, erit littera primationis lunae istius anni[7] in quolibet mense[8]. Et si forte complete[9] inveneris annos domini[9], tunc ultima littera lineae praecedentis[10] versus sinistram est littera primationis lunae. Verbi gratia, esto quod anni domini sint mcccxi; ipsos invenies in capite secundae lineae; tunc ultima littera lineae primae, scilicet T, erit[11] littera primationis illius anni. Sed quando anni domini erunt in prima linea, scilicet[12] mccclxviii vel mccccxliiii etc.[13], tunc T[14] quartae lineae erit littera primationis. – Quaecumque[15] ergo littera primationis inventa fuerit[16], considera in qua linea sit, et quaeras eam in eadem linea in kalendario[17] ante mensem, cuius primationem quaeris[18]. Et sciendum quod[19], ubicumque invenitur talis littera primationis, in tali die luna primatur vel[20] incenditur in caelo, et numerus subscriptus horam primationis ostendit; et punctus in cancello[21] positus partem horae, in qua incenditur[22], repraesentat. Nam si punctus angulum superiorem sinistrum occupaverit, luna primatur in prima parte horae subscriptae;

(L:) si secundum angulum superiorem dextrum, in secunda parte horae; si tertium angulum dextrum inferius, in tertia parte horae; si quartum angulum, in ultima quarta parte horae incenditur. Si autem nullum inveneris, scias quod in complemento horae subscriptae incendatur.

(Mf:) si secundum angulum superiorem dextrum occupaverit, incenditur in secunda parte horae; si in tertio, in tertia parte horae incenditur; in quarto vero angulo punctus positus, scilicet in inferiori sinistro, quartam partem horae ostendit. Si autem nullus punctus ibi inveniatur, tunc in toto complemento horae sub ultima parte incenditur.

(L, Mf:) Et sciendum quod dies et horae incipiunt[23] in media nocte diei praeteritae; verbi gratia, dies dominica in media nocte ipsius[24] sabbati inchoatur.

(L:) Et cum anni domini suprascripti secundum omnes cyclos suos finiuntur, recurrendum est ad annos domini subscriptos, quia ipsi ulterius docent tabulares litteras invenire.

(Mf:) Et cum anni domini secundum omnes praedictos cyclos finiuntur, recurrendum est ad numerum 19'lem qui deservit cyclo lunari, et per multiplicationem illius numeri xix'lis[25] fingentur cycli sequentes.

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[1]excedit Mf   [2]om. Mf   [3]m.s. Mf   [4]operationem Mf   [5]subscripto Mf
[6]om. Mf   [7]om. Mf   [8]illius anni add. Mf   [9-9]complete post domini Mf
[10]p.l.   Mf   [11]esset   Mf   [12]scilicet: videlicet m°cc°xcii° vel Mf
[13]vel m°ccccc°xx° Mf   [14]tunc Mf   [15]quac. Mf   [16]om. Mf   [17]in linea
add. Mf   [18]c.p.q.: posit() Mf   [19]om. L   [20]l.p.v.: primum Mf   [21]angulo Mf
[22]i.q.i.: incensionis Mf   [23]inchoantur Mf   [24]om. Mf   [25]xix'l(us) Mf

(d2) Manuscript: Mg,163v and 170r-v. Paraphrase of a text like the version of ms.L above, somewhat extended. Excerpts:

(f.163v:) (Letter table with the years 1292-1653 above the table and 1672-2024 below. No hdg.) – (f.170r-v:) Quaere inter numeros annorum domini in superiori parte tabulae antescriptae unum numerum, in quacumque linea fuerit, qui maxime appropinquet annis ab incarnatione domini, dummodo ille sit minor annis domini; si forte annos domini complete ⟨non⟩ inveneris, sed forsan est minor ⟨annis⟩ domini, fac ipsum aequalem annis domini, scilicet deorsum computando, sic scilicet A B C; et littera illa de litteris eiusdem tabulae, quae perficit annos domini, erit littera imprimationis lunae in quolibet mense. Et si praecise vel complete inveneris annos domini, tunc ultima littera lineae praecedentis versus sinistram erit littera imprimationis lunae illius anni in quolibet mense. Verbi gratia, esto quod anni sint mille tricenti et quadraginta novem: ipsos invenies in summa linea versus dextram, computando A B C, tunc D erit littera imprimationis anni quinquagesimi tertii...ut dies dominica in media nocte sabbati inchoatur. Sed cum anni superius scripti finiantur secundum omnes cyclos, recurrendum est ad annos inferius notatos, qui ulterius docent invenire incensionem et litteras tabulares.

(d3) Manuscript: Wu,1r-2r. Only the end of the canon is preserved.

(1r:) Et sciendum quod dies et horae incipiunt in media nocte diei praeteritae. Verbi gratia, dies dominica in media nocte ipsius sabbati inchoatur et in sequentis noctis medio terminatur, et sic de aliis etc. (1v-2r: Letter table 1292-1729.)

(e) Manuscript: N,69va-b. To a Letter table, 1292(filled in with "1672")-1653. Continued by the canon (j1) below.

(Hdg.:) Sequitur canon seu expositio kalendarii. (Txt:) Quaere igitur in numero in superiori parte istius tabulae subsequenti⟨s⟩ posito unum nume-rum ex illis, qui maxime est simul annis domini, et minor sit (m.s.: m(od)o p(ost) N) quam anni domini; si forsitan ibi annos domini complete non inveneris, tunc illum numerum, qui minor est annis, comple computando a sursum usque ad deorsum, et illa littera de litteris huius tabulae sequenti⟨s⟩, quae perficit annos domini, erit littera primationis per totum annum. Et si praecise inveneris annos domini, tunc littera ultima lineae praecedentis versus sinistram erit littera primationis illius anni. Verbi gratia, esto quod anni domini sint 1311: ipsos invenies in capite secundae lineae versus sinistram, et ideo ultima littera lineae primae, scilicet T, erit littera primationis lunae. Sed quando anni domini erunt in prima linea, scilicet 1368 (-64 N) [vel 1539] vel 1444 vel 1520 (1539 N) vel 1596, tunc littera ultima lineae quartae, scilicet T, erit littera primationis illius anni. – Inventa igitur littera primationis, scias in qua iiii^or linearum istius tabulae est, quoniam in tali cyclo et in tali linea kalendarii eam quaeres. Et ubicumque invenitur littera primationis deserviens illi anno, de quo quaeris primationem, in tali die luna primatur, et numerus

scriptus notat primationis horam; et in tali parte horae, qualem occupat punctus angulum. Nam si punctus sit in superiori angulo sinistrae, tunc luna primatur in prima parte illius horae ascriptae; si superiorem dextrae, tunc in secunda parte; si tertium in inferiori dextrae, in tertia parte horae; si occupat quartum, tunc in quarta parte horae primatur. Si autem duo puncta in eadem cellula inveniantur, rubeum posteriori litterae attinebit, id est, erit litterae posterioris. Si autem nullum punctum inveneris, in complemento ⟨horae⟩ ascriptae luna soli coniungatur. Dies autem et horae incipiunt in media nocte praecedente quantum ad istum kalendarium exercendum. Mille que ter centum dant simul octo.

(f1) Manuscript: X,2r.

(Hdg.:) Hic incipit canon super kalendarium. (Txt:) Quaere in superiori parte istius tabulae numerum annorum domini, et si praecise non inveneris, accipe minorem propinquiorem, et comple eum et fac aequalem annis domini, scilicet computando a superiori ad inferius; et littera illa de litteris illius tabulae, quae perfecerit annos domini, littera primationis erit illius anni. Et si praecise inveneris annos domini, tunc littera ultima lineae praecedentis versus sinistram erit littera primationis illius anni. Sed quando anni erunt in prima linea, tunc littera ultima lineae quartae, scilicet T, erit littera primationis. – Quacumque igitur littera primationis inventa, scias in qua linea tabulae praedictae est, et quaeras in tali linea kalendarii. Et sciendum quod, ubicumque invenitur littera primationis deserviens illi anno, in tali die luna primatur, et numerus subscriptus horam primationis ostendit; et tali quarta horae, qualem punctus angulum occupat, computando ab angulo superiori sinistro. Nam si punctus primum angulum occupat, scilicet superioris sini-strae, tunc luna primatur in prima parte illius horae ascriptae; si secundum angulum occupat, scilicet superioris dextrae, tunc primatur in secunda parte; si tertium angulum occupat, scilicet inferioris dextrae, tunc primatur in tertia parte; ≪et si fuerit in quarto, scilicet≫ inferioris sinistrae, tunc primatur in quarta parte horae subscriptae. Si autem duo puncta in eadem cellula inveneris, rubeum punctum posteriori litterae pertinebit. Si autem nullum punctum inveneris, in complemento horae subscriptae luna primatur. Et sciendum quod dies et horae incipiunt a media nocte praecedente diem, et anni domini renovantur in Ianuario, et littera primationis, secundum hoc opus. (Letter table, 1292-1653(or possibly 1729; a later hand has emended the year-numbers and continued them until 1805). Title:) Haec est tabula per quam scitur littera coniunctionis.

(f2) Manuscript: Oa,151r-v. Italics denote secondary hands, all of which may be contemporary with the text-hand. One of these has furnished interlinear supplements and corrections, which are printed

in [[ ]] if written in or above erasures where the original text is no longer legible; all notes by this hand are faint, and the readings approximate. A set of marginal additions, by another secondary hand, are marked (Mg.:). Tentative supplements, at places where the leaf has been damaged, have been put into ⟨ ⟩.

(Letter table 1292-1653, no hdg.) (Txt:) Quaere inter numeros in superiori parte huius tabulae positos numerum minorem propinquiorem annis domini. Si forte annos domini non complete inveneris *ibi,* tunc illum numerum comple et fac aequalem annis domini, computando scilicet per litteras tabulae, descendendo a sursum usque deorsum; et littera, quae perfecerit annos domini *ab incarnatione,* erit littera primationis «*?*». Et si praecise inveneris annos domini *inter numeros,* tunc ultima littera lineae praecedentis versus sinistram erit littera primationis illius anni. Sed quando anni domini praecise erunt in prima linea, tunc ultima littera lineae quartae, videlicet T, erit littera primationis illius anni. – Quacumque igitur littera primationis inventa, scias in quo cyclo vel linea sit, et tunc quaeras eam in tali cyclo kalendarii. In [[*illo*]] namque die, *in quo litteram primationis deservientem illi anno inveneris,* luna primat[[ionum]]-*ur* hora tota, quotus est numerus litterae inventae subscrip-t[[ae]]-*us, et in tali* [[immo in horae ultimae]] quarta *parte horae qualem* [[tota quotum]] angulum cellae litterae punctu[[m]]-*s* occupat, a sinistro, qui sursum est, per dexteram computando. – (Mg.:) *⟨Et punctus,⟩ qui primum angulum in superiori parte a sinistro occupat, ostendit quod luna primatur ⟨in prima qua⟩rta parte horae; punctus vero, qui secundum angulum a dextro in superiori parte occupat, ostendit quod primatur in secunda quarta parte horae; punctus autem, qui tertium angulum inferiori dextrae(!) occupat, ostendit quod primatur in tertia parte horae; punctus insuper, qui quartum angulum inferiori sinistrae occupat, ostendit quod primatur in 4ª parte horae ascriptae eo die.* – Si [[*autem*]] duo puncta in eadem cella [[vel angulo]] inveniantur, rubeum posteriori litterae attinebit. Si autem nullum punctum inveneris, in complemento horae ascriptae luna soli coniungetur. – (Mg.:) *Item scias quod luna dicitur esse prima sequenti die, scilicet coniunctionem, et in hora consimili qua fuit coniunctio, quas horas computabis a media nocte, post quam incipiunt dies secundum ecclesiam; et quod horae sunt semper aequales omni tempore anni. – Transactis autem 76 annis «. .anno. .1369» demantur de horis sex horae, et puncta ad proximos angulos in antea situentur, et occurrent coniunctiones sicut prius. Et semper pro 76 annis elapsis ab anno domini 1292 a coniunctionibus sex horas deme, et habebis intentum tuum.* – Ad perpetuandum istud kalendarium, completis 4 cyclis addatur [[*cuilibet*]] numero annorum domini numerus 76, et deletis aliis scribantur isti *numeri* sic augmentati. Et sciendum quod post sui initium durat 76 annis, et tot ponuntur litterae primationis *in 4ᵒʳ cycl⟨. .?⟩*; et fuit iste kalendarius factus anno domini 1292, et iste numerus ponitur in principio primi cycli. Et notandum quod dies et horae incipiunt a media nocte praecedenti.

(g) Manuscripts: O,1v; Md,72r; St,24r. Text from O, also recording a dittography in Md St, which are quite close in other respects as well.

(Letter table 1292(=O*p.c.*; 1298 Md St)-1653; O has a secondary row for 1216+. Hdg.:) In ista parva tabula sunt iiii^{or} cycli sive lineae ad sciendum quae sit littera primationis seu coniunctionis solis et lunae aut incensionis, et hoc[1] per annos domini. – (Txt:) Quaere ergo inter numeros in superiori parte istius tabulae numerum unum ex illis, qui maxime similis est[2] annis domini, et sit minor quam anni domini[3]. Si forte annos domini implete non[4] inveneris[5] ibi, tunc illum numerum comple et fac eum aequalem annis domini[6], scilicet computando per litteras descendendo a sursum usque deorsum; et illa littera[7], quae de litteris huius tabulae perfecerit annos domini, primationis seu incensionis erit illius anni. [[8]Et sic[9] praecise inveneris annos domini, scilicet computando per litteras descendendo a sursum usque deorsum, et littera illa quae de litteris huius tabulae perfecerit annos domini, primationis seu incensionis erit illius anni.[8]] Et si praecise inveneris annos domini[10], tunc ultima littera[11] lineae praecedentis versus sinistram erit primationis lunae illius anni. Verbi gratia, esto quod anni domini sint[12] 1311: eos invenies in capite secundae lineae versus sinistram, computando a sinistra, et ideo littera ultima lineae primae, scilicet T, erit littera primationis. – Et tunc quaeras eam in tali cyclo kalendarii sive linea, in quali hoc[13] est; et eo[14] die luna primatur, et numerus subscriptus litterae in eadem cellula horam primationis ostendet; et in tali quarta horae, qualem angulum punctus occupaverit[15], computando ab angulo superiori sinistro, terminando in inferiori sinistro. Nam si punctus est in primo angulo, primatur in prima parte; si in secundo[16], primatur in secunda parte[17]; si in tertio[18], primatur in tertia[19]; si in quarto, primatur in quarta parte[20]. Si autem nullum punctum inveneris, in complemento horae illius luna soli coniungetur. Si vero duas litteras primationis[21] in eadem cellula reperis, simplex[22] numerus [23]et prior secundum algorismum[23] posteriori litterae attinebit. Et sciendum quod dies et horae incipiunt in media nocte praecedente diem[24] secundum morem Romanae ecclesiae[25].

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[1]et hoc: *om.*Md St   [2]s.e.: e.s. Md St   [3]a.d.: dimidium St   [4]i.n.: n.i. St
[5]invenis O   [6]*om.*Md   [7]i.l.: l.i. Md St   [8-8]*om.*O   [9]sic: Md; *om.*St
[10]a.d.: *om.*Md St   [11]u.l.: littera ultimae Md St   [12]a.d.s.: s.a.d. Md St
[13]h(ic) O   [14]ea Md St   [15]occupatur Md; occupat St   [16]secunda Md St
[17]*om.*Md St   [18]angulo *add.*Md St   [19]p.i.t-a: i.t-o p. Md St   [20]pr.i.q-a p.: in q-a Md; in q-o pr. St   [21]*om.*Md St   [22]?anterior St   [23-23]*om.*St   [24]p.d.: praecedentis diei Md St   [25]r.e.: e.r. Md St

(h1) Manuscripts: Pr,34v; Bo,167v; Pe,25r-v. The final passage "Et scias quod luna. . .et habebis intentum" is also in Mt,p.232 of the printed edition, and in Sf,1r; the main texts belong to class a_1 and c,

respectively. A similar passage has been intercalated in Oa (cf.(f2) above). The present text is that of Pr, with variants and emendations from Bo Pe, and from Mt Sf for the final passage.

(*Pr*,hdg.:) Canon supra kalendarium novum magistri Petri de Dacia.

(*Bo*,hdg.:) Canon super coniunctiones magistri Petri de Dacia.

(*Pr Bo Pe*:) (Letter table 1292-1653(1672 with 1634 left out, Bo). Hdg.:) Hic sunt anni domini, qui ostendunt[1] litteram coniunctionis solis et lunae omni anno[2]. (Txt:) In capite istius tabulae sunt anni domini. Si ergo[3] litteram coniunctionis solis et lunae invenire volueris, quaere in superiori parte istius tabulae annos domini,

(*Pr Pe*:) et quaere numerum accedentem ad annos domini propinquiorem, et sit minor quam anni domini;

(*Bo*:) sed si non inveneris praecise numerum annorum domini, accipe numerum minorem, propinquiorem tamen ei;

(*Pr Bo Pe*:) et super eundem numerum et in eadem linea descendendo computetur, donec compleatur[4] numerus annorum domini. Et si praecise inveneris annos domini, tunc ultima littera[5] lineae praecedentis versus sinistram est littera primationis[6] illius anni. Verbi gratia, esto quod anni domini sunt[7] 1311: eos invenies in capite secundae lineae versus sinistram, computando a sinistris, et ideo[8] littera ultima lineae primae[9], scilicet T, est littera primationis[10] illius anni. Et littera illa[11] de litteris huius[12] tabulae, quae perficiet annos domini, littera coniunctionis solis et lunae nuncupatur. Et diligenter considera, utrum inveneris[13] eam[14] in prima linea vel in secunda, et cetera[15]. – Quacumque igitur littera coniunctionis[16] inventa[17], scias in qua linea est, et tunc quaeras eam in kalendario et in tali linea; et ubicumque inveneris litteram coniunctionis deservientem illi anno, in[18] tali die luna soli coniungetur, et numerus niger subscriptus[19] horam ipsius ostendit; et in tali parte[20] horae, qualem angulum punctus occupat, [21]computando ab angulo superiori sinistro. Nam si punctus primum angulum occupat[21], scilicet superiori[22] sinistrae[23], tunc coniunctio erit in prima parte horae ascriptae[24]; et si secundum angulum, scilicet[25] superiori[26] dextrae, tunc coniunctio[27] erit in[28] secunda parte horae; et si tertium angulum, scilicet inferiori[29] dextrae, tunc coniunctio erit in tertia parte illius[30] horae; et si in quarto angulo, scilicet inferiori[31] sinistrae, tunc coniunctio erit in quarta parte[32] horae ascriptae[33]. Si autem duo puncta in eadem cellula inveniantur[34], rubeum posteriori litterae attinebit. Si vero[35] nullum punctum inveneris, in complemento horae ascriptae[36] luna soli coniungetur.

(*Pr Bo Pe Mt Sf*:) Et scias quod luna dicitur prima die[37] [38]sequenti scilicet[39] post coniunctionem, et in[40] hora consimili qua fuit coniunctio[38], quas horas[41] computabis a media nocte praecedente, et sunt[42] horae[43] aequales. – Transactis autem 76 annis[44], scilicet[45] anno domini[46] 1369[47], demantur de horis sex, et puncta[48] ad proximos angulos[49] in[50] antea situentur, et incurrent[51] coniunctiones sicut[52] prius. Et semper pro[53] 76 annis elapsis ab anno domini 1300[54] a coniunctionibus sex horas deme, et habebis[55] intentum.

(*Pr:*) Et tibi nota bene omnia ista.

(*Mt:*) Nota quod de minutis horarum parum curandum est, quoniam sufficit horam vel prope cognoscere, nisi propter prudentes et elevatos viros ne quisquam sapiens obviet in talibus.

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[1]ostendunt *post* lunae Bo   [2]etc. *add.* Pr   [3]s.e.: si igitur Bo; igitur si Pe   [4]compleatur *post* domini Bo   [5]u.l.: l.u. Bo Pe   [6]prima coniunctionis Pr; lunae *add.* Bo   [7]sint Bo   [8]immo Pe   [9]*om.* Pr; praecedentis Bo   [10]lunae *add.* Pr   [11]ista Bo   [12]huiusmodi Bo   [13]invenies Pe   [14]*om.* Pr   [15]et cet.: vel in 3a vel in 4a Bo   [16]*om.* Bo   [17]fuerit *add.* Pr   [18]*om.* Bo   [19]ascriptus Pe   [20]quarta Bo Pe   [21·21]*om.* Pe   [22]-orem Bo   [23]-tro Pr; -tr() Bo   [24]a scripta Pr   [25]in *add.* Pe   [26]inferiori Pr; superioris Bo; parte *add.* Pe   [27]*om.* Bo   [28]*om.* Pe   [29]-oris Bo   [30]*om.* Bo   [31]-oris Bo   [32]illius *add.* Pe   [33]a script() Pr; *om.* Bo Pe   [34]inveniuntur Pr   [35]autem Bo   [36]quando dicitur prima luna *add.* Pe   [37]dies Sf   [38·38]coniunctionis Pe   [39]*om.* Bo Sf; immediate *add.* Mt   [40]*om.* Pr   [41]hora Pe   [42]*om.* Mt   [43]noctes Pr   [44]*om.* Pr   [45]ab Bo   [46]a.d. *om.* Sf   [47]1351 Pr   [48]punct() Pr; punctos Sf   [49]*om.* Pe   [50]ut Sf   [51]current Bo   [52]ut Bo   [53]post Mt; per Sf   [54]13 Pe; 1392(*pro* 1292) Mt   [55]-bit Pe

(h2) Manuscripts: Bv,10v; Mk,1v; So,45r. The text of So is followed, with variants and occasional corrections from Bv Mk.

(Letter table, 1368-1577 Bv Mk; (blanks from 1292-)1349-1577 So. Hdg., from Bv Mk, incomplete in my copy of So:) Per annos domini inferius annotatos invenitur littera ostendens coniunctionem solis et lunae quolibet anno in singulis mensibus. (Above text:) In ista parva tabula sunt 4or cycli sive lineae quae continent litteras primationis seu coniunctionis solis et lunae positas in kalendario sequenti.

(Hdg., *Bv So:*) Canon super kalendarium magistri Petri de Dacia[1]. (Txt, *Bv Mk So:*) Si igitur litteram coniunctionis solis et lunae invenire volueris, quaere in superiori parte istius tabulae annos domini, et quaere numerum accedentem ad annos domini propinquius, qui tamen[2] sit minor annis domini illius anni de quo quaeris. Et super eundem numerum annorum domini in tabula inventorum in eadem linea, in qua inveneris annos domini, descendendo computetur, donec compleatur numerus annorum domini illius anni de quo quaeris; et littera illa, quae perfecerit annos domini, erit littera primationis seu coniunctionis solis et lunae illius anni. Si autem praecise inveneris annos domini, tunc ultima littera[3] praecedentis lineae immediate versus sinistram erit littera primationis illius anni. Verbi gratia, esto quod anni[4] sint 1368, quos invenies in capite primae lineae versus sinistram computando: tunc littera ultima, scilicet T, quartae lineae erit littera primationis illius anni. Si autem essent anni domini 1387, quos invenies in capite secundae lineae, tunc ultima littera, scilicet[5] T, primae lineae erit littera primationis illius anni, et sic de

aliis. – Littera igitur primationis modo praedicto inventa, diligenter considera, utrum in prima vel in secunda vel in qua linea ipsam invenies[6], et in kalendario eandem litteram in consimili linea quaeras; et ubicumque inveneris litteram primationis deservientem illi anno, in tali die luna soli coniungetur, et numerus niger litterae subscriptus horam coniunctionis ostendit; et in tali quarta horae, qualem angulum punctus occupat, computando ab angulo superiori sinistro[7]. Nam si punctus primum[8] angulum occupat, scilicet superiorem sinistrum, coniunctio erit in prima quarta[9] horae ascriptae; et si secundum angulum, scilicet superiorem dextrum, coniunctio erit in secunda quarta horae[10]; et si tertium occupat, scilicet inferiorem dextrum, erit in tertia quarta; et si quartum angulum occupat, scilicet inferiorem sinistrum, erit in quarta parte horae. Si vero nullum punctum inveneris, erit coniunctio in complemento horae ascriptae. Si autem[11] duo puncta in eadem cellula inveneris, rubeum posteriori litterae attinebit.

Et has horas computabis a media nocte praecedente[12], et sunt horae aequales, quia in hoc kalendario incipitur dies a media nocte secundum morem ecclesiae. – Et scias quod luna dicitur prima die sequenti, scilicet post coniunctionem, in hora consimili qua fuit coniunctio. – Transactis autem 76 annis a compositione huius kalendarii, quod compositum fuit anno domini 1292, demantur de horis 6, et puncta ad proximos angulos in antea situentur[13], et evenient[14] coniunctiones sicut prius. Et sic semper pro[15] 76 annis elapsis subtrahantur ab horis sex, et punctis in antea situatis habebis kalendarium verificatum quoad coniunctiones solis et lunae usque in[16] infinitum.

(Subscr., *Bv So*:) Explicit canon super kalendarium magistri Petri de Dacia[17], compositum ad meridianum Parisiensem.

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[1]Datio Bv   [2]cum So   [3]l.u. Bv Mk   [4]domini *add.*Mk   [5]videlicet Bv Mk   [6]invenias Bv Mk   [7]sinist() So   [8]*om.*Bv Mk   [9]quarte So   [10]hora So   [11]*om.*Bv   [12]praecend() So   [13]situuntur So   [14]dies *add.*Bv   [15]*om.*So   [16]*om.*So   [17]Datia Bv

(h3) Manuscript: Bs,12v. Possibly an abbreviation of the preceding. See description of Bs for the context.

(Hdg.:) Incipit canon de usu et utilitate kalendarii. (Txt:) Si igitur vis scire coniunctionem solis et lunae secundum aequationem magistri Petri de Dacia, quaere litteram primationis secundum annos domini, qua inventa ⟨quaere⟩ illam litteram in consimili linea in kalendario; et ubicumque litteram anno deservientem inveneris, in tali die luna soli coniungetur; et numerus litterae subscriptus horam coniunctionis ostendit, et punctus quartam partem horae, computando ab angulo superiori sinistro. Si autem nullum punctum inveneris, erit coniunctio in complemento horae ascriptae. Et notandum quod in hac aequatione incipiuntur horae a media nocte praecedente diem.

(j1) Manuscripts: N,69vb; D,13r-v. The text in N follows upon the canon reproduced as (e) above. The present text follows D, with variants and some corrections from N. Some lacunas in D, of a few letters each, have been tacitly supplemented.

(*D,* title on recto page:) Tabula primationis. - (Letter table, 1292-1729 D, 1292(filled in with "1672")-1653 N, where the table also goes with the preceding canon (e).) - (*D,* hdg.:) Canon supra kalendarium magistri Petri de Dacia.

(*N D:*) In ista parva[1] tabula sunt 4 cycli sive 4[2] lineae ad sciendum quae littera est littera primationum[3]. In quolibet cyclo sunt 19 litterae aureum numerum[4] designantes, ita quod A deservit unitati, B binario, C ternario, et sic deinceps. Ad inveniendum[5] quae istarum[6] 19 litterarum sit littera primationum[7], hoc habere possumus per numeros in superiori parte istius tabulae scriptos, per hunc modum: Quaere inter numeros in superiori parte istius tabulae scriptos numerum, qui minus distat a numero annorum domini, dum tamen sit minor, et tunc comple et perfice numerum annorum domini ex litteris cycli ipsi numero supposito, pro uno anno quamlibet[8] litteram computando; et quaecumque littera perfecerit[9] numerum annorum domini, illa[10] erit littera primationis[11] per totum illum[12] annum. - Littera igitur primationis inventa, scias in quo cyclo erit[13], et tunc quaeras[14] eam in tali cyclo kalendarii. Ubicumque inventa[15] fuerit littera primationis deserviens anno, in quo quaeris novam lunam, ibidem dicitur luna prima, id est in coniunctione cum sole; et numerus subscriptus dabit, quota hora habeat luna[16] imprimari. Et punctus dabit, quota parte horae[17]: quia, si punctus fuerit [18]in superiori angulo cellulae versus sinistram partem, tunc luna erit prima in prima parte horae ascriptae; si vero punctus fuerit in superiori angulo cellulae versus dextram, tunc luna erit prima in secunda parte horae ascriptae; si vero punctus fuerit in inferiori angulo cellulae versus ⟨[19]dextram, tunc luna erit prima in tertia[19]⟩ parte horae ascriptae; si vero punctus fuerit in inferiori angulo cellulae versus sinistram partem, tunc luna erit prima in quarta parte horae ascriptae[18]. Sed[20] si nullum punctum inveneris, tunc luna erit[21] in complemento illius horae, id est[22] coniungitur soli. Si vero in eadem cellula [23]duos numeros et duos punctos et duas litteras[23] inveneris, numerum primum[24] primae litterae attribues [25]et secundum numerum secundae litterae[25]. Si vero[26] duae fuerint litterae et unicus numerus, ille numerus[27] dicitur[28] utrique litterae deservire. Si vero solus punctus fuerit[29], ipsum primae litterae aptitabis[30].

Si vis[31] scire quae sit littera primationis in aliquo anno, divide annos domini per 76; si vero, facta divisione, aliquid remanserit et fuerit minus quam 20, tunc eris[32] in primo cyclo et in toto anno illius cycli, quotus erit[33]; si vero plus remanserit[34] quam 19 et fuerit[35] minus quam 39, tunc luna erit prima[36] in secundo cyclo et in toto anno illius cycli, quotus erit[37] ultra 19; si autem plus remanserit quam 38 et minus quam 58[38], tunc eris[39] in tertio[40] cyclo et in toto anno illius cycli[41], quotus fuerit numerus ultra 38; sed si plus remanserit[42] quam 57, tunc erit in quarto cyclo et in toto anno, quotus fuerit numerus ultra 57, et cetera[43].

(*D*:) Nota quod dies naturalis incipitur, quantum ad huiusmodi kalendarium exercendum, in media nocte, quia dominus Ihesus, qui est dies et vera lux, natus fuit in tali hora; dies artificialis, quando sol lucet in aurora, quae alio nomine vocatur crepusculum seu inter canem et lupum, et durat usque ad principium noctis, id est ad aliud crepusculum. Hoc dicatur ibi.

[1]i.i.p.: unde ibi in illa N   [2]*om.* N   [3]lunae *add.* N   [4]n.a. N   [5]a.i.: Di⟨..⟩ D   [6]illarum N   [7]lunae *add.* N   [8]qualibet D   [9]perficerit(-is D) ND   [10]littera *add.* N   [11]-onum N   [12]*om.* N   [13]*om.* N   [14]-rat D   [15]*om.* N   [16]*om.* N   [17]*om.* N   [18-18]etc. ut supra dictum est N   [19-19]*non legitur* D; *def.* N   [20]unde N   [21]*om.* N   [22]*om.* N   [23-23]duas litteras et duos punctos N   [24]*om.* D   [25-25]*om.* N   [26]*om.* N   [27]i.n. *om.* N   [28]dicitur *post* litterae N   [29]f.p. N   [30]abcitabit D   [31]etiam *add.* N   [32]erit N   [33]numerus ille *add.* N   [34]fuerit N   [35]*om.* N   [36]l.e.p.: e.N   [37]fuerit numerus N   [38]57 D   [39]erit N   [40]i.t.: ?intro N   [41]i.c. *om.* D   [42]fuerit N   [43]etc. *om.* N

(j2) Manuscript: Re,1r. {} enclose my guesses at the text where the writing is faint.

(Letter table 1292-1653. Hdg.:) En ceste petite table sont quatre lignes a sauoir les primations de la lune, et par les anz nostre seigneur.

(Hdg.:) La lettre a sauoir le vrai cours de la lune par le qualendier mestre Pierre de Dace dit Rosignol. (Txt:) Qverez entre les nombres ou chief de ceste petite table 1 nombre samblable aus anz nostre seigneur et qui soit meins {que} le{s} anz nostre {seigneur}. Et s'il est ainsi que lez anz nostre seigneur n'i soient mie parte(?) queres le nombre qui est mieus samblable aus anz nostre seigneur, et la complisies et le fetes egal aus anz nostre seigneur, ch'est a dire que vous deves conter chancune lettre pour vne annee en contant d'en haut vers bas; et la letre qui parfera les anz nostre seigneur ou vous serez, sera la letre de primation toute sele annee. Et s'il est ainsi que les anz nostre ⟨seigneur⟩ soient 1311, vous le troueres ou chief de la seconde ligne vers senestre en contant a senestre, et donques la darreniere lettre de la premiere ligne, c'est a sauoir T, sera la lettre de primation, c'est a dire que la lune courra par sele letre toute sele annee. – Et en queconque (queque *ms.*) ligne que vous troueres la letre de primation de la lune en vostre table, queres vne autele lettre en vostre kalendier et en autele ligne. Et sachies que en queconque lieu que vous troues la lettre de primation ⟨qui⟩ sert a l'annee de quoi vous queres primation, a tel iour est la lune prime, c'est a dire nouuele; et le nombre qui est desous escrit vous demonstre les heures, c'est a dire a quel heure la lune se renouele de ce mesme iour; et le point senefie la partie de cele mesme heure. Car chacune heure est deuisee en quatre parties, et se le point est en haut vers senestre, vous dires que c'est en la premiere partie de cele mesme heure; et se (ce *ms.*) le point est en haut vers destre, c'est en la seconde partie; et s'il est en bas vers destre, c'est en la tierce partie; et se il est en bas vers senestre, c'est en la quarte partie de cele mesme heure. Et se vous

i troues 2 poinz en 1 mesme parket et 2 lettres, donnes le point rouge et lez heures rouges a la darreniere lettre. Et si n'i a nul point aueques les heures, la lune est conioingte au solail. Et sachies que le iour et les heures commencent a minuit.

(j3) Manuscript: Ro,63v-64v. Extended version of (j2).

(Letter table 1292-1653. Subscr.:) En cheste petite table sont chiclees en 4 lignes a sauoir les laitres de l'inpri(ma)sion de la lune par les ans nostre segnieur.

(Hdg.:) Chy est la l(ett)re du kalendier mestre P(er)res de Dace. (Txt:) Qŭeres entre les nombres v chief de cheste petite table 1 nombre senblabe as ans nostre segnieur, et qui soit mendres que[r] les ans nostre segnieur. S'il est ainsy que les ans nostre segnieur n'i soient mie, adonques pran le nombre qui est le miex senblabe as ans nostre segnieur, che est a sauoir en contant de hault iuques en bas, et ychelle lestre des leitres de la petite table qui parfera les ans nostre segnieur, sera la laitre de l'inprimasion de chelle anee. Et s'il est ainsy que 1292 soit le plus prochain, conpte les ans nostre segnieur, tu le trouueras au chief de la premiere lingne, et le parferas des laitres qui sont en la premiere lingne en contant de A vers T, et saches que chaqune de ches 19 lestres fait 1 an, et conpteras ainsy: A sera 1293, B sera 1294, C sera 1295, et ainsy tant que tu aies trouue Mil 3ᶜ et 3; et L sera toute chelle anee la l(ett)re de l'inprimasion, et quant 1304, sera M la l(ett)re de l'inprimasion, et puis apres N et puis O et ainsy ensiuant iuques a T, et puis seras en la segonde lingne, et recommenche A, et iras iuques a T. Et ainsy (avise *ms.*) ensiuant de toutes les 4 lingnes. Et quant les 4 aront couru (co()ueu *ms.*), sy recommencheras ariere en la premiere lingne et feras comme est dit. – Et en quelconques lingne que tu trouues la laitre de l'inprimasion, tu la dois querir en autelle lingne en ton calendier. Et saches en quel lieu tu truises la l(ett)re de l'inprimasion, tu trouueras le nombre desous escrit qui te dira a quel heure che est de che meimes iour. Se le poins est en la premiere partie en hault vers main senestre, vous dires lune e⟨s⟩t prime par tant d'eures en la premiere partie de chelle heure; et se le poins est en la secon⟨de⟩ partie en hault vers main destre, che est en la seconde partie de chelle mesme heure; et se le poi⟨n⟩t est en bas vers main destre, che est en tierche partie de chelle meimes heure; et se le point est en bas vers la senestre partie, che est en la carte partie de chelle meimes heure. Et s'il est ainsy que tu truices 2 poins en 1 meimes parquet, tu donras le point rouge a la derraine l(ett)re. Et se tu n'y trouues nul poins, tu diras la lune est coniointe au solail, car le iour et les heures commenchent a minuit.

(k) Manuscript: Kt,1r.

(Hdg.:) Cy commence la table de maistre Piere de Dacia pour trouuer le lettre qui enseigne le iour et le heure de la coniunction de la lune au soleil selon

l'ensengnement du canon qui ensieut. (Letter table 1292-1653. Subscr.:) Cy moustre par ces quatre cicle la figure du nombre d'or.

(Txt:) Qveres en ceste table en quelque ciecle ou ligne que ce soit ung nombre le plus prochain que poures trouuer a l'incarnacion de nostre signeur, et se ce nombre n'est pareil a celuy que querres, si le parfaittes des lettres qui sont en ce meismes cicle. Exemple de ce, sachies que en l'an mille cccc et xli n'i auoit point de nombre plus prochain que mille cccc xxv, et fut trouue en le ligne dextre, et fut aiouste aueuc tant des lettres de ce meisme cicle que le Q parfit le nombre de mille cccc xli que queroie. – Et trouuai au lon de celuy an en tel sicle de kalendier Q, et a tel jour et telle heure q(ue) estoit escript de leure le Q, estoit la coniunction de la lune au soleil en ch(ac)un mois de celuy an. Item sacies que le lieu ou est trouuee le lettre en le kalendier signefye le iour de la primacion de la lune; et le nombre qui est escript dessous le lettre signefie l'eure. Et le point qui par hault est a senestre, signefie la lune soy refaire en la premiere quarte del heure; et celui point qu'est par hault a dextre, signefie en la seconde quarte; et celui point qu'est par bas a dextre, signefie en la iii^e partie del heure; et celui point qu'est a senestre par desous, signefie en la daraine quarte. Et se nulz poins ne sont trouues, la coniunction est a l'eure trouuee. Et fault commencier a conter vostre jour apres minuit deuant passe.

Item en l'anee de mille cccc et xliiii, lequel nombre est trouue en la senestre ligne, sera le T, qui est en la dextre ligne, lettre de la coniunction de celuy an, et A, qui est commencement de la ligne senestre, sera la lettre de la coniunction en l'an mil cccc et xlv.

(ll) Manuscript: Pd,56v and 58r(from "Habita notitia. . .").

(Letter table 1293(!)-1426(!), no hdg.) (Txt:) Si vis invenire litteram deservientem coniunctioni, intra ad sinistram partem tabulae et quaere numerum annis domini magis acce[n]dentem, iuxta tamen, et descende[re] sub numero, computando donec compleas annos domini; et littera, ubi terminabitur annus, deserviet coniunctioni illius anni. Verbi gratia, annus domini curreret in 1340: numerus, qui magis acce[n]dit ei ex parte (experte Pd) inferiori, est 1331. Computa ergo sic: super A 1331, super B 1332, et sic de reliquis; terminabitur ergo numerus super K, quae deserviet coniunctioni illius anni. Et sic facies semper, quandocumque volueris invenire litteram deservientem coniunctioni, renovando eam in Ianuario.

Habita notitia litterae deservientis coniunctioni, quae habetur per tabulam cyclorum, si vis invenire coniunctionem solis et lunae, intra in sinistra parte mensis, de quo vis scire, et quaere cyclum in quo invenisti litteram praedictam: unde, si litteram invenisti in primo cyclo, quaere primum cyclum, et sic de reliquis; et quaere ibi litteram praedictam. Et in illa die, in qua fuerit littera, erit coniunctio, et in illo signo et gradu in quo fuerit sol illa die; et numerus, qui est sub littera, determinat horam, et punctus partem horae: unde, si punctus fuerit in superiori angulo versus ⟨sinistram, in prima parte; si

in superiori angulo versus⟩ dextram, in secunda; si in inferiori versus dextram, in tertia (4ª Pd); si versus sinistram, erit in 4ª parte horae. Et si non fuerit punctus, erit in fine horae coniunctio.

(12) Manuscript: Da,173v.

(Letter table 1292-1653. Hdg.:) Tabula ad inveniendum litteram imprimationis lunae. (Txt:) Accipe numerum propinquiorem minorem incarnationi domini, et quod tibi deficies, comple de litteris subsequentibus in directo illius numeri, cuilibet anno attribuendo 1 litteram, donec habeas numerum completum tibi praesentem, in quo es vel quaeris; et littera, ubi deficit numerus, est illa quae erit anno illo in quo quaeris. Verbi gratia, si habes [[1330]] 1340, intra per numerum 1330, et in directo computa a prima littera A usque 10 inferius procedendo, et habebis litteram K.

Appendix 3. Variant canons to T.L.

Synopsis:
(a1) Lo,10r-v.   **(a2)** Le,19r; Ow,153r; Od,53r.   **(a3)** Bv,10r; Mk,1r.
These texts are all close to the standard one; there seems to be no further
relation between them. The manuscripts of (a1) and (a2) are English, part
of them containing later calendars.
(b1) Pl,30v.   **(b2)** N,69va.   **(b3)** Re,8v(in French).
All occur in some connexion with the Calendar.
(c1) Ny,16r-v; Pe,41v-42r; Od,7r-v.   **(c2)** Wi,14r; Sx,1r.   **(c3)** Pn,1r;
Pn,13r.   **(c4)** Bx,9r-v(in French).   **(c5)** Pd,58r(affiliation dubious).
All possibly cognate with the texts under (b). The contexts vary.
(d1) Fp,96r; P3,96r; S,21v; Or,140r; N,70r.   **(d2)** X,9r.   **(d3)** So,56v
(mixture with (d1)?).   **(d4)** N,70va(to (b)?).   **(d5)** V,68v (much ex-
tended, affiliation dubious).
Except P3, these are more or less closely connected with the Calendar.
(e) Oa,152r.
(f) Mz,133r.
(g) Ny,16r; Pr,24v.
(f) and (g) occur together with later calendars.

A further canon may be hidden in the French subscription to the T.L. in Pr,1r.
The subscription in Kh,151r, simply refers to the Computus Chirometralis.

(a1) Manuscript: Lo,10r-v.

(Hdg.:) Tabula ad sciendum in quo signo luna est omni die, et in quo gradu
eiusdem, in sequenti tabula secundum magistrum Petrum. (Txt:) Ad locum
etiam lunae habendum videas quota est dies coniunctionis ab ingressu signi,
in quo fuerit coniunctio; et in toto gradu eiusdem sol et luna coniungentur, et
ita habebis locum lunae ad diem coniunctionis. Sed si locum eius ad
quemcumque alium diem quaesieris, cum numero dierum a die coniunctionis
perfectorum in tabulam istam consequentem intres, et e directo eiusdem diei
sub coniunctionis signo descendens invenies signum, in quo est luna. Et si
gradum eiusdem signi scire volueris, respice numerum qui est a dextris
tabulae e directo dierum (diei et *ms.*) quos invenisti, quia numerus ille tibi
demonstrabit gradum signi, in quo est luna, si coniunctio facta fuerit in primo
gradu cuiuscumque signi. Sed si in quocumque alio gradu signi facta fuerit

coniunctio, cum numero graduum, quos invenisti a dextris tabulae, numerum
graduum coniunctionis addas, et si aggregatum minus 30a fuerit vel ipsum
30a, gradum signi, in quo est, tibi ostendet; et si 30a excresc[er]it, abice 30a et
residuum retine, quia tibi dicet in quo gradu signi subsequentis luna fuerit die
quaesito, hora consimili horae coniunctionis, a media nocte die incepta. Nihil
enim computatur in tabula ista de mense aliquo, priusquam coniunctio solis
et lunae facta fuerit in eodem mense et in eius signo.

Vocatur itaque totum tempus ab una coniunctione ad aliam una lunatio, et
continet in se 29 dies 12 horas et 45 minuta. Et dividitur quodlibet signum in
30a gradus, quilibet gradus in 60a minuta, quodlibet minutum in 60a
secunda, quodlibet secundum in 60a tertia. Et nota quod luna 12 signa
zodiaci in 27 diebus et 8 horis percurrit, manens in quolibet signo duobus
diebus naturalibus et fere 8 horis. Cursus eius in die naturali est 13 gradus et
10 minuta.

(Subscr.:) Finis tabulae praecedentis.

(a2) Manuscripts: Le,19r; Ow,153r; Od,53r. Text from Od, variants
and some corrections from Le; Ow, which has a few errors against Le
and is probably an apograph of it, has been disregarded. The tables
of Le Ow have an expanded right entrance (cf. *Pref.* §22), whence
variant no. 5.

Cum scire volueris[1] locum lunae omni die per tabulam signorum, videas
quota est dies coniunctionis solis et lunae in tabula coniunctionis ab ingressu
signi, in quo est sol, [et[2] videas per tabulam solis pro illo die, in quo gradu est
sol,] quoniam in tali gradu eiusdem signi sol et luna[3] coniunguntur: et ita
habes locum lunae ad diem coniunctionis. Et si locum eius ad quamcumque
aliam quaesieris, cum numero dierum a die coniunctionis perfectorum in
tabula de loco lunae inveniendo intres, et in[4] directo eius sub signo coniunc-
tionis descendens, in angulo correspondenti numero dierum a prima linea
tabulae signum invenies, in quo est luna, et similiter invenies gradum et
minutum signi illius [5]versus dextram in directo numeri dierum[5]; hoc tamen
supposito, quod coniunctio solis et lunae[6] fuerit in primo gradu alicuius signi.
Si vero coniunctio fuerit in aliquo alio gradu, tunc adde omnes gradus signi
illius, videlicet[7] a principio signi illius usque in gradum coniunctionis, super
gradus inventos in linea graduum et minutorum a dextris[8] inventa, et habes[9]
locum lunae in meridie illius diei[10] medium. Et[11] si post additionem plures
gradus fuerint quam 30, abiectis illis[12] 30 gradibus residuum ostendet, in quo
gradu signi sequentis sit luna, die quaesito, hora consimili horae[13] coniunctio-
nis, [14]a meridie diei praecedentis diem incipiendo[14].

(*Od*:) Nota quod in tabula coniunctionis solis et lunae horae et minuta
ibidem inventae sunt eiusdem diei, super quam positae sunt, et non diei
sequentis.

[1]v.s. Le   [2]om. Od   [3]solis et lunae Od   [4]e Le   [5-5]hic simul cum numero dierum correspondenti tabulae signorum Le   [6]e.l. om. Le   [7]scilicet Le [8]a.d.: hic Le   [9]habebis Le   [10]d.i. Le   [11]om. Od   [12]a(utem?) Od [13]om. Le   [14-14]inc. diem a.m. diei pr. etc. Le

(a3) Manuscripts: Bv,10r; Mk,1r.

(*Bv*, hdg.:) Ad locum lunae habendum quolibet die. (*Bv Mk*:) Videas igitur quota est coniunctionis dies ab ingressu solis in signum, in quo est sol, et in toto gradu eiusdem signi sol et luna coniungentur, et ita habebis locum lunae quoad diem coniunctionis. Si autem locum lunae ad alium diem quam ad diem coniunctionis habere volueris, cum numero dierum a die coniunctionis perfectorum intra tabulam infra positam, et quaere numerum aetatis lunae, quem invenies in sinistra parte tabulae; et signum, quod e directo illius numeri invenies sub signo, in quo est sol, quod invenies in capite tabulae, est signum in quo erit luna; et in quoto gradu[1] eiusdem signi sit luna, ostendit numerus graduum in dextra parte tabulae stantium e directo numeri dierum. Et hoc est verum, si coniunctio in primo gradu signi fuerit; sin autem, numerum graduum in tabula sic[2] inventorum et numerum graduum signi in die coniunctionis inventorum simul coniunge[3]. Et si aggregatum fuerit minus quam 30, in tali gradu signi inventi erit luna; si autem plus fuerit quam[4] 30, abiectis 30 numerus residuus ostendit, in quoto gradu signi sequentis erit luna die quaesito, hora consimili horae[5] coniunctionis, a media nocte die incepta. Si autem ad alias horas locum lunae habere volueris, semper pro duabus horis unum gradum et ⟨6⟩ minuta gradibus inventis adiunge. Et hoc est verum, si vis ad horam sequentem horam coniunctionis; si autem ad aliquam horam praecedentem, quod praedictum est subtrahe, et habebis sic locum lunae ad quamcumque horam diei volueris.

[1]om. Mk   [2]sit Bv   [3]iunge Mk   [4]*vel* quasi Bv   [5]ho(m)i(n)e Bv

(b1) Manuscript: Pl,30v. Possibly an extension of (b2).

Ad inveniendum certissime signum et gradum, in quo est luna, videas in kalendario, in quo signo est sol, quia in eodem signo est luna in die coniunctionis tantummodo. Si autem locum eius ad aliquem alium diem lunationis scire volueris, tria sunt principaliter consideranda, scilicet aetas lunae, et quot sunt dies sive gradus ab introitu solis in signum, et dies etiam coniunctionis ac ordo signorum. His scitis intra tabulam, incipiendo directe sub signo, sub quo facta fuit coniunctio, cum aetate lunae ad diem intentum; et habebis e directo eiusdem diei signum et gradum, in quo est luna, si coniunctio lunae cum sole facta fuerit in die introitus solis in signum, quod aliquotiens contingit; sin autem, supra numerum graduum ibidem inventorum addas numerum graduum signi perfectorum ab introitu solis in signum

usque ad diem coniunctionis solis et lunae. Et si numerus ille est infra 30a, in tali gradu signi inventi est luna; si autem ultra 30a numerus talis excreverit, tollas ab eodem numero 30a, et dicas lunam praesentis diei esse per tot gradus in signo sequenti, quotus est numerus residuus aut superexcrescens ultra 30a, incipiendo diem a media nocte praecedente. Si autem ad ali[qu]am horam diei hoc scire volueris, videlicet in quo gradu signi inventi sit ipsa luna, pro duabus horis unum gradum debes semper computare.

Sciendum est igitur quod signum, in quo fit coniunctio solis et lunae, semper est ponendum in principio computationis in capite tabulae in ordine signorum. – Praeterea secundum rei veritatem est notandum quod luna dumtaxat moratur in quolibet signo per duos dies et sex horas et per unum bisse. Bisse autem est gemina pars unius rei divisae in tres partes aequales. Hora vero continet 60a minuta. Sed bisse non continet nisi 40a minuta tantum, videlicet duas partes unius horae.

(b2) Manuscript: N,69va. To the lunar table reproduced in App.4(c). The present text appears as a shorter version of the preceding.

(Hdg.:) Tabula lunae abbreviata et correpta per magistrum Petrum de Dacia, correptorem huius kalendarii. (Txt:) Ad inveniendum signum et gradum, in quo est luna, videas in kalendario, in quo signo est sol, quia in eodem est luna in die coniunctionis tantummodo (t(antu)m Mᵃ *ms.*). Si autem locum eius ad aliquem alium diem scire volueris lunationis (-ones *ms.*), tria sunt principal(iter) consideranda, scilicet aetas lunae, et quot sunt dies ab introitu solis in signum, et dies (diem *ms.*) coniunctionis ad ordinem signorum. His scitis intra tabulam cum aetate lunae ad diem intentum, et habebis e directo eius signum et gradum, in quo est luna, si coniunctio fuerit in die introitus solis, quod contingit. Sin autem, supra numerum graduum ibi inventorum addas dies ab introitu signi usque ad diem coniunctionis; et si numerus ille est infra 30, in tali gradu signi inventi est luna; si autem ultra 30 excreverit, tolle 30 ⟨et⟩ dicas lunam esse per tot gradus in signo sequenti, quotus est numerus residuus. Si autem ad ali[qu]am horam diei volueris ipsam invenire, pro duabus horis 1 gradum computabis.

Scias quod illud signum, in quo est (in *ms.*) coniunctio (-ctus *ms.*), semper ponendum est in principio computationis in capite tabulae in ordine signorum.

(b3) Manuscript: Re, 8v.

(Hdg.:) Ch'est a sauoir la table de la lune mestre Pierre de Dace. (Txt:) Se vous voules sauoir en quel signe la lune est et en quel degre, vous deves sauoir en quel signe li solaus est quant la lune est nouele; et sachies que li solaus met 1 an aler sus les 12 signes, et la lune les va touz 12 en 1 mois. Se vous voles sauoir le signe ou la lune «est», queres le signe du solail ou la lune fu nouele en vostre table, et vous le troueres ou chief de vostre table. Et quant vous aves

troue le signe du solail, sachies l'age de la lune, ch'est a dire quant iours la
lune a puis qu'ele fu nouele deques au iour ou vous estes; et ne contes pas le
iour que ele fu nouuele. Et quant vous aves troue l'age de vostre lune, queres
la en vostre table, et vous la troueres en la premiere ligne vers senestre; et ales
en contre le iour ou vous seres, en descendant de sous le signe du solail, et
dites la lune est en tel signe par tant de degres com vous troueres en la
darreniere ligne vers destre, mes que vous aioutes les degres du solail, qui
sont entre la lune et le solail, auecques les degres de la lune, se l'aioustement
est meins de 30; et se l'aioustement est plus de 30, ostes les 30 et prenes le
remanant, et dites que vous est⟨es⟩ ou signe ensuiuant «par tant de degres». Et
quant la lune est nouele en contre le signe du solail, il ne conuient riens
aiouter au degre«s» de la lune.

(c1) Manuscripts: Ny,16r-v; Pe,41v-42r. Text from Ny, variants and a
few corrections from Pe. Od, on f.7r-v, has a text worded mainly like
that of Ny, but with lacunas. Excerpts of this are given at the end of
this section.

(*Ny:*) (Hdg.:) Item al. (Txt:) Si quis desiderat scire in quo signo erit luna omni die per annum, in primis debet

(*Pe:*) (Hdg.:) Ad sciendum in quo signo luna sit omni die[i] (Txt:) primo debetis

(*Ny Pe:*) scire aetatem lunae, postea in quo signo erat[1] sol in die coniunctionis
et in quo gradu eiusdem signi. Deinde quaere aetatem lunae a sinistris tabulae
sequentis[2], et tunc quaeras signum solis in suprema[3] linea [4]eiusdem tabulae,
ubi sunt 12 signa[4], scilicet ab ariete usque ad pisces; et sub illo signo[5] solis
descende[6] in directo aetatis lunae, et invenies signum lunae[7] sub signo solis[8]
contra aetatem lunae a sinistris[9], et[10] gradum lunae[11] invenies a dextris contra
aetatem eiusdem[12]. Sed cum illis[13] gradibus debes[14] addere gradum[15] signi
solis, in quo[16] erat sol in die coniunctionis; et si gradus solis et lunae simul
collecti minus 30 fuerint[17], tunc[18] luna adhuc erit[19] in eodem signo, quod erit
contra[20] aetatem eius; sed[21] si gradus solis et lunae simul collecti[22] ultra 30
excreverint, tunc luna erit in alio signo sequenti, scilicet inferius[23], et hoc[24] in
totali gradu[25], quotus fuerit numerus[26] residuus ultra 30; et habebis locum
lunae ad horam consimilem[27] qua fuit coniunctio. Si autem ad alias horas
gradus[28] lunae scire volueris, accipe horas quas vis, et semper pro 2 horis 1
gradum computabis; sed[29] si est pro horis praecedentibus[30], a loco lunae
subtrahe, et[31] si est pro[32] horis[33] sequentibus, adde, et sic locum lunae ad
quamlibet[34] horam poteris invenire.

(*Ny:*) Gradum solis sic invenies et in quo gradu signi erit sol omni die:
Quaere diem mensis, in quo sol signum intrat, et computa omnes dies ab
eodem die, illo non computato, ad diem quem quaeris, et pro qualibet die 1
gradum illius signi accipe. Et sunt 12 signa, scilicet aries, taurus, gemini,
cancer, leo, virgo, libra, scorpius, sagittarius, capricornus, aquarius, pisces, et
per illa signa supercaelestia membra humani corporis d⟨.⟩ dividuntur.

[1]erant Pe   [2]eius Pe   [3]superiori Pe   [4]·[4]*om.* Pe   [5]scilicet *add.* Pe
[6]descendente usque Pe   [7]scilicet *add.* Pe   [8]et *add.* Pe   [9]a s. *om.* Pe
[10]?alium *add.* Pe   [11]*om.* Ny   [12]eius Pe   [13]scilicet *add.* Pe   [14]lunae qui sunt
a dextris debetis Pe   [15]-dus Pe   [16]i.q.: scilicet in quibus Pe   [17]?fiunt Pe
[18]? Pe   [19]e.a. Pe   [20]cum Pe   [21]et Ny   [22]-ti[[s]] Ny; -tis Pe   [23]s.i.
om. Ny   [24]*om.* Pe   [25]?signi *add.* Pe   [26]*om.* Pe   [27]c.a.h. Ny   [28]gradum Pe
[29]*om.* Pe   [30]anteced. Pe   [31]*om.* Ny   [32]p() Pe   [33]*om.* Pe   [34]quemlibet Pe

(*Od:*) Si quis invenire voluerit in quo signo et in quo gradu signi luna sit omni die, quaerat primo aetatem lunae, postea in quo signo erat sol in die coniunctionis et in quo gradu illius signi. Deinde quaerat aetatem lunae a sinistris tabulae, et tunc quaerat signum solis in suprema linea ubi sunt 12 signa. . . (Text mainly as Ny above, but in third person). . .si autem pro horis antecedentibus, a loco lunae subtrahat, ⟨--⟩ p(er) sequentibus, addat, et habebit intentum.

(**c2**) Manuscripts: Wi,14r; Sx,1r. Text from Wi. Since Sx is very faint in parts, only the larger variants have been noted.

(*Wi:*) Nota, perlectis multis tabulis veriorem pro sacerdotibus valentem non [invenire ?sive] potui invenire nisi quam compilavit venerabilis magister Petrus de Dacia in arte computistica.

(*Wi:*) Cum aliquis desiderat scire in quo signo luna sit et quo gradu, sciat diem mensis, in quo hoc desiderat; deinde sciat lunae praeceden() aetatem; scito quaeratur aetas lunae in tabula magistri Petri de Dacia in sinistro latere,

(*Sx:*) Ad sciendum. . . (1 line illegible). . .

. . .in latere sinistro tabulae,

(*Wi, Sx fere:*) et signum, in quo fuit coniunctio, in capite superiori, et in angulo communi[1] invenietur signum lunae, et gradus invenietur in latere dextro et in directo[2] aetatis lunae. Cum illis gradibus adda⟨n⟩tur gradus, quos sol[3] pertransierat de signo suo in die coniunctionis, et si illi gradus simul collecti excesserint 30, tunc luna non est in signo quod est contra aetatem eius, sed[4] in signo sequenti descende(nte), et in [toto gradus] gradu toto, quotus[5] est maior[6] numerus quam 30. Et sic[7] habetur locus lunae in hora simillima[8] horae coniunctionis.

(*Wi:*) Et si illud ad alias horas scire volueris, tunc pro omnibus horis sequentibus addatur unus gradus et pro horis praecedentibus subtrahatur.

(*Sx:*) Et si illud ad alias horas scire volueris, tunc pro quibuslibet duabus horis addatur unus gradus, et pro horis praecedentibus subtrahatur et pro horis sequentibus addatur. Et nota quod luna moratur in unoquoque signo per duos dies et sex horas et bisse unius horae.

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[1]*duas litt. add.* Wi   [2]e.i.d.: Sx; *om.* Wi   [3]g.q.s.:Sx; grados quos solus Wi   [4]scilicet Wi   [5]q.: Sx; *om.* Wi   [6]minor Wi   [7]n.l. Wi   [8]i.h.s.: et hora ?et s. Wi; ad horam consimilem Sx

(c3) Manuscript: Pn, with one version (Pna) at 1r, and another (Pnb) at 13r.

(*Pna*:) Quando volueris scire in quo signo et in quo gradu signi sit luna quolibet die, primo debes scire aetatem lunae, (*Pnb*:) (Hdg.:) Canon ad sciendum in quo signo luna sit quolibet die. (Txt:) Ad locum lunae habendum videas quota est dies coniunctionis ab ingressu signi, (*Pna, Pnb*:) id est quot dies luna[1] habet a die primationis eius; secundo debes scire signum solis et gradus eiusdem signi, scilicet in quo erat sol[2] in die primationis lunae; et debes computare pro quolibet[3] die unum gradum, et illos gradus debes custodire tam diu quam illa lunatio durabit. Quaere ergo aetatem lunae a sinistris huius tabulae[4], et invenies signum eius sub signo solis, scilicet[5] in quo erat sol in die[6] primationis, et invenies gradus[7] lunae a dextris[8] tabulae contra aetatem eius. Sed cum gradibus lunae adde gradus signi solis quos servasti; et si gradus solis et lunae simul collecti ultra 30a excreverint[9], tunc luna erit in[10] signo sequenti, scilicet inferius, et in totali gradu, quotus erit numerus ultra 30a; et habebis[11] locum lunae ad horam consimilem qua fuit[12] coniunctio. Et si velis scire gradus[13] ad alias horas, semper pro duabus horis unum gradum computabis.

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[1]*om.* Pnb   [2]*om.* Pnb   [3]?qualibet Pnb   [4]h.t.: t.lunae Pnb   [5]sub signo *add.* Pnb   [6]coniunctionis sive *add.* Pnb   [7]-d(um) Pnb   [8]dictae *add.* Pnb   [9]extremitatis Pna   [10]e.i.: in alio Pnb   [11]sic *add.* Pnb   [12]fuerit Pnb   [13]-dum Pnb

(c4) Manuscript: Bx,9r-v.

(Hdg.:) Quiconcques vaura scauoir en quel signe le lune demeure et en quel degre du signe elle est cascun jour et chascune heure, (Txt:) Premierement deues sauoir en quel signe ly solaux fu le iour de le conionction d'icelle, et en quel degre du signe; et sy deues scauoir quans iours ly lune a. Apres vous deues aler a le table de le lune, et queres a senestre d'icelle l'eage de le lune. Apres queres eus ou signe de seure le signe du soleil, et descendes par desous cel signe, la ou ly solaux fu le iour de le coniunction, iusque encontre l'eage de le lune. Et a destre encontre l'eage de le lune sont ly degre de le lune. Mais auoec lez degres de le lune deues aiouster le degres du solail, la u li fu le iour de le coniunction; et se li degre du soleil et de le lune ensanble conions sont pluz de xxx, donc serra li lune en l'autre signe desouz, et en autant de degres come elle fu oultre; et vous ares le signe et les degres de le lune a telle heure come la coniunction fu. Et va la lune cascun iour xiii degres, pau plus pau mains; et si va en i[i] jour li solaux 1 degre. Et par ensi porres vous sauoir en quel degre du signe le lune serra cascun jour et a cascune heure du jour. S'ensieut le taule de le lune, et cetera.

(c5) Manuscript: Pd,58r.

Si vis scire qualibet die et qualibet hora, in quo signo est luna, computa quota est dies, de qua vis scire, post coniunctionem, non computata die[m] coniunctionis; et vade ad tabulam signorum, et quaere in sinistra parte diem et in superiori linea signum coniunctionis, et descende sub eo, donec pervenias ad rectitudinem diei. Et recipe gradus, qui sunt in dextra parte tabulae ex directo diei, et aggrega cum gradibus coniunctionis; et si ille numerus aggregatus fuerit 30 vel infra, per tot gradus erit luna in signo invento; et si excreverit 30, per tot (quot *ms.*) erit in signo sequenti. Et hoc intellegas in illa eadem hora, in qua fuit coniunctio; si autem per alias horas eiusdem diei volueris scire, pro duabus horis 1 gradum computabis. Gradum lunae habebis ad horam.

(d1) Manuscripts: Fp,96r; P3,96r; S,21v; Or,140r; N,70r. See the descriptions of Fp P3 for the headings found, with ascriptions to Peter of Dacia. In P3 some letters are hidden because of the binding; I have not noted such places if their extent appears to fit the text printed. This text mainly follows Fp.

Cum[1] [2-]volueris uti tabula magistri Petri[2], scias gradum coniunctionis[3] solis et lunae per kalendarium ipsius[4], et cuius signi fuerit ille[5] gradus; quo scito accipe aetatem lunae et cum eadem intra lineam[6] a sinistris[7] tabulae lunae positam[8]; [9]et[10] quaeras in capite tabulae lunae[11·9] signum coniunctionis, sub quo descendes[12] usque ad angulum communem[13]; et[14] invenies signum lunae[15] in illo angulo communi et gradum eiusdem signi a dextris ascriptum (*Fp P3 Or N:*) ad diem praesentem.

(*Fp Or N:*) Et hoc est verum[16], dato quod praedictus gradus fuerit in[17] initio signi. Si[18] autem in alio gradu fuerit dicta coniunctio[19], puta in secundo vel tertio[20] gradu et sic deinceps, (*Fp P3 Or N:*) quotcumque fuerint[24], eosdem addas super[25] gradus inventos[26] in tabula lunae;

(*S:*) Sed super illos gradus tuae tabulae debes addere (*P3 S:*) gradus[21] omnes[22], in quibus sol erat quando luna fuit prima[23],

(*Fp P3 S Or N:*) et illud[27] quod[28] resultat est gradus lunae ad diem praesentem, eiusdem signi, si 30 non excesserit[29]. Sed si ultra 30 numerus excreverit, videas illum numerum[30] quantus[31] fuerit, et [32]tantum debes[33] accipere[32] in signo sequenti[34] pro gradu lunae praesentis diei, quae[35] secundum Christi fideles[36] semper[37] a media nocte incipitur[38].

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[1]autem *add.* P3   [2-2]ista t.u.v. Or; v.u. ista t. N; de Dacia *add.* P3   [3]*om.* Or
[4]k.i.: istud k. Or; k.istud N   [5]ipse S; *om.* P3   [6]numerorum *add.* S   [7]a s.:
sinistram Fp   [8]positam (p-a P3) *ante* tabulae Fp N   [9-9]*om.* Or N   [10]*om.*
P3; *def.* Or N   [11]*om.* S; *def.* Or N   [12]-das S; -dens N   [13]*om.* N   [14]*om.*
S   [15]*om.* P3   [16]v.e. Or   [17]*om.* N   [18]sin Fp   [19]d.c. *om.* N   [20]v.t.

om. N ^{21}⟨sed *(vel similia quae latent)*⟩ gradus P3 ^{22}*om.* S ^{23}nova S
^{24}q.f.: quicumque ⟨*(latet)*⟩ P3; quodcumque fuerit N ^{25}supra N ^{26}inventio-
nis N; *om.* P3 ^{27}id N ^{28}inde *add.* S ^{29}excreveri(n)t S; excederit N
^{30}residuum *add.* N ^{31}quantum N; quotus P3 $^{32-32}$accipies tantum P3
^{33}debet N ^{34}se.si. N; se. Fp ^{35}de quo quaeris quae dies S ^{36}Ch.f.:
christicolas N ^{37}semper *post* nocte N ^{38}incipit N

(d2) Manuscript: X,9r. Shorter version of the preceding.

(Hdg.:) Canon ad sciendum locum lunae. (Txt:) Si vis scire locum lunae, scias
aetatem eius et signum, in quo sol erat quando luna fuit prima; quo scito
accipe aetatem lunae et quaeras in capite tabulae signum solis, sub quo
descende[ns] usque ad aetatem lunae, et invenies signum lunae et gradum
eiusdem signi a dextris ascriptum ad diem praesentem. Et cum illis addas illos
gradus, in quibus sol erat quando luna fuit prima; et illud quod resultat est
gradus lunae, eiusdem signi, si 30 non excesserit. Sed si ultra 30 numerus
excreverit, tantum debes accipere in signo sequenti pro gradu lunae. Et erit
locus lunae similis coniunctionis horae. Et nota quod dies et horae incipiunt a
media nocte praecedente diem.

(d3) Manuscript: So,56v. Resembles (d1) at the start and (c1) at the end.

Notandum, si volueris scire in quo signo sit luna in quolibet die secundum
tabulam suprascriptam, considera gradum coniunctionis solis et lunae, et
cuius signi fuerit ille gradus, in die coniunctionis; quo scito accipe aetatem
lunae, et istam invenies a sinistris tabulae in prima linea, et descende directe
sub signo supraposito, in quo coniunctio facta fuerit (*vel* fuit), usque ad
signum correspondens aetati lunae, quia tunc in isto signo directe erit luna, et
in toto gradu eiusdem signi, quotus scriptus fuerit numerus in ultima linea
versus dextrum, correspondens illi signo et aetati lunae; et hoc addendo
gradus solis, quos sol habuit in coniunctione, ad gradum lunae, et si ultra 30a
numerus graduum excreverit, tunc 30a pone pro signo [[sequenti]], et si aliqui
fuerint ultra, in tot gradibus signi sequentis «directe» erit luna ad diem tibi
placitum, ad horam †in sp(eci)e† coniunctionis. Si autem ad alias horas diei
gradum lunae scire volueris, accipe horas quas vis, et semper unum gradum
pro duabus horis computabis et e converso fac, et habebis intentum. Et scias
quod luna dicitur prima die sequenti post coniunctionem, etc.

(d4) Manuscript: N,70va.

Respice coniunctionem solis et lunae, id est quando nova sit luna, et vide
(inde N) in quo gradu sit sol, quia in eodem est luna. Serva hunc gradum et

signum, et verte te ad tabulam lunae, et vide quotus sit dies lunationis, et
illum quaere in linea sinistra, ubi "aetas lunae" scribitur, et ibi tene digitum,
et vide superius signum in quo fuit primata luna, et descende usque ad
communem angulum; et ibi in dextra parte invenies gradum lunae, super
quem addas gradum illum super quem fuit luna primata seu in coniunctione;
et si excreverunt(!) 30, recipe tantum de signo sequenti, quantum est numerus
residuus ultra 30. – Aliquando autem sunt †cellulae duae, aliquando tres: hoc
est pro tanto quia plus currit luna quolibet die quam 13 gradus; tunc oportet
diligenter videre, utrum plus in praecedenti fuerit in eoderr. signo, et hic
videtur, quia si fuerit aggregatum plus quam 30, nunc fuit in eodem signo†

(d5) Manuscript: V,68v.

Ad sciendum tabulam istam, per quam habetur signum et gradus in quo est
luna quolibet die anni, oportet te scire primo, in quo signo et in quo gradu
signi fuerit coniunctio solis et lunae. Et hoc scias sic: Videas in quota die
mensis fuerit (*vel* fuit) coniunctio solis et lunae, et super tot dies addas 15, non
computando illum diem in quo facta fuit coniunctio illa. Et si ille numerus,
qui resultat ex tali additione, minor fuerit quam 30, tunc sol et luna fuissent
coniuncta in illo signo, quod attribuitur illi mensi, in quo facta fuit praedicta
coniunctio, et in tali gradu eiusdem signi, qualis numerus resultasset ex
additione praedicta, scilicet dierum mensis completorum cum 15. Sed si
numerus, qui resultat ex tali additione, fuerit maior quam 30, depone 30, et si
aliquid fuerit ultra illud, ostendet tibi gradum signi proximi sequentis, in quo
signo et in quo gradu eius tunc sol est cum luna coniunctus. Et si nihil
remanserit postquam reiecisti 30, dic tunc quod coniunctio fuit in primo
gradu signi proximi sequentis, mensi sequenti attributi. Debes ergo scire quod
unusquisque mensis habet aliquod signum sibi attributum, sicut Aprilis
attribuitur arieti, Maius tauro, Iunius geminis, Iulius cancro, Augustus leoni,
September virgini, October librae, November scorpioni, December sagittario,
Ianuarius capricorno, ⟨Februarius aquario,⟩ Martius piscibus. – Unde versus:
    Ap aries, Ma tau, Ju ge, Jul can, Au leo, Sep vir,
    Oct libra, No scor, De sa, Jan cap, Feb a, Mar pis.
    Hic primae syllabae semper nominant menses, secundae vero signa eis
attributa. Sic ergo habes in quo gradu cuius signi fuit coniunctio, vel est vel
erit coniunctio.
    Habito ergo signo et gradu eius, commenda diligenter ipsum memoriae.
Deinde vide aetatem lunae in aliqua die, in qua scire volueris eius gradum et
signum secundum medium motum, videndo scilicet quot dies sunt perfectae
de eius aetate; et cum tot diebus intra ad numerum dierum ad manum
sinistram scriptum in hac tabula, et super (semper *ms.*) illum numerum pone
digitum unum, ipsum custodiendo scilicet. Et videas ubi stet signum in linea
suprema eiusdem tabulae, in quo signo facta fuit coniunctio, quod prius
memoriae commendasti, et cuius gradus etiam, si [plures] fuerint [vel]
gradu⟨s⟩, prius commendasti memoriae; videas ubi stet, et descende sub
eodem signo directe cum alio digito, quousque in directo numeri, qui est in

aetate eius, quem prius cum uno digito custodisti; et quodcumque signum
stet in illa cellula, in illo est luna, et in toto gradu eius, quotus fuerit numerus
graduum scriptus in ultima linea ad dextram in directo diei vel dierum, cum
qua vel cum qu[al]ibus intrasti. Et scias quod istud est verum, supposito quod
invenisses (-set *ms.*) praedictam coniunctionem fuisse factam in principio illius
signi, quod prius memoriae commendasti. Sed si non fuisset facta in principio
signi, immo forte in 6. vel in 7. gradu illius signi, vel in quocumque gradu
illius signi, addas omnes illos gradus super gradus iam inventos in ultima
linea versus dextram manum, et habebis gradum caeli, in quo fuerit luna in
die [ad diem] in qua volueris. Et si forte numerus graduum resultans ex tali
additione maior est quam 30, tunc debes reicere 30 pro illo signo, quod prius
in suprema linea accepisti, scilicet pro illo signo in quo facta fuerit praedicta
coniunctio, et sub quo signo etiam tunc descendisti usque ad directum
dierum qui fuerint in aetate lunae usque in diem in quo es; et si sit unum in
residuo, tunc luna est in primo gradu signi proximi sequentis, et si sint duo in
residuo, tunc est in secundo gradu eius, et sic deinceps. Et si nihil fuerit
residuum, postquam reiecisti 30 pro praedicto signo, adhuc erit in primo
gradu proximi signi sequentis, scilicet iuxta principium illius gradus. – Est
autem ordo et successio signorum denominatus in his versiculis, inceptis in
ariete, qui est primum signum: Est aries taurus etc.

(e) Manuscript: Oa,152r.

Si per hanc tabulam locum lunae invenire volueris, scilicet signum et gradum
in quo est luna, operab⟨er⟩is sic: Videas enim aetatem lunae in prima linea
huius tabulae, et signum quod in directo eius fuerit, sub signo tamen sub quo
luna fecit, et illud est signum in quo est luna; numerus autem graduum in
directo illius diei repertorum est numerus graduum signi, in quo est luna, hoc
tamen supposito, quod [«si»] luna fecerit et innovata fuerit in principio signi.
Si autem in aliis partibus fuerit innovata, supra numerum graduum iam
inventorum in tabula adde gradus, quos pertransivit luna in signo tempore
suae innovationis; et ex ista additione si excrescit «minus» 30a, quod
excreverit erit numerus graduum signi, in quo est luna; si vero plus 30a
excreverit, abiectis 30a quod remanserit erit numerus graduum signi sequentis
inferius reperti in tabula. Utrum autem in principio signi vel in alio quovis
gradu luna innovata fuerit, scire poteris per signum et gradum solis tempore
suae innovationis: cum enim luna innovatur, oportet esse in eodem signo et
gradu signi cum sole.

(f) Manuscript: Mz,133r. Included in a set of canons to a calendar
starting in 1463 (App.5(j9)).

Si gradus lunae quolibet die determinate scire volueris, scias primo determi-
nate horam diem et minutum coniunctionis proximo praeteritae, et ad idem
tempus medium motum solis, id est signum et gradum et (?a(ut) *ms.*) etiam

minutum, si placet, medii motus solis. Scias etiam aetatem lunae sive
lunationis, a tempore scilicet coniunctionis numerando dies perfecte transac-
tos usque ad diem considerationis tuae; quibus habitis, intra tabulam istam,
gradus scilicet lunae, cum signo solis in superiori parte tabulae et cum aetate
lunae in sinistra eius parte; et in angulo concursus primo signum lunae
habebis. Gradus vero et minuta ipsi correspondentes angulo adde gradibus et
minutis medii motus solis tempore mediae coniunctionis, et habebis determi-
natum gradum lunae, immo fere minutum in quo est luna, ad horam «?eius»
diei consimilem horae coniunctionis; isto generali notato quod, si ex tali
additione minuta excreverint 60, adde pro 60 deletis unum gradum gradibus,
et si gradus 30 excesserint, totidem abiectis adde pro eis unum signum signis
lunae.

(g) Manuscripts: Ny,16r; Pr,24v. The contexts include the English
calendars mentioned in App.5(j7). This canon serves for lunar tables
with multiple entrances for the degree-values (cf. descriptions of
Ny,18v-19r; Pr,22r; *Pref.,* §22), where degree-values belonging to
different signs have been separated by red lines (text below). In Pr the
canon has been attached to a T.L. which is almost the standard one.
In Ny it forms the second part of a note on the signs headed "Canon
tabulae [[?]]". Text from Ny, with variants and corrections from Pr.

Ut autem signum et gradus lunae prompte habeantur, intrandum est in
capite[1] sub[2] signo et gradu, in quo fuit ipsa coniunctio[3], vel cum gradu sibi
propinquiori minori, et[4] cum aetate lunae ad latus sinistrum, in quorum
concursu[5] gradus ipse, vel per solam additionem excessus ad ipsum[6], ibi
invenitur, qui illius signi correspondens[7] erit[8], ad quod ducet te[9] linea rubea
proximo transversalis.

(*Ny:*) Et rubea enim linea proximo superior signum ostendet, si coniunctio fuerit in signis septentrionalibus, quae in capite tabulae scribuntur[10] a sinistris, sed rubea proximo ⟨inferior⟩ idem ostendet, si coniunctio fuerit in signis meridionalibus, quae ponuntur a dextris.	(*Pr:*) Rubea enim linea inter gradus et signa distinguit.

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[1]tabulae praecedentis *add.* Pr   [2]suo *add.* Pr   [3]i.c.f. Pr   [4]*om.* Ny   [5]con-
cursus Pr   [6]ipsam Pr   [7]correspondet(ur) Ny   [8]*om.* Pr   [9]q.d.t.: quam te
ducet Pr   [10]-bitur *ms.*

Appendix 4. Lunar tables other than T.L.

See *Preface* §22 for some lunar tables which may be taken as developed from T.L.

(a) *Tabula lunae* (12×12, beginning with Aquarius; an upper entrance row shows month-names beginning with January; in the left entrance column, with the age of the moon, numbers shared between two adjacent rows are either replaced by two "S" or simply written over the row-boundary. There is no right entrance column). See p.14, and P.L.90,753-4. Cordoliani (1955b,308; 1960,117 n.50) knows ninth-century manuscripts of it, and puts it at least as early as Bede. In our period it was very common, often in company with Grosseteste's calendar (*Pref.*§6) and/or the *tabulae Gerlandi* and *tabula terminorum* ((a2) below); see *Pref.*§2c for examples of manuscripts.

In the manuscripts L,9r; Kr,9r; W,67v; Md,74r; Ef,199r, the table occurs in connexion with the Calendar or related texts. In M8,55r; *p.14* Vp,175v, it has been ascribed to Peter of Dacia, and attempts have been made to fit it with one or both entrance columns of the T.L., as has also happened in W. Conversely, in S,21v and Oa,152r the T.L. has been provided with a left entrance column from the present table.

For documentation I reproduce a selection of the canons found with this table. I have seen some further ones in Vp (cf. description); London, B.L., Sloane 568,8r(15th c.; T&K 1314), Cambr., U.L., Mm.4.43(14th c.; T&K 356), Rome, B.N.Vitt.Emm., 301,2r(15th-16th c.). These are short and nondescript.

(a1) T&K 607, cf.602 with attribution to Peter taken from the secondary ascription in M8. Text from Cambr., U.L., Ji.1.17,57r(=A1; 14th c.), with variants from M8,55r.

Haec tabula docet in quo signo sit luna secundum naturalem lunationem[1], id est[2] de prima ad primam. Vide ergo quotae aetatis sit luna vel quot dierum, et

numerum quantitatis lunationum vel[3] dierum quaere in sinistra parte tabulae descendendo; et sub illo signo directe sub mense posito – in directa linea[4] sub mense, in quo sumus, a die lunationis vel aetatis lunae – infallibiliter sumus. 2 semis, id est dimidia[5], significant 1 diem dimidium[6], scilicet naturalem.

[1]l.n. M8   [2]i.e. *om.*M8   [3]ne M8   [4]l.d. M8   [5]-diam M8   [6]1 d.d.: 1 d. dim() Al; unum d. dimidium M8

(a2) T&K 607, cf.1553. Text from Paris, B.N., lat.7475,59r(=P4; early 14th c.). Other manuscripts: Budapest, O.S.K., 29,39r(=B2; late 14th c.); København, K.B., Thott 825,39r(not used); Kr,11v; London, B.L., Arundel 220,314v(=L2; 14th c.); London, B.L., Harley 3814,80r (=L3; 13th-14th c.); London, B.L., Sloane 514,11v(=L4; 13th c.); Paris, B.N., lat.7366,32va(=P2; 14th c.); Vatican, B.A.V., Urb.lat.507,202v (=V2; 14th c.); Wien, Oe.Nb.,2367,9v(=W2; early 14th c.).

In B2 L3 L4 P2 V2 the lunar table with the present canon forms part of a collection (cf. Wordsworth 1904,140-1; Cordoliani 1960,136) which also comprises the Tabulae Gerlandi (App.5(a)) and the Tabula terminorum (App.5(d1)); in Kr some further tables have been added, and a "tabula Dionysii" (App.5(c1)) takes the place of the Tabula Gerlandi. In P2 the canons to the tables just mentioned are "Tabula secunda tabula terminorum dicitur, quoniam in illa termini 5 festorum mobilium inveniuntur..." (also in L4 V2 Kr) and "Tertia tabula principalis Gerlandi dicitur, cuius longitudo per 28 distinctiones protenditur, quoniam cyclus solaris..." (also in L3 V2; about the same text in Kr, and in W,68v). The ordering of the tables varies.

I report all readings of P4, and all others except where one manuscript differs from the rest.

Haec tabula[1] docet in quo signo sit luna secundum naturalem lunationem[2], id est de prima ad primam. Vide ergo quota sit luna, et numerum, quem aetas lunae continet, quaere in [3]exteriori linea versus sinistram[3]. Duo autem SS[4] unum integrum numerum[5] designant[6], ita quod luna sit in primo semis dimidia [7]et in[8] alio dimidia[7]. Invento[9] autem in prima linea numero[10], illi respondet signum in quo [11]luna est in Ianuario, et sic de ceteris[11].

[1]h.t.: tabula prima tabula lunae dicitur (quae d.t.1. V2) quae P2 V2 W2; tabula signorum B2; sequitur tabula signorum vel medicorum cuius utilitas est quod ipsa Kr   [2]l.: primationem W2; primationem sive 1. L3; *def.*L2   [3-3]sinistra parte (*om.*P4) tabulae L3 P4   [4].s. L3; semis L2 W2; semis scilicet ista duo .ss. Kr   [5]u.i.n.: u.i. Kr; u.n.i. L4 P2 V2; n.i. W2   [6]designat V2; significat B2 W2   [7-7]*om.* L3; in alio W2   [8]*om.* B2 Kr   [9]inventa Kr; inventio P2   [10]tali sub

mense dato *add.* W2   [11-11]luna (linea P2 V2; *om.* Kr) est in Ianuario et sic de ceteris (aliis Kr; mensibus *add.* L2 L4): Kr L2 L3 L4 P2 P4 V2; luna est B2; est luna explicit W2

(a3) T&K 674,675. Text from Cambr., Trinity C.,O.2.45,p.98(=A1; 13th c.); variants from Cambr., U.L.,Ji.1.13,40r(=A2; late 14th c.).

(*A1 A2:*) In hac tabula sequenti[1] potest inveniri in quo signo[2] sit luna quolibet[3] die. Tene aetatem lunae, quam ille numerus in dextra[4] parte scriptus significat[5], et inde menses superius[6] notati sunt, et per illam lineam illius mensis, de quo quaeris[7], venies ad aetatem lunae, et in illo signo, quod inscriptum[8] est, luna moratur[9] (*A2:*) duobus diebus et semis, quia luna in unoquoque signo duobus diebus et 12 horis moratur, et ideo semis dies ad superius et semis ad inferius pertinet signum.

[1]signorum A2   [2]*om.* A2   [3]tota A2   [4]sinistra A2   [5]designat A2   [6]s.m. A2   [7]inquiris A2   [8]ibi scriptum A2   [9]m.l. A2

(a4) Text from W,67v; variants from L,9r.

Haec tabula docet in quo signo sit luna singulis diebus in caelo. Ad hoc sciendum oportet primo[1] praesciri aetas lunae secundum kalendarium[2], scilicet si sit unius diei vel 10 vel 20, et cetera[3], et illa aetas quaeratur in latere[4] tabulae versus sinistram[5], [6]et quaeratur nomen mensis, cuius lunam tu quaeris[6], in[7] inferiori parte[8], et[9] qui cancellus directe correspondet[10] aetati lunae et nomini eiusdem mensis[11], ostendit[12] tibi in quo signo luna sit, et quid [13]sit faciendum et sanabile[13] in tali signo[14]. Notandum quod luna in quolibet signo 3° dimidio die discurrit, et illa dimidietas designatur per 0[15]; nam ubi duo 0 concurrunt[16], signum est quod luna fuit[17] in praecedenti signo dimidio die et in subsequenti[18] dimidio, et sic duo 0 [19]faciunt unum diem naturalem[19].

[1]o.p.: debet L   [2]novum kalendare L   [3]sic de singulis L   [4]istius *add.* L   [5]v.s. *om.* L   [6-6]et etiam nomen lunae de qua quaeris L   [7]*om.* L   [8]tabulae inveniatur *add.* L   [9]*om.* L   [10]-dens L   [11]e.m.: et L   [12]-det L   [13-13]tunc sit observandum L   [14]textus circumscriptus declarabit *add.* L   [15]per 0 des. L   [16]invenies L   [17]fuit *post* signo L   [18]sequenti L   [19-19]semper pro uno die computantur L

(b) Manuscript: K,56v-57r. See *Introduction* §6a.

(Hdg.:) Ars istius tabulae lunae sequentis. (Txt:) Ad praesentis tabulae notitiam scire debes quod luna totum zodiacum peragrat in 27 diebus et 8 horis. Moratur etiam luna in quolibet signo per duos dies naturales et 6 horas et duas partes unius horae, videlicet per 6 (*mg.*; [[.]]4 *textus*) horas integras et duas partes unius. In quolibet vero gradu secundum hanc computationem moratur

per unam horam et dimidiam et 6am et 10am et 13am ac 40am partem unius horae. In die vero naturali motus lunae est 13 gradus et 6a pars unius et paulo plus, quod est quasi insensibile. Motus autem eiusdem in dictis 8 horis est 4 gradus et 3a et 6a pars unius praeter rem modicam, quae ex dicto insensibili, quod in 27 diebus ipsius lunationis omittitur, colligitur et istis 8 attribuitur, ut facilius ad effectum praesentis tabulae veniatur. Haec autem res modica est 9a pars unius gradus, quae per aequales partes deberet attribui 27 diebus et 8 horis praedictis; sed propter confusionem, quae eveniret, relinquitur indivisa.

TABULA LUNAE AD INVENIENDUM LOCUM EIUS, VIDELICET IN QUO GRADU CUIUS SIGNI SIT,																											
Aries 1	14	27	10	23	6	19	2	15	28	11	24	7	20	3	16	29	12	25	8	21	4	17	30	13	26	9	22
2	15	28	11	24	7	20	3	16	29	12	25	8	21	4	17	30	13	26	9	22	5	18	**Aquarius** 1	14	27	10	23
3	16	29	12	25	8	21	4	17	30	13	26	9	22	5	18	**Scorpius** 1	14	27	10	23	6	19	2	15	28	11	24
4	17	30	13	26	9	22	5	18	**Leo** 1	14	27	10	23	6	19	2	15	28	11	24	7	20	3	16	29	12	25
5	18	**Taurus** 1	14	27	10	23	6	19	2	15	28	11	24	7	20	3	16	29	12	25	8	21	4	17	30	13	26
6	19	2	15	28	11	24	7	20	3	16	29	12	25	8	21	4	17	30	13	26	9	22	5	18	**Pisces** 1	14	27
7	20	3	16	29	12	25	8	21	4	17	30	13	26	9	22	5	18	**Sagitt.** 1	14	27	10	23	6	19	2	15	28
8	21	4	17	30	13	26	9	22	5	18	**Virgo** 1	14	27	10	23	6	19	2	15	28	11	24	7	20	3	16	29
9	22	5	18	**Gemini** 1	14	27	10	23	6	19	2	15	28	11	24	7	20	3	16	29	12	25	8	21	4	17	30
10	23	6	19	2	15	28	11	24	7	20	3	16	29	12	25	8	21	4	17	30	13	26	9	22	5	18	0
11	24	7	20	3	16	29	12	25	8	21	4	17	30	13	26	9	22	5	18	**Capricor.** 1	14	27	10	23	6	19	0
12	25	8	21	4	17	30	13	26	9	22	5	18	**Libra** 1	14	27	10	23	6	19	2	15	28	11	24	7	20	0
13	26	9	22	5	18	**Cancer** 1	14	27	10	23	6	19	2	15	28	11	24	7	20	3	16	29	12	25	8	21	0

Per hanc igitur tabulam habetur locus lunae in signis. Longitudo ergo istius tabulae 13 distinctiones sive gradus continet, quia tot gradus integros, ut dictum est, peragrat luna in die naturali. Latitudo vero eius in 28 distinctiones protenditur, in quarum ultima linea versus dextram inferius sunt 4 cellulae vacuae, quae nihil penitus operantur. Sunt enim in totali tabula 364 cellulae, sed in toto zodiaco non sunt nisi 360 gradus; et cum quaelibet cellula unum contineat signi gradum, dictae 4 ultimae cellulae vacuae remanebunt. Et nota quod ubi scribitur nomen signi, ibi est primus gradus eiusdem signi scriptus.

Si ergo velis scire, in quo signo et in quoto gradu illius signi sit luna, quaere in kalendario magistri P. de Dacia, qui magis appropinquat veritati, diem primationis lunae, et considera, in quo signo et in quoto gradu illius signi fuit sol illo et eodem die primationis lunae – quod tibi per tabulas quadrantis patebit – quia luna in tali signo et in totali gradu illius signi primo accenditur a sole, in quali signo et in quoto gradu signi est sol in ipsa die primationis.

Habitis itaque die, signo et gradu, in quibus primo luna accensa fuit, idem gradus eiusdem signi sumatur in tabula praesenti, et ab illo loco computentur tot cellulae, procedendo in eadem linea versus dextram, quot sunt dies elapsi a die primationis usque ad diem, de quo quaeris; et ubi terminatur talis computatio, in tali signo et in tali gradu eiusdem est luna in initio diei, de quo

quaeris; hoc praenotato, quod ad quemlibet senarium descendes per unum gradum propter rationem praedictam, videlicet ut quilibet dies ipsius lunationis habeat 13 gradus et 6am partem unius. Et si forte non possis descendere, quia es in inferiori linea, transeas in summitate lineae sequentis, ut unum gradum addas quibuslibet 6 diebus. Nota etiam quod, cum perveneris ad ultimam lineam descendentem versus dextram, tu transibis in prima linea versus sinistram, in cuius superiori cellula primus gradus arietis situatur; ita tamen quod in transeundo cavebis, quod semper 13 gradus integros cuilibet diei dabis, et addes si necesse fuerit senario gradum unum, et iterum procedes praedicto modo in eadem linea versus dextram, donec dies, de quo quaeris, inveniatur; hoc etiam praenotato, quod ab illa hora, quae in die ipsius primationis in dicto kalendario scribitur, incipies dies tuos.

(c) Manuscript: N,69va, giving the heading "Tabula lunae abbreviata et correpta per magistrum Petrum de Dacia, correptorem huius kalendarii" and then the canon App.3(b2). The errors of N have been retained below.

Another copy of the table was printed by v.Wijk 1936,36, from Erfurt W.A.B. 4°345, without indication of its context. Van Wijk dates that copy to 1279, apparently (p.40) on the basis of a note accompanying a Grosseteste-calendar also found in the manuscript. Schum's catalogue does not yield evidence on this point.

(d) Further one-dimensional tables giving the moon's motion from its age, with degree-values "12,24,7,. . .,24,6" for 30 days as in William of St.Cloud (Harper 1966,121, canon at 123a-24) are in Bs,14v and Ro,63va (canon at 65v-66r resembling William's French canon, Harper p.221). The table of Ro also shows the series "13,26,. . .,5" known from later copies of the T.L. (*Pref.*, §22), and from the rota extracted from the Compotus Orbicularis in Pf,53r.

Another set of values for 30 days, ending in 1s5°;17(,31), occurs in Ca,148r, and Sg p.27, neither table closely connected with the Calendar. The values can be rounded to yield the series just mentioned.

(e) The 27×19 lunar tables contain lunar letters according to various series of such, cf. below. The letter with which to enter such a table is first to be found in a calendarial table, which is either separate or included in the calendar to which the lunar table is attached. The latter is the case for Peter's Calendar only in Bs, Kt, and Pe; the rest of the calendars in question happen to be later ones.

(e1) Tables with the letter series A-O spaced over 27 days (v.Wijk p.34; P.L.90,757-8; first row "a--nhc. . .") are in Bs,15r (to Peter's Calendar at 6v+), and in Bf,4v-5r (calendarial table separate). Both manuscripts also contain the T.L.

Dies lunæ	Numerus signorum	Numerus gradus
1	1	14
2		17
3	2	20
4		23
5	3	6
6		20
7	4	3
8		16
9		29
10	5	17
11		25
12	6	9
13		22
14	7	5
15		18
16	8	1
17		12
18		18
19	9	11
20		29
21	10	7
22		20
23	11	4
24		17
25		30
26	12	13
27		26
28	13	0
29		13
		6
Ta-	-bu-	-la
Dies	Signa	Grad.

(e2) Tables with a series of 27 letters consisting of the alphabet plus four symbols conventionally denoted as z_1-z_4 (v.Wijk p.35; first row "$z_2$peymb. . .") are in Kt,9r-v (to Peter's Calendar at 1v+; with a canon); Pe,30r+ (calendarial table in Peter's Calendar; no lunar table). With German calendars: Sg p.26 (to calendar at p.13+, canon p.31); Kh,154v (to calendar at 155+); Bf,13r (first row "yncvkt. . .", to calendar at 7r+); Bu,15v (first row "ashz$_2$pe. . .", to calendar at 16r+); Mz,132r (28 rows, first row "yncvlz$_2$. . .", to calendar at 116v+; with a canon); Kh,222r (same?).

(f) Various notes for finding lunar longitude by calculation: Ma,11r; Pd,37v-38r; Sg p.33; So,57r; Sx,5v.

(g) Tables giving duration of moon-light from the age of the moon: Bs,14v; Md,74r and Ml,150v (both folded); L,9v (rota, including figures of the four main lunar phases). Cf. the rotae in Kt (below); N,71v (App.6(d10)).

(h) Rotae with figures of lunar phases plus other features: Kt,8r-9r (30 phases, some without figures; giving zodiacal sign and duration of moon-light; with canon); W,69r (10 phases, short inscr. only); Mj,11v and Bu,10ra (schematic, 8 phases, as in the Compotus of Sacrobosco). Cf. L,9v ((g) above) and D,23r-v (App.6(d10)).

Appendix 5. Computistical additions to the Calendar and T.L.

(a) *Tables of "Gerland".* Reproduction at p.400-1, from ms.P. See Wordsworth 1904,140-1; Cordoliani 1960,134-6. The *tabula principalis* has been printed by Cordoliani (1951,277+), and tables resembling the *contratabula* are in P.L.90,749-50 and in Steele 1926,186-7. The titles can be found in the descriptions of manuscripts. I have refrained from recording variations in the lay-out of the tables themselves.

In the following manuscripts these tables are found in close connexion with Peter's Calendar: K,45v-46r; V,67r-v; Fp,9v-10r; Cj,10v-11r; Or,133(?r-)v; G,7v-8r; P,7v-8r; Q,7v-8r; R,7v-8r; F,239v-240r; B,15v-16r; C,p.160-1; Oa,158v-159r; O,7r-v. In some other manuscripts the coherence is not close but may still exist: H,2v-3v; W,68v+70r; Ca,88v-89r; Pl,32v; Pr,25v+34r; Pe,44v-45r. In Om,43v-44r, the context seems to presuppose a calendar no longer present. In Ro,66r-67r, there is at least a canon referring to these tables.

Thus the tables occur in all of group a_1 (*Pref.* §5) and a_3, in part of Group k, and sparsely elsewhere. They have probably been left over from the context of Grosseteste's calendar (*Pref.* §6).

The canons printed below occur as follows: **(a1)** K H R B F Om C Ca; **(a2)** H Cj Fp(text-hand, like Calendar); **(a3)** V Fp (both in secondary hands), Pl. Various other canons are found in F,239v; Oa,151v (?paraphrase of (a1)); Oa,158v-159r; Cj,10v; V,67r; O,7r. An extensive canon in French, in Ro,66r-67r, is not directly translated from any of those mentioned. The canon "Tabula Gerlandi cuius longitudo. . .", in W,68v and differently applied in Kr,9r+, appears to occur where the tables enter into the collection mentioned in App.4(a2).

(a1) T&K 1191. Manuscripts: K,45r; H,2v; R,7v-8r; B,15v; F,233rb; Om,43v; C,p.160; Ca,88r. Text from FB, with variants from K H. An

TABULA PRINCIPALIS GERLANDI, CONTINENS CYCLOS SOLARIS ET 19'LIS ET LITTERAS TABULARES.

Syllabae cycli solaris	Cyclus solaris	Cycl.concurrent.	Notae bissexti	Litt. dominicales	Litt. bissextil.	1044	1072	1100	1128	1156	1184	1212	1240	1268	1296	1324	1352	1380	1408	1436	1464	1492	1520	1548	Cyclus solaris sec.Dionysium
fons	1	1	.	f	.	s.	l.	.m	.e	l.	.m	.e	l.	d.	.e	s.	d.	.e	s.	l.	.e	s.	l.	.m	18
est	2	2	.	e	.	k.	.l	r.	k.	.l	.d	k.	.l	.d	r.	c.	.d	r.	c.	.d	r.	k.	.l	r.	19
dans	3	3	.	d	.	.k	q.	i.	.k	.c	i.	.k	.c	q.	.k	.c	q.	b.	.c	q.	i.	.k	q.	i.	20
bis	4	5	b'	b	c	o.	g.	.h	.a	g.	.h	.a	o.	.p	.a	o.	.p	.a	o.	g.	.h	o.	g.	.h	21
a	5	6	.	a	.	f.	.g	v.	f.	.g	v.	f.	.g	v.	n.	.o	v.	n.	.o	g.	n.	f.	.g	n.	22
gro	6	7	.	g	.	.f	t.	e.	.f	t.	e.	.f	t.	m.	.n	t.	m.	.n	t.	m.	.n	.f	m.	e.	23
fun	7	1	.	f	.	l.	d.	.e	s.	d.	.e	s.	l.	.e	s.	l.	.m	s.	l.	.m	.e	l.	.m	.e	24
dum	8	3	b'	d	e	.k	.c	q.	b.	.c	q.	i.	.k	q.	i.	.k	q.	i.	.k	.c	i.	.k	.c	q.	25
ci	9	4	.	c	.	.b	p.	.q	.b	p.	h.	.b	p.	h.	.i	p.	h.	.i	.b	h.	.i	.b	h.	.i	26
bat	10	5	.	b	.	o.	.p	.a	o.	.p	.a	o.	g.	.h	o.	g.	.h	o.	g.	.h	.a	g.	.h	.a	27
au	11	6	.	a	.	.g	v.	n.	.o	v.	n.	.o	g.	n.	f.	.g	n.	f.	.g	v.	f.	.g	v.	f.	28
fer	12	1	b'	f	g	s.	l.	.m	s.	l.	.m	.e	l.	.m	.e	l.	d.	.e	s.	d.	.e	s.	l.	.e	1
e	13	2	.	e	.	k.	.l	r.	k.	.l	r.	k.	.l	.d	k.	.l	.d	r.	c.	.d	r.	c.	.d	r.	2
da	14	3	.	d	.	.k	q.	i.	.k	q.	i.	.k	.c	i.	.k	.c	q.	.k	.c	q.	b.	.c	q.	i.	3
cem	15	4	.	c	.	p.	h.	.i	p.	h.	.i	.b	h.	.i	.b	h.	.i	.b	p.	.q	.b	p.	h.	.b	4
au	16	6	b'	a	b	f.	.g	n.	f.	.g	v.	f.	.g	v.	f.	.g	v.	n.	.o	v.	n.	.o	.g	n.	5
gens	17	7	.	g	.	.f	m.	e.	.f	t.	e.	.f	t.	e.	.f	t.	m.	.n	t.	m.	.n	t.	m.	.n	6
fert	18	1	.	f	.	l.	.m	.e	l.	d.	.e	s.	d.	.e	s.	l.	.e	s.	l.	.m	s.	l.	.m	.e	7
es	19	2	.	e	.	.l	.d	k.	.l	.d	r.	c.	.d	r.	c.	.d	r.	k.	.l	r.	k.	.l	r.	k.	8
cas	20	4	b'	c	d	.b	h.	.i	.b	p.	.q	.b	p.	h.	.b	p.	h.	.i	p.	h.	.i	.b	h.	.i	9
bos	21	5	.	b	.	g.	.h	.a	o.	.p	.a	o.	.p	.a	o.	g.	.h	o.	g.	.h	o.	g.	.h	.a	10
aut	22	6	.	a	.	.g	v.	f.	.g	v.	n.	.o	v.	n.	.o	.g	n.	f.	.g	n.	f.	.g	v.	f.	11
gens	23	7	.	g	.	t.	e.	.f	t.	m.	.n	t.	m.	.n	t.	m.	.n	.f	m.	e.	.f	t.	e.	.f	12
e	24	2	b'	e	f	c.	.d	r.	k.	.l	r.	k.	.l	r.	k.	.l	.d	k.	.l	.d	r.	c.	.d	r.	13
de	25	3	.	d	.	.c	q.	i.	.k	q.	i.	.k	q.	i.	.k	.c	i.	.k	.c	q.	.k	.c	q.	b.	14
ci	26	4	.	c	.	p.	h.	.b	p.	h.	.i	p.	h.	.i	.b	h.	.i	.b	h.	.i	.b	p.	.q	.b	15
bus	27	5	.	b	.	.p	.a	o.	g.	.h	o.	g.	.h	o.	g.	.h	.a	g.	.h	.a	o.	.p	.a	o.	16
glans	28	7	b'	g	a	t.	m.	.n	.f	m.	e.	.f	t.	e.	.f	t.	e.	.f	t.	m.	.n	t.	m.	.n	17

App.5(a), from P,7v-8r. A few corrections applied to both tables.

TABULA SECUNDA GERLANDI, ET EST CONTRATABULA PRIMAE.

Column groups (descriptive headers): Litt. feriales · Litt. tabulares · Dies septuagesimæ · Dies quadragesimæ · Dies paschæ · Dies rogationum · Dies pentec. · Hebd.cum dieb. a nat.ad 70am (He/Di) · Hebd.cum dieb. a nat.ad 40am (He/Di) · Hebd.cum dieb. a pente ad f. S. Iohannis (He/Di) · Heb.a pent.ad adv. (He) · Dies sancti adventus domini nostri Ihesu Christi (Adv.) · Hebd.cum dieb. ab adv.ad nat. (He/Di)

Dom	Tab	Sept.g.	Quad.g.	Pascha	Rogat.	Pentec.	He	Di	He	Di	He	Di	He	Adv.	He	Di
d	b.	15	6	11	6	6	3	3	6	3	6	3	29	3	3	5
e	c.	14	5	10	5	5	3	4	6	4	6	2	29	2	3	4
f	d.	13	4	9	4	4	3	5	6	5	6	1	29	Kal.Dec.	3	3
g	e.	12	3	8	3	3	3	6	6	6	6	.	29	4	3	2
a	f.	11	2	7	2	2	4	.	7	.	5	6	29	3° N.Dec.	3	1
b	g.	10	Id.Feb.	6	Kl.Maii	Id.Maii	4	1	7	1	5	5	28	5	4	.
c	h.	9	16	5	6	17	4	2	7	2	5	4	28	4	3	6
d	i.	8	15	4	5	16	4	3	7	3	5	3	28	3	3	5
e	k.	7	14	3	4	15	4	4	7	4	5	2	28	2	3	4
f	l.	6	13	2	3	14	4	5	7	5	5	1	28	Kal.Dec.	3	3
g	m.	5	12	Kl.Apr.	2	13	4	6	7	6	5	.	28	4	3	2
a	n.	4	11	4	N.Maii	12	5	.	8	.	4	6	28	3° N.Dec.	3	1
b	o.	3	10	3	8	11	5	1	8	1	4	5	27	5	4	.
c	p.	2	9	2	7	10	5	2	8	2	4	4	27	4	3	6
d	q.	Kl.Feb.	8	N.Apr.	6	9	5	3	8	3	4	3	27	3	3	5
e	r.	4	7	8	5	8	5	4	8	4	4	2	27	2	3	4
f	s.	3	6	7	4	7	5	5	8	5	4	1	27	Kal.Dec.	3	3
g	t.	2	5	6	3	6	5	6	8	6	4	.	27	4	3	2
a	v.	N.Feb.	4	5	2	5	6	.	9	.	3	6	27	3° N.Dec.	3	1
b	.a	8	3	4	Id.Maii	4	6	1	9	1	3	5	26	5	4	.
c	.b	7	2	3	17	3	6	2	9	2	3	4	26	4	3	6
d	.c	6	Kl.Mar.	2	16	2	6	3	9	3	3	3	26	3	3	5
e	.d	5	6	Id.Apr.	15	Kl.Iun.	6	4	9	4	3	2	26	2	3	4
f	.e	4	5	18	14	4	6	5	9	5	3	1	26	Kal.Dec.	3	3
g	.f	3	4	17	13	3	6	6	9	6	3	.	26	4	3	2
a	.g	2	3	16	12	2	7	.	10	.	2	6	26	3° N.Dec.	3	1
b	.h	Id.Feb.	2	15	11	N.Iun.	7	1	10	1	2	5	25	5	4	.
c	.i	16	N.Mar.	14	10	8	7	2	10	2	2	4	25	4	3	6
d	.k	15	8	13	9	7	7	3	10	3	2	3	25	3	3	5
e	.l	14	7	12	8	6	7	4	10	4	2	2	25	2	3	4
f	.m	13	6	11	7	5	7	5	10	5	2	1	25	Kal.Dec.	3	3
g	.n	12	5	10	6	4	7	6	10	6	2	.	25	4	3	2
a	.o	11	4	9	5	3	8	.	11	.	1	6	25	3° N.Dec.	3	1
b	.p	10	3	8	4	2	8	1	11	1	1	5	24	5	4	.
c	.q	9	2	7	3	Id.Iun.	8	2	11	2	1	4	24	4	3	6
.	.	Kl.Mar.	Id.Mar.	Kl.Maii	Kl.Iun.	0	.	.	.	.	.	.	.	Kal.Dec.	.	.

addition from K has been reproduced; another notable addition, "Nota, ad correctionem. . .eius quae postea sequitur", is in C Ca. The present canon appears to be that normally found with tables attached to the calendar of Grosseteste.

Quaere inter numeros in superiori capite tabulae principalis[1] positos numerum minorem propinquiorem incarnationi, si incarnationem nondum[2] inveneris, et computa in illa linea descendendo, quousque compleatur numerus incarnationis; et ubi terminatur[3] talis computatio, ibi erit littera tabularis. E directo litterae tabularis patet quae sit littera dominicalis, et si sit annus bissextilis vel non, et in quoto anno post bissextum sumus, et in quoto anno cycli solaris[4] secundum Gerlandum et etiam [5] Dionysium sumus[6], et in quoto anno cycli concurrentium sumus. Similiter scitur in quoto anno cycli 19'lis, et in quoto anno cycli lunaris, et in quoto[7] anno cycli indictionis sumus: nam littera rubea[8] indicat[9] primum annum cycli 19'lis[10]; angulus autem quadrati clausus rubeo designat primum annum cycli lunaris; angulus vero nigro clausus primum annum indictionis designat. Postea vero cum littera tabulari inventa intra in contratabulam[11], et e[12] directo eius in linea recta dextrorsum litteram dominicalem litterae tabulari[13] concordantem, et omnia 5 festa[14] mobilia, et alia nobis necessaria, reperies.

(K:) Nota quod oportet intellegere aliam litteram dominicalem in anno bissextili quam in contratabula inventam usque ad festum beati Matthiae apostoli in Februario, scilicet litteram retrogradam proximam in alphabeto, sicut satis bene apparet in tabula Gerlandi principali.

[1]om. K   [2]non K   [3]finitur K   [4]sol() FHB   [5]om. K   [6]simus H   [7]quo H   [8]punctata H   [9]nobis add. K   [10]vel aurei numeri add. K   [11]cum ipsa add. K   [12]in K   [13]et add. H   [14]5 f.: f.5 K

(a2) T&K 34; Cordoliani 1960,135. Reproduction of the end of the text and the Manus fnugonis: Steele 1926,285. Manuscripts: Fp,10v-11v; Cj,11v-12r; H,2v-3v. Text from Fp, variants (except for numbers) from Cj H. This canon is quite common elsewhere (see the refs.). In the present manuscripts it precedes the Compotus manualis of Balduinus de Mardochio (T&K 42). This is also the case in Stockholm, K.B., X 767, p.16, where both pieces appear to be connected with the calendar of Grosseteste (see Algorism, Pref. §1).

(Hdg., Fp Cj:) Incipit[1] compositio duarum tabularum Gerlandi praecedentium[2], et primo[2] principalis. (Txt, Fp Cj H:) Ad compositionem tabulae principalis Gerlandi 2 cycli, solaris scilicet et 19'lis[4], sunt necessarii: per solarem namque habetur littera dominicalis, per 19'lem vero[5] littera tabularis. Littera vero[6] dominicalis per quemlibet 28 annorum cycli solaris habetur per 28 syllabas[7] horum versuum:
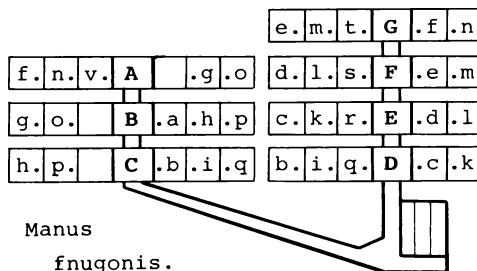
f   e   d   b   ag   f   d   c b   a f   e d c
1   2   3   4   5 6   7   8   9 10 11 12 13 14 15
Fons est dans bis a-gro fundum cibat aufer e-dacem

a g   f   e c   b   a   g   e d   c b   g
16 17 18 19 20 21 22 23   24 25 26 27 28
Augens fert escas bos aut gens e-de cibus glans,

ita quod prima syllaba ipsorum versuum[8], scilicet Fons, servit primo anno cycli solaris, et tunc F[9], prima littera eius, est littera dominicalis in illo anno. Secunda autem syllaba[10], scilicet Est, servit 2° anno, et E prima littera eius est littera dominicalis in ipso anno 2°, et cetera. Semper enim prima littera primae syllabae primo anno cycli solaris[11], et prima littera secundae syllabae secundo anno, et prima 3ae syllabae[12] 3°, usque in finem, est littera dominicalis. Unde eaedem litterae dominicales ponuntur[13] in prima linea sinistrorsum primae tabulae Gerlandi, a summo deorsum secundum ordinem illarum syllabarum.

Manus
fnugonis.

(*Fp Cj H:*) Et similiter in iuncturis 7 digitorum duorum[14] sinistrae manus, scilicet pollicis et indicis, ut in praescripta[15] manu patet, ponantur eaedem litterae dominicales sub 7 litteris ferialibus, sic: A in summo[16] pollicis; B in iunctura eius media; C in radice eius; D in radice indicis; E in iunctura proxima sibi; F in iunctura proxima sub summitate indicis; G in summitate eius; et hic ordo iuncturarum semper amplius in ceteris observetur.

Per cyclum autem 19'lem, qui continetur per 19 dictiones horum versuum[17] "Rex Furit etc.[18]" – ita scilicet[19] quod prima dictio primo anno, secunda secundo cycli 19'lis, et sic[20] deinceps, deserviat – habentur 2, scilicet annus cycli 19'lis cui deservit aureus numerus, et littera tabularis. Annus cycli 19'lis sic habetur: prima enim dictio primo anno, 2ª 2° cycli 19'lis[21] et sic deinceps deservit.

Littera autem tabularis sic habetur. Sciendum quod 2 sunt alphabeta: primum incipit in "b" – et ponitur in secunda linea secundae tabulae Gerlandi, quae contratabula dicitur, et in manu super radicem indicis, procedendo per omnes iuncturas 2 digitorum praedictorum secundum ordinem praedictum – et finit in "v" in summitate pollicis, et est postpunctatum[22]. Secundum incipit in "a" in media iunctura pollicis et finit in"q" in radice pollicis, et est praepunctatum[23] differentiae causa. Unde[24] versus:

r   f   *e*   o   c   *b*
1   2   3   4   5   6
Rex furit elatus oculum claudendo beatus

l   *k*   t   h   &   q   e
7   8   9   10   11   12   13
Luce kahos terret hilari gentis quatit edem

d   n   b   *a*   k   *i*
14   15   16   17   18   19
Dampnans nonne beat animas Karon inelisas.

Et nota quod, quaecumque harum dictionum terminatur in "s[25]", est de secundo alphabeto, quae vero non, de primo. Ut igitur[26] habeas litteram tabularem, scito litteram dominicalem, vel[27] in digitis vel in linea 3ª praedictae primae tabulae Gerlandi principalis, quae sit, et eam nota. Postea vide in quoto anno cycli 19'lis sis, cuius tolle dictionem et vide primam litteram eius, cuius alphabeti sit et quae sit, et ipsam in loco suo in iuncturis pone digitorum[28]. Quae si super litteram dominicalem anni praesentis ceciderit, ipsa est littera tabularis; sin autem, tunc proxima sua sequens cadens super litteram dominicalem erit littera tabularis; pone eam in loco suo in tabula Gerlandi.

Verbi gratia, pone[29] quod simus in primo anno utriusque cycli. Erit igitur F, littera prima primae dictionis 28 dictionum cycli solaris, scilicet Fons, littera dominicalis, quae erit in principio primae lineae praedictae tabulae, et in digitis in iunctura sub summitate indicis. "r" vero, prima littera de Rex primae dictionis 19 dictionum cycli 19'lis, primi alphabeti cadet super secundam iuncturam indicis, super E litteram dominicalem et non super F, et ideo non erit littera tabularis; sed proxima sequens eam in ordine alphabeti, cadens super F in iunctura sub summitate indicis, quae est "s[30]" postpunctata[31], erit littera tabularis, quam pone in primo quadrato 532 quadratorum[32] – ex ductu 28 annorum cycli solaris[33] in 19 annos cycli 19'lis productorum[34] – et erit in directo primi anni solaris "s[35]" postpunctata et rubea[36], ad denotandum quod ibi incipit cyclus 19'lis. (*H*:) Et sic operandum est de aliis, quousque omnes quadrati sint impleti etc.

(*Fp Cj*:) Et nota quod littera rubea indicat primum annum cycli 19'lis; angulus autem quadrati clausus rubeo designat initium cycli lunaris; angulus autem nigro clausus notat primum annum indictionis.

(*Fp Cj H*:) Et sic per omnia compones et[37] ordinabis compositamque verificabis tabulam Gerlandi principalem.

(*Fp Cj*:) Postea vero cum[38] littera tabulari inventa intra in contratabulam[39], et e directo eius in linea recta dextrorsum omnia 5 festa mobilia et cetera multa, et ante ipsam litteram dominicalem, reperies.

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[1]*om.* Cj   [2]*om.* Cj   [3]t(abulae) *add.* Cj   [4]decennovennalis Cj   [5]19.v.: cyclum v. 19. Cj H   [6]autem Cj H   [7]dictionum *add.* Cj H   [8]*om.* Cj   [9]s Cj   [10]se.a.sy.: sy.se. Cj   [11]solis Cj; sol() H   [12]*om.* Cj H   [13]ponentur Cj   [14]di.du.: du.di. Cj   [15]praesenti H   [16]summitate Cj   [17]infrascriptorum scilicet *add.* Cj   [18]*om.* H   [19]*om.* Cj   [20]*om.* Cj   [21]c.19. *om.* Cj   [22]rubeum

H   [23]nigrum H   [24]et sunt hi Cj   [25]g Cj   [26]ergo Cj   [27]om. Cj
[28]p.d.: d. repone Cj   [29]pono Cj   [30]g Cj   [31]rubea H   [32]532 q-orum: de
532 q-is Fp   [33]sol() Fp   [34]p(ro)d(u)c(t)orum: H; p(rae)d(i)c(t)orum Fp Cj
[35]g Cj   [36]p. et r.: r. et punctata H   [37]om. Cj   [38]om. Cj   [39]cum ipsa *add.* Cj

(a3) Manuscripts: V,68v; Fp,95v-96r. Both these texts occur as secondary additions in the manuscripts, in Italian hands of the 14th century. V contains two versions of the beginning and end of the text: the second version, appended to the main text of V, is here denoted Va. A third text is in Pl,32v+, mainly corresponding to Fp, but with many minor variants, and using the years 1352 and 1355 for 1296 and 1290 in the examples; this version has been disregarded. Since the text of V appears to be a copy of one used by a Dane, this has been followed, with variants and a few corrections from Fp.

(Hdg., *Fp*:) Incipit canon ad sciendum dispositionem tabulae Gerlandi principalis.

(Txt, *V Fp*:) Theorica huius tabulae Gerlandi talis est: In capite tabulae quaeratur numerus annorum domini, annumerato anno in quo es [1]vel ad quem[2] litteram tabularem quaeris[1]. [3]Quod si numerum annorum domini praecise inveneris[3], tunc littera ultima praecedentis lineae[4] versus sinistram erit littera tabularis illius anni. Verbi gratia, esto quod anni domini sint[5] 1296: eos invenies in capite decimae lineae versus dextram computando a sinistra, et ideo littera ultima lineae nonae, scilicet "e", erit littera tabularis illius anni. Si vero annos domini praecise non inveneris,

(*V*:) tunc sic procedas, quia quaeres minorem numerum, qui tamen maxime accedit ad numerum annorum domini. Et hoc facies sic, quia invenies duos numeros immediate stantes, quorum unus minor est et alter maior numero annorum domini; et numerus minor necessario erit numerus qui inter omnes numeros ibi stantes maxime accedit ad numerum annorum domini. Quem inventum subtrahas a numero annorum domini [vel trahas in numerum], et residuum computa sub eodem numero invento descendendo; et in qua littera terminabitur numerus totalis, procul dubio erit littera tabularis illius anni.

(*Va*:) Quaere inter numeros in superiori parte istius tabulae positos unum ex illis, qui inter illos numeros maxime similis est annis domini. Si forte complete annos domini non invenies, [et]

(*Fp Va*:) tunc illum numerum, qui forsan[6] minor est annis domini, comple et fac eum aequalem annis domini[7], scilicet[8] numerando a sursum usque ad deorsum; et littera illa de litteris huius tabulae, quae perficit[9] annos domini, tabularis erit. Et diligenter consideres eam, utrum sit punctata ad dextram vel ad sinistram.

(*V Fp*:) Verbi gratia[10], esto quod anni domini sint 1290[11], et tu velis scire quae littera est littera tabularis illius anni. Quaere tot annos in capite tabulae, et si non inveneris eundem[12] numerum praecise, quaere ergo minorem, propinquiorem tamen, et erit 1268[13], [14]qui proximior est numero annorum domini[14]. Deinde hunc numerum ab annis domini subtrahas, et remanebunt[15] de annis domini 22[16], quos computes descendendo sub numero illo primo[17] invento; et terminabitur totalis numerus super "n[18]", quae erit littera tabularis illius anni 1290mi[19],

(*V*:) qui est annus primus consecrationis domini
Iohannis dicti Grand, archiepiscopi[20] Lugd().

(*V Fp*:) Inventa autem[21] littera tabulari, vadas e directo eius[22] ad ultimam lineam versus sinistram[23], et invenies 22[24], quae significant annum illum, cuius invenisti litteram tabularem e directo, 22m[25] cycli solaris secundum Gerlandum et veritatem[26]. Deinde e directo eiusdem litterae tabularis

(*V*:) vadas ad ultimam lineam versus dextram, et invenies 11 ad significandum quod annus ille, cuius invenisti litteram tabularem, est 11[us] annus cycli solaris secundum Dionysium et usum ecclesiae.

(*Fp*:) in 3a linea sinistra invenies 2° pro concurrente.

(*V Fp*:) Deinde e directo eiusdem in 4a[27] linea invenies "a[28]", quae est[29] littera dominicalis illius anni; et quia ipsum "a[28]" per duo puncta distat in sursum a nota bissexti, quae ponitur in 3a[30] linea, ideo annus instans est 2us[31] post bissextum. Rubeae autem litterae, quae sunt in 3a[32] linea, sunt elisae per bissextum.

(*V*:) Ad cuius intellectum sciendum est quod, si littera dominicalis inventa aliquando per litteram tabularem fuerit littera versus dextram notae[33] bissexti, tunc annus ille erit bissextilis, et tunc littera illa erit dominicalis a festo beati Matthiae usque ad circumcisionem; littera autem stans versus sinistram pro anno erit littera dominicalis a circumcisione usque ad festum beati Matthiae.

(*Fp*:) Verbi gratia, si littera tabularis concordat cum illa rubea quae est in 6a linea, tunc annus ille erit bissextilis, et tunc littera illa erit dominicalis a circumcisione usque ad festum Matthiae; littera autem stans versus sinistram in 5a linea pro anno erit littera dominicalis scilicet a festo beati Matthiae usque ad circumcisionem. Et similiter illa B rubea, quae est in 4a linea versus sinistram, dicit quod est annus bissextilis.

(*V Fp*:) Quo facto videas quota est littera tabularis a cellula insignita angulo nigro inclusive, quia totalis est annus ille indictionis, [34]et cum 3° anno praeaccepto 1290mo[34], quia ille angulus niger attestatur[35] primo anno indictionis[36]. Item videas quota est littera tabularis ab[37] angulo rubeo, quia totalis est annus[38] instans cycli lunaris. Deinde videas quota est littera tabularis a littera rubea, quia totalis est annus instans cycli 19'lis, [39]et est ad praesens 19us vel 2us[39]: rubea enim littera semper attestatur primo anno cycli 19'lis. Et nota[40] quod, quantum de cyclo 19'li praecesserat, etiam inclusive, tantum semper est[41] pro aureo numero in kalendario. Item nota quod, ad sciendum

quotus annus cycli lunaris sive 19'lis vel etiam indictionis fuerit, computandum est semper sursum ascendendo a littera tabulari, annumerando tam cellulam litterae tabularis quam cellulam quae est[42] initium cycli cuiuscumque[43]; et istud nota diligenter.

(*V:*) Qualiter autem per hanc litteram tabularem inventam invenientur omnia festa mobilia anni instantis cum quibusdam aliis ad annum pertinentibus, hoc iuxta contratabulam dicetur. Si autem velis scire, quota epacta fuerit omni anno, scias quota fuerit luna 11. Kalendas Aprilis, quia totalis erit epacta in illo anno.

(*Fp Va:*) Et[44] quando hoc fecisti, tunc scias duo alphabeta, quae ponuntur in secunda tabula, quae dicitur contratabula, et in secunda linea; cuius unum habet punctum ad dextram, scilicet primum[45]; sed[46] secundum habet punctum ad sinistram[47]. Et tunc littera tabularis ⟨b.⟩ concordat cum littera dominicali D[48]. Et docet te[49] festa mobilia[50] et alia, quae quilibet clericus necessario scire debet[51].

(*Va:*) Scilicet annum bissextilem, cyclum 19'lem, lunarem, cyclum solarem, annum indictionis. Nam littera rubea cyclum primum 19'lem significat; rubeus vero paragraphus Γ annum lunarem significat; niger autem paragraphus Γ annum primum indictionis significat, etc.
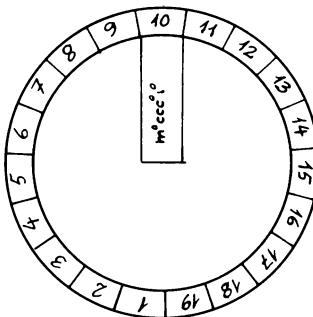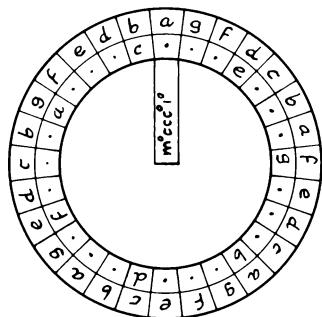
[1·1]*om.* Fp   [2]quam V   [3·3]et si pr.inv. annos d. Fp   [4]p.l.: l.p. Fp   [5]sit V   [6]forsitan Fp   [7]*om.* Fp   [8]i(d est?) *add.* Va   [9]perfecit(!) Fp   [10]v.g.   *om.* Fp   [11]1298   Fp   [12]eum   Fp   [13]1296   Fp   [14·14]*om.* Fp   [15]-ebit Fp   [16]2°   Fp   [17]n.i.p.: i.n. prius Fp   [18]r Fp   [19]1298 Fp   [20]a(r)chi[[eph()i]]ep()i V   [21]*om.* Fp   [22]*om.* Fp   [23]v.s.: dextram Fp   [24]ibi 19 Fp   [25]secundi Fp   [26]in secunda linea versus sinistram *add.* Fp   [27]quinta Fp   [28]e Fp   [29]erit Fp   [30]4a Fp   [31]annus *add.* Fp   [32]sexta Fp   [33]notam V   [34·34]*om.* Fp; et est 3us annus... *malim*   [35]semper *add.* Fp   [36]a.i.: angulo «vel anno» i. Fp; a. ind-ni V   [37]in V Fp   [38]angulus V   [39·39]sive aureus numerus Fp   [40]*om.* Fp   [41]erit Fp   [42]*om.* V   [43]c(uius)-unq(ue) V   [44]*om.* Fp   [45]et incipit ex .b. et finit in .v. *add.* Fp   [46]n.l.Va; *om.* Fp   [47]et incipit ab .a. et finit in .q *add.* Fp   [48]e.g.; *om.* Va; ibi Fp   [49]5e *add.* Fp   [50]e directo *add.* Fp   [51]explicit *add.* Fp

(b) The *tabula 5 festorum mobilium,* and *rotae* for golden number and Sunday letter etc. Reproduction at p.408-9. For a previous print see description of ms. Mt. When appended to the Calendar, the table is usually accompanied by at least two rotae (19 and 28) for golden number and Sunday letter. Some instances of these depart from the year 1301, as in M,9r-v; X,2v+10r; Re,7v-8r; or apparently from 1300,
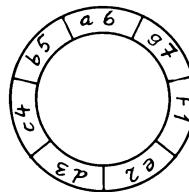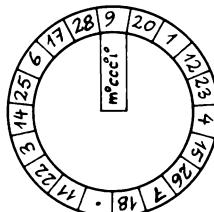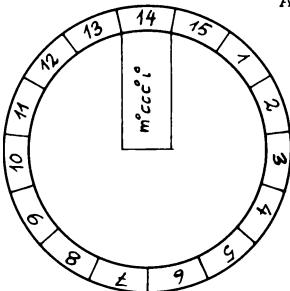
AD SCIENDUM QUINQUE FESTA MOBILIA
PER AUREUM NUMERUM ET PER LITTERAM DOMINICALEM.

Numerus aureus	Litteræ dominic.	Dies LXXæ	Dies XLæ	Dies paschæ	Dies rogation.	Dies pentec.	Hebd.c. dieb. a nat.dom. usq. ad XL		Hebd.c. dieb. a pent. usq. ad Ioh.		Hebd.a pent. usq.ad adventum
		Jan.	Feb.	Mar.	Apr.	Mai.					
<16> 5	d	18	8	22	26	10	6	3	6	3	29
	e	19	9	23	27	11	6	4	6	2	29
13	f	20	10	24	28	12	6	5	6	1	29
2	g	21	11	25	29	13	6	6	6	.	29
	A	22	12	26	30	14	7	.	5	6	29
10	b	23	13	27	1 Maii	15	7	1	5	5	28
	c	24	14	28	2	16	7	2	5	4	28
18	d	25	15	29	3	17	7	3	5	3	28
7	e	26	16	30	4	18	7	4	5	2	28
	f	27	17	31	5	19	7	5	5	1	28
15	g	28	18	1 Apr.	6	20	7	6	5	.	28
4	A	29	19	2	7	21	8	.	4	6	28
	b	30	20	3	8	22	8	1	4	5	27
12	c	31	21	4	9	23	8	2	4	4	27
1	d	1 Feb.	22	5	10	24	8	3	4	3	27
	e	2	23	6	11	25	8	4	4	2	27
9	f	3	24	7	12	26	8	5	4	1	27
	g	4	25	8	13	27	8	6	4	.	27
17	A	5	26	9	14	28	9	.	3	6	27
6	b	6	27	10	15	29	9	1	3	5	26
	c	7	28	11	16	30	9	2	3	4	26
14	d	8	1 Mar.	12	17	31	9	3	3	3	26
3	e	9	2	13	18	1 Iun.	9	4	3	2	26
	f	10	3	14	19	2	9	5	3	1	26
11	g	11	4	15	20	3	9	6	3	.	26
	A	12	5	16	21	4	10	.	2	6	26
19	b	13	6	17	22	5	10	1	2	5	25
8	c	14	7	18	23	6	10	2	2	4	25
	d	15	8	19	24	7	10	3	2	3	25
[16]	e	16	9	20	25	8	10	4	2	2	25
	f	17	10	21	26	9	10	5	2	1	25
	g	18	11	22	27	10	10	6	2	.	25
	A	19	12	23	28	11	11	.	1	6	25
	b	20	13	24	29	12	11	1	1	5	24
	c	21	14	25	30	13	11	2	1	4	24

App.5(b), from M,9r. Typography arbitrary.
One correction applied apart from those shown.

App.5(b): rotae from M,9v, emended.
Canons inscribed, see App.5(b1).

as W,57r+58r, cf. Pl(below). The rest show later dates, some of which may be continuations from the year 1301: thus, T,188r (1339 for both rotae); Ly,14r-v (1339); So,45v-46v (1358 and 1357). Others: D,16-17 (1340,1328); Mj,9r+10v (1330); Mt p.247 (1332); Bv,17r-v and Mk,9r-v (1368); Md,72v+75v (1371; rota possibly independent of table); Kt,7v-8r (1484); Pd,65v-66r (undated). In the context of the Calendar, the table without rotae has been found only in Ma,3r. On the whole, the table is common in those, mainly French, manuscripts of the Calendar which belong to Groups b_1, c, and d (*Pref.*, § 5), and has further been found in D and TW.

The canons on the table vary much. One of them has been earlier printed, from Mt (see description). A recurring one, in M Bv Mk So, is reproduced here as (b1). Others occur singly in Re,7v-8r ((b2) below); D,17r-v; Md,72v; Ma,3r; E2,64r(cf. just below).

The table is found in the company of other calendars in E2,64r+70r (calendar, (j4) below; also with the T.L.); in Bf,14v-15r (with rotae, to calendar (j9) at 7r+, starting 1425); and in Cd and Ny (calendar,

(j7)). Tables on the same principle, but with fewer sub-tables, are in Md,73v; Bu,15r (rotae at 14r); Bf,4r; Sg p.28, part of them with other calendars.

In default of material for guessing at the origin of the table, one may briefly observe that it has much the same sub-tables as the Contratabula Gerlandi, and that the method of entering it is equivalent to one used in finger-reckoning: indeed, in H,7r (early 14th c.) an analogous table, containing Cisiojanus-syllables for the dates of the five feasts, has been introduced to illustrate Balduinus' Compotus manualis.

Independent *rotae* for different computistical variables are in P1,8v (departing from 1300), 27r (1351); A,13r (1324); W,60r (1324); Oa,158r (1330); Md,78r (1360); M1,150r (1370); L,1r-v (undated). A longish canon, "Utilitates trium rotarum", is in A,12v and Om,45rb; samples of other titles and canons to these rotae can be found in the descriptions.

(b1) Manuscripts: M,9v; So,45v-46v; Bv,17r-v; Mk,9r-v. Text from M, with variants from So. The section concerning the table is common to all four mss.; the canons to the rotae are recognizably similar in M So, whereas Bv Mk construct a composite rota, with a canon referring to the table. The canons in So have been reproduced in the order followed by M.

Ad sciendum[1] festa mobilia per numerum aureum[2] et per litteram dominicalem. Notandum quod[3] primo quaerendus est aureus numerus illius anni, de quo quaeris; deinde quaere litteram dominicalem proximam sequentem[4] aureum numerum; et haec littera dominicalis in sua linea directe diriget[5] te secundum rubricas suprapositas[6]. Et si eadem littera, ubi aureum numerum illius anni[7] inveneris, est littera dominicalis, tunc require alteram[8] litteram dominicalem proximo sequentem, et haec[9] secundum rubricas te diriget[10]. – Verbi gratia, esto quod aureus numerus sit 7[11] et littera dominicalis B[12]: dies LXX erit 30. die Ian.[13]; dies XL 20. die Febr.; dies paschae 3. die Aprilis; dies rogationum 8. die Maii; [14]dies pent. 22. die Maii[14]; hebdomadae a nativitate domini usque ad XLam 8, dies 1[15]; hebdomadae a pent. usque ad[16] Ioh.[17] 4, dies 5; [18]et ubi ponitur punctum[19], nulla dies excrescit ibidem[18]. Item[20] hebdomadae a pent. usque ad adventum[21] 27[22]. Et sic notitiam habebis tabulae suprapositae[23].

(*M*,rota(28):) Ad inveniendum litteram dominicalem et litteram bissextilem per	(*So*:) Ad inveniendum litteram dominicalem et bissextilem per

annos domini, incipiendo in anno domini millesimo trecentesimo primo, et sic computando usque complete invenias annos domini, et illa littera est dominicalis; rubra autem infra erit in bissexto.

(Rota(19):) Ad inveniendum aureum numerum, id est cursum lunae, per annos domini, incipiendo supra in 10, sic: "millesimo trecentesimo primo", et sic versus dexteram computando; et ubi annos domini compleveris, in eadem sphaerula aureum numerum illius anni invenies, et sic procede perpetuo computando.

(Rota(15):) Ad inveniendum indictionem cuiuslibet anni per annos domini, procede per modum sphaerularum suprapositarum, donec complete invenias annos domini.

(Rota(19):) Ad inveniendum numerum epactarum cuiuslibet anni per annos domini.

(Rota(7):) Concurrens cuiuslibet anni per litteram dominicalem, incipiendo a Kal. Martii.

annos domini, incipiendo millesimo trecentesimo lvii°, et sic usque compleas annos domini, et ibi plane erit.

Ad inveniendum aureum numerum cuiuslibet anni per annos domini, incipiendo sic: "m°ccc° lviii°", et sic usque compleas annos domini, et ibi plane invenies aureum numerum illius anni de quo quaeris.

Ad inveniendum indictiones cuiuslibet anni per annos domini, incipiendo sic: "m° ccc° sexagesimo primo".

Ad inveniendum numerum epactarum per annos domini in quolibet anno, incipiendo m° ccc°lv° et sic numerando usque ad finem, et invenies. (The rota has 18 sectors, lacking that containing zero).

Concurrentes cuiuslibet anni a kalendis Martii. vii.

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[1]quinque add.So   [2]n.a.: a.n. So   [3]n.q.: nota circa tabulam istam q(uonia)m So   [4]post numerum So   [5]-git So   [6]in linea vel tabula praedicta add.So   [7]de quo quaeris add.So   [8]post dominicalem So   [9]est quae add.So   [10]ut praedictum est add.So   [11][[15]]12 So   [12]c So   [13]7a die Febr. So, aliis eadem ratione mutatis   [14-14]ubi stat '15' habet So   [16]om.M   [17]festum bti. iohannis So   [18-18]ubi stat '22' habet So   [19]circa dies excrescentes add.So   [20]om.So   [21]domini add.So   [23]praesentis So

(b2) Manuscript: Re,7v-8r. Accompanied by two inscribed rotae (19 and 28), for which see the description of Re.

(Hdg.:) Ch'est a sauoir le cours de la lune et la letre du dimenche et quant il est bissexte et les 5 festes mouables qui ne sont pas ou kalendier. (Txt:) Se vous volez sauoir par quel nombre la lune keurt, queres en la roe ou le

nombre de la lune est escrit, 1301, et vous le troueres en contre le nombre de 10; ch'est a dire que quant les anz nostre seigneur estoient 1301, le cours de la lune estoit X. Et deves conter chancun nombre pour une anne vers destre. Et le nombre qui parfera les anz nostre «seigneur» ou vous seres, sera le nombre du cours de la lune toute sele annee; et en cele maniere aures le cours de la lune a touiours mes.

(Hdg.:) Les dimenches. (Txt:) Pour sauoir par quel lettre li dime⟨n⟩ches keurt, queres en la roe ou les lettres de dimenches sont escrites, 1301, et le parfaites des lettres qui sont desous escrites, en contant vers destre, et chancune lettre pour une annee. Et la lettre qui parfera les anz nostre seigneur ou vous seres, sera la letre du dimenche toute sele annee. Et s'il est ainsi qu'il i ait une letre rouge en contre sele mesme lettre, vous dires que vous estes en l'an de bissexte, et courra la letre rouge de la circoncision de q(ue) la S. Mathieu, et la letre noire courra de la saint Mathieu de q(ue) la circoncision; et le b' feru parmi senefie les bissextes.

(Hdg.:) Les festes mouables. (Txt:) A trouer les 5 festes mouables prenes le nombre de la lune en la premiere ligne de vostre table, et en la seconde ligne troueres la letre du dimenche de l'annee ou vous estes, procheine au nombre de la lune, et q(uen) ele soit au desous d'ou nombre de la lune. Et quant vous aues la letre du dimenche trouee, ales en l'encontre de cele lettre vers destre, et descendes de sous quel que feste que vous voures avoir, et le nombre que vous troueres en contre la lettre de vostre dimenche vous dira quant iours la feste sera dedenz le mois que vous troueres de sus escrit; et si troueres en contre cele mesme letre les semeines et les iours du noel de ques a la septuagesime, et les semeines et les iours du noel au quaresme, et les semeines et les iours de pentecouste a la feste S. Jehan, et les semeines de la pentecouste de ques aus auenz.

(c) 28×19 tables other than the Tabula Gerlandi.

(c1) Tables named *Tabula Dionysii,* using tabular letters and with counter-tables like the Tabula Gerlandi, are in V,59v-60r (years 1063-1567 shown by upper entrance row; first row "bhibpqbp. . ."); Md,76v-77r (1064-1568; body of table same as V); Ml,148v-149r (1372-1512; segment of a table like that of Md). The table printed in *P.L.*90,747-8, has the same contents as these, except that rows and columns have been interchanged.

Tables with other starting-years are in Kr,7v-8r (1139-1643; body of table like the "Tabula Dionysii vel magna", v.Wijk p.134) and in D,19r-20v(988-1492), both of them with canons.

The counter-tables contain at least the dates of the five moveable feasts, and some other sub-tables which are mostly also in the Contratabula Gerlandi. A loose counter-table in Pr,30r. None of all these tables, except that of D, appear closely connected with the Calendar.

(c2) A set of tables with a different series of tabular letters: O4,71v-72r. An 28×19 "Tabula paschalis" (1029-1533, with Easter dates): X,1v.

(d) Other tables of feast-dates and intervals, etc.

(d1) The *tabula terminorum* (Cordoliani 1960, 136 and n.109), has 19 rows, one for each year of the 19-year cycle, and at least 5 columns in its body, for the limits of the moveable feasts, starting with Kal.Feb. It is attached to the Calendar in K,44v-45r and Kr,7r, and is found with the T.L. in Om,43r and Pc,57r. It earlier accompanied the calendar of Grosseteste (e.g. in M8,55v) and/or the Tabula Gerlandi or similar paschal tables (e.g. in K Kr Om; cf.App.4(a2)). The common canon "Haec tabula (prima) dicitur. . ." (T&K 607; 1553?) is in K Kr M8.

(d2) The *tabulae fnugonis* (7×5 and 7×6, containing tabular letters which form the word "fnvgo" in their fifth and first rows) serve to find the interval Christmas-40ª. Printed in Steele 1926,285, and v.Wijk 127-8, from the appendix to Alexander de Villadei's Massa Compoti. Cf. Cordoliani 1960,137. One or both tables are found with the Calendar in D,21r-v; Kr,7r (with canon); Pl,27r; Mf,7r.

(d3) The *tabula Bedae* (19×7, with tabular letters, first row "vabcrst"). Printed in Steele 1926,287, and v.Wijk 128, source as for (d2). Near the Calendar in K,45v (later hand); D,21r-v; Kr,8v; Mf,7r; and with the T.L. in Pc,58v. D and Kr show different canons.

(d4) The *tabula angeli* (19×7, with tabular letters, first row "nasuleg"). Cordoliani 1960,128-9; v.Wijk,129 and plate facing; a similar device in *P.L.*90,743. In Kr,8v (with canon); W,68r. In Kr and W the table is accompanied by a rota (7) giving lunar ages at the five moveable feasts when entered with one of the letters "angelus" from the table. W,68r-v has a *tabula fortune* with a rota on the same principle.

(d5) Tables of the *interval Christmas-Invocavit* (40ª) (19×7, with numbers between 6 and 11 for the weeks elapsed). Cordoliani 1960,133. With the Calendar in Bs,16v; Md,75r; other contexts, E2,71v; Pc,58v. A similar table, with number-symbols resembling jellyfish, is at W,60v. The *tabula taxillorum* (19×11), for the same interval, is in Md,75v; Sg p.28, each with its own canon. Interval table *Christmas-Estomihi* (19×7, with numbers 5-10) in Bf,14r.

(d6) Various other tables: 19×7, mostly with Easter dates, in Ca,148r; Lr,31r; Pd,65v; Pf,54v; and Ca,42r (19×12). A 7×8 table, with dates for 8 Sundays "In

principio, Si bona,. . .,Aspiciens(=Advent)" and the verses "post festum terne regum. . ."(Walther 14314) is in W,69r and Mz,134v. The "magna Bedae tabula" (e.g. M8,54v, with calendar of Grosseteste; Cordoliani 1960,132) has not been found in relevant contexts.

(e) Lists of computistical variables for successive years (cf. Cordoliani 1960,119) may be tables or rotae covering a single cycle of some variable, such as (d1) or (b) above: further instances in (e1). Lists of varying lengths, in some cases multiples of such cycles, are exemplified in (e2).

(e1) Lists of *Easter limits* for 19 years, with dates like those found in (d1) above, beginning "post nonas Aprilis prima dominica fac pascha" or similarly (Cordoliani 1960,114(c); *id.*1961,199). In B,8v; Sc,47v (both with Calendar, secondarily in B); Pc,57r; M,9v; Pr,30v. The heading in B, "hic est terminus paschae qui numquam in bissexto praeterit nec sine bissexto", has similar counterparts in Sc Pc.
   A rota for *"pascha Hebraeorum/Iudaeorum"* during 19 years, giving the same Easter limits as above, is found with the Calendar in K,40r (secondarily); D,22v (title "tabula angelica", also in N,28r); and in Pr,32r (context uncertain). The rotae of K and Pr are ordered according to the dates (with an omission and slide in K) and have approximately the same canon, which in K runs "Si quis scire voluerit hanc rotam, accipiat numerum aureum illius anni, et quaere in circumferentia huius rotae, et in directo illius numeri erit pascha Hebraeorum in kalendario, et in sequenti dominica celebrabitur pascha nostrum. (K only:) Rota haec inventa fuit anno domini m°cc°lx°i° et habebit decurrere usque ad dcclxxxiiii annos". The rota of D is ordered according to the golden numbers, and has a different canon. At V,58v, there may be a similar rota, dated 1277, with one further canon.
   Other single-cycle lists of variables, more or less connected with the Calendar, are in Mj,10v; Ml,149v; St,24r; Sg p.36. Sets starting with 1401 are in Sg p.27 (to calendar (j9) below) and T,181v (secondarily).

(e2) Lists of variable lengths and contents are in L,10r; Fl,1v; Ba,148v; Md,76r; Bs,13v-14r; Bu,14v; Bf,14r. Extensive lists of Sunday letters and golden numbers occur with the English calendars (j7(-8)), as in Cd,13v-14r; Lr,31r; Ny,2v(9v).

(f) Computistical verses and canons occur in plenty, with the tables of the Calendar or separately. In (f1) I note a selection of verses, and in (f2) some other pieces, without any attempt at completeness.

(f1) Verses, except those occurring only once in later manuscripts (for the latter see, e.g., Pe,25v; Oa,152v; Pd,37v; Ml,144v,149v; E7,1r; X,10r; W,57v, 61r,61v+; Mg,163r; Ef,199r; Wu,2v+; Lr,31r; Kh,151r; Sg,p.33-6; Md,75r). A few common verses from elsewhere in the present appendices are also included. In the following, "MC"=verse in *Massa Compoti,* v.Wijk 1936; "PL"=Patrologia Latina vol.90; "C0"=Cordoliani 1960; "C1"=Cordoliani 1961. The verses are generally in Walther.

Adam degebat. . .(MC 110; C1,182; v.Wijk 95): O5,235v; Pf,53v

Alterius mensis. . . *see* Prima dies Iani timor. . .

Apres la sainte Agate(?). . .: Sc,47v

Armatura gravis. . .(intervals): M8,56ra (see descr. for refs.)

ArMis,GunFe,. . .(unlucky days: v.Wijk 97): Oc,38v+; W,61v+

Cisio Janus. . . (common, e.g. PL 785-6; T&K 226; C1,185; v.Wijk 92:) Oc,38v+; Ma,1r+; Mf,8r+; Pl,9r+; Pe,30r+

Collige per numerum. . .: App.6(e1)

Dat prima undenam. . .(unlucky days: T&K 363, ms. from 12th c.; v.Wijk 97): O,4ra+

Escas per Ianum. . .: App.6(f)

Est Ari Lib Scor. . .(opposite signs, cf. MC 119+; not in Walther): Sx,5v; Lr,31v

Est Aries Taurus. . .: *passim*

Frigidus et siccus. . .: App.6(c)

Iani prima dies et septima fine timetur. . .(unlucky days: PL 956; T&K 651; C1,206; v.Wijk 96-7): L,3r+; Kr,1r+; Y,289v+; Wu,2v+; Oc,38v+

Ianus et Augustus necnon. . .(number of Kalends etc.: MC 76): Sc,48r

Iupiter atque Venus. . .: App.6(c)

Luna vetus veteres. . .: App.6(d10)

Nil capiti facias. . .: App.6(d6)

Nona parit bellum. . . *see* Prima dies Iani timor. . .

Pocula Ianus amat. . .(month-verses: MC 58+; T&K 1056): Pl,9r+; Pe,30r+; Kh,162v

Post festum terne. . .: App.5(d6)

Post Martis nonas. . .(MC 158; C1,198; not in Walther): V,62r

Poto, ligna cremo,. . .(month-verses: PL 949-52): Oc,38v+; Pe,30r+

Prima dies Iani timor est. . .Nona parit bellum. . .Alterius mensis post quartam. . .(dates and hours of unlucky days: T&K 1089, with editions): F1,2r+; Oa,152v+; Oc,38v+

Prima dies mensis et septima truncat ut ensis. . .(unlucky days: T&K 1090): Ca,39r+; W,61v+; Pe,30r+

Principium Iani sancit tropicus Capricornus. . .(solar signs: PL 761+; C1,207; T&K 1126; v.Wijk 99): L,3r+; Y,289v+; Oc,38v+

Rex furit elatus. . .(T&K 1360): App.5(a2), and Cj,10v

Sanctorum sanctus. . .(intervals): Sc,47v

Si quis nascatur. . .: App.6(d10)

Ter denos duo dant. . .(solar and lunar cycle: C0,111 n.20; C1,203; not in Walther): O4,71v+

Vincentii festo si sol radiat memor esto, Hinc religas tu vas quia vitis deferet uvas (Walther 20346, common): Sc,40r; Pl,7r

(f2) Other canons: Short rules for finding 70ª,40ª and Easter, "Nota quod a 16.Kal.Febr. usque in 16.Kal.Martii, ubicumque luna xª occurrerit, dominica quae sequitur est septuagesima", etc., are in Fp,96v. A similar but differently phrased canon: K,41v (secondary hand, as the Kal.canon B preceding). K,44r, also has a note on Advent in a late hand.

Rota (12) for unlucky days: Ml,152r. Month-pictures have been found only in the calendar of Mj,3r+, illustrating the verses "Poto,. . ." above.

(g) Solar tables.

(g1) Tables of solar longitude. See *Introduction* §5b for the attempts to attribute such tables to Peter Philomena, and *Pref.* §17 for the tables found in the Calendar and for the separate tables in K,46v+ (Will. of St.Cloud) and S,21r (from Calendar). An alternative table within the Calendar is in Pd,59r+. Separate tables, more or less loosely attached to the Calendar: Pc,57r; Ba,148r; Ba,149r (Jo. de Muris); Md,78v-82r. No striking similarities between the tables mentioned have been found, except that those of Pc and Ba,148r are almost identical. Various canons occur in K,45rb (from the Quadrans Vetus) and in Pd,58r; see also App.1(a).

(g2) Tables of meridian altitude of sun for each day of a year. See *Pref.* §15 for the sub-table *Alts* within the Calendar; its variants should be sought there and in the descriptions. Separate tables are in Ba,149v (?extract from Calendar); Ro,67v; Pd,57v; Pe,24r, for varying latitudes. In Pe and possibly in Ro (64v) they are accompanied by canons for finding time of day from solar altitude; another such is (h1) below.

(g3) One or both of William of St.Cloud's tables for the sun's entrance into the zodiacal signs (one of them for each month of 4 years, dated to 1296, first value March 12^{d}2^{h}; the other a "tabula perpetuae aequationis. . ." with time-corrections at 5-year intervals starting in 1296; cf. Harper 1966 p.129+132) are in Ba,148r and Bs,14v+16r. Two other tables, both of them for 1 year: W,69r; Ba,152r. A rota for the same purpose is said to be in Oa, 160+.

(h) Various other additions.

(h1) T&K 1478, from Zinner 1925,8875. Finding time of day by means of the Old Quadrant. Text from M,2v; variants from Pl,8v and Mj,2r. Other witnesses: Bf,13v; Ef,198v; O5,235v; Pe,24r; Tr,252r; W,59r. Appended to Kal.canon B in M Pl Tr Ef, and to Kal.canon B+T.L.canon in Mj; for the other contexts see the descriptions. Headed "Ad sciendum horas diei per quadrantem" in Mj O5 Tr Ef. Wording similar to the Tractatus Quadrantis §46 (Tannery 1922 p.173) and to William of St.Cloud, Harper 1966 p.150-1. The relations among the witnesses here cited are obscure except for the fact that Tr Ef have a couple of errors in common. This piece is cited by Zinner only from Wolfenbüttel, Herz.Aug.B., 65. Aug. 2°,232r. It is there added to some version of the Practica Geometriae.

Si volueris scire horas diei per quadrantem, primo debes scire in quo mense es (om. Mj) et in quo die eiusdem; et his cognitis (visis Pl) scias elevationem solis, et pone perpendiculum super tot gradus in limbo quadrantis, et postea trahe margaritam super ultimam lineam (s.u.l. om. Pl) versus manum dextram, et fac radios solis transire per ambo foramina duarum tabularum; et margarita ostendet tibi horam, quia si cadit super primam lineam versus manum sinistram (dextram Mj), erit prima hora (h.p. Pl), si supra (super M) secundam, secunda, et sic de aliis.

(h2) The *horologium viatorum,* for finding time of day from measuring a man's shadow by his feet, may ultimately be from Palladius, *de agr.* II. It usually consists of six tables, for the month-pairs Jan/Dec, Feb/Nov,. . ., each of them giving shadow-lengths, for each hour of a day or for the hour-pairs 1/11,. . .,6 (example in *P.L* 90,447-8). Such tables occur in Md,74v (=Md$_1$); Ba,148v (with ref. to Palladius); Fp,2r (7 tables since the months are paired otherwise). Semi-circular tables with all 12 months separate (example in *P.L* 90,953-4) are in Md,83r (=Md$_2$) and Ml,150r. In N,69va, the values are written out in a list. Excerpts:

	Fp	Ba	Md$_1$	N	Md$_2$	Ml	Palladius	PL 90, 447	PL 90, 953
January, 1st hour	27	24	28	29	19	19	29	29	29
March, 6th hour	5	5	7	10	8	8	5	7	7
June, 6th hour	2	2	1	1	2	2	2	1½	1

The differences may be mostly due to scribal errors.

The "ars cylindri" of Fp,1r, uses the same principle but has other units of measurement.

(h3) Other instruments: Luni-solar volvelle, as on the back of the New Quadrant (cf. Bober 1948, p.28 and Plates 7b,8e-f; Gunther 1922,234ff.): W,68r; Od,53v (canon at 54r); another such, or just a zodiac circle, in Pn,13v. The Directorium of William of St.Cloud: Om,45ra. Astrolabe: Bs,17r-v. For others cf., singly, N,71rb-va; O4,57b; Ro,64v; and (h1) above on the Old Quadrant.

(h4) Astronomy: Tables or figures of climates: Fp,96v; V,59r; L,10r; Od,52r. Maps of world and/or spheres: Mj,12v; Pr,29r; O,1r; Md,82v; Bf,6v. Diagrams including spheres: V,60v; N,71v; Tr,252v.

(h5) Astronomical constants: "ordo quantitatum corporum caelestium", Mj,27r. Lunations: K,38r; Pc,58v; Bs,16r; Fp,94v; none of the values are identical. Mean motions: Pr,34v. On the common time-units: Sc,40r; O,1v; Md,74r.

(h6) Arithmetics: Table of positional notation of numbers, up to 10^8: D,18r-v; Md,76r; to 10^9, Kh,153r. Tables of correspondence between Arabic and Roman numbers: Ro,68r (1-76); Ny,2r(9r) (1-90,100-500, 1000-10^6; in canon to the calendar (j7)). Triangular table of multiplication, 60×60: Pc,57v-58r, no doubt connected with the tables of Jo. de Lineriis.

(j) Other calendars, and lists of eclipses.

The present section is meant to draw attention to such other calendarial works as may have interacted with the tradition of Peter Philomena's Calendar. The list is incomplete due to insufficiency of my records and means of identification. Generally, I furnish excerpts meant to help identify the pieces when occasion allows. Where possible, the readings are those shown by a majority of the witnesses cited; they have not been otherwise checked.

(j1) *Calendar of Grosseteste*. 4 cycles of conjunctions, 1208-1283 (Lindhagen, below).

Jan. 1	*t* 2	–	*t* 14	*t* 8
Jan. 2	*h* 21	*h* 15	*h* 9	
Dec. 30	*l* 13	*l* 7	–	*l* 19
Dec. 31	–	*t* 20	*l* 1	–

The conjunction table has been edited and analysed by Lindhagen (1916), together with three canons, one of which is App.1(d). The calendar appears to be commonly accompanied by the Tabula Gerlandi (this App., (a)), the Tabula lunae (App.4(a)), and by some of the tables in (d) above. It was argued in the *Preface* (§6,7,10) that it forms the sub-stratum of Peter's Calendar, at least in the manuscripts of Classes *k* and *a* (*Pref.* §5). Note also that in M8,56r+, elements from William's and possibly Peter's calendars have been grafted on it by some secondary hand; and see *Pref.* §17 for a similar case.

(j2) *Kalendarium reginae* of William of St.Cloud. One cycle of conjunctions, 1292-1310. For the values see *Intr.* §21.

Jan. 1   –
Jan. 2   *t* 2˙ (=A.D.1310, hour 2 after noon)
Dec. 30 *r* 4˙
Dec. 31 –

Edited, with the canon "Testante Vegetio" and a French version of it, by Harper 1966. The conjunction table has been juxtaposed with Peter's in Cj,4v+; Oc,38v+; Re,1v+; Cj and Re have canons. In Pl,15r+, the two calendars are adjacent, each in their own frame-work. As was seen in the *Preface*, §15-6, the sub-tables *Alts*, *Qdie*, and *Qnoc*, commonly occurring in manuscripts of Peter's Calendar, have been borrowed from William's. Various other instances of mixture of the two calendars can be found in Bs,12v (canon for William's, adapted to Peter's); Ro,64v+(various texts intermingled); and cf. (g3) for Ba and Bs, (j1) for M8 (with extract from canon, Harper p.96+); (h1) for another possible excerpt from the canon reproduced by Harper; and App.4(d) for the lunar table from that canon.

(j3) "*Kalendarium. . .compositum a fratre Rogero Bacoun*". 4 cycles of conjunctions, 1292-1367.

Jan. 1	*19*	1ʰ;2	–	*19*	10; 9	*19* 2;22
Jan. 2	*8*	21;12	*8* 13;44	*8*	6;17	*8* 22;51
Dec. 30	*10*	12;22	*10* 4;54	*10*	21;27	*10* 14; 1
Dec. 31	–		*18* 17;36	–		–

See Wordsworth 1904,137, and T&K 805. In O4,58r+, with a canon stating that the figures have been calculated in 1289 from the Toledan Tables and for the meridian of that city, and that some sub-tables are valid for the latitude of Lincoln. In fact the values correspond to those calculated from the Toledan Tables (*Intr.*, §21), except that they appear to have been entered one day earlier, in accordance with the canon "incipiendo a meridie diei quam habes" (O4,58r). See the references above for two further manuscripts; a third one is Ew,73+, without a canon. The copy in O4 has taken over the T.L. and an extract from Kal.canon B.

The calendar ascribed to *R(aimund) Bancal O.F.M.* occurs together with Peter Philomena's Calendar in N,57v-63r+71r. It has 4 cycles of conjunctions. The canon states that it covers the years 1311-1386 and has been calculated from the Toledan Tables, as is also evident from the following excerpt,

Jan. 1		–		⟨*?⟩		⟨*?⟩		–
Jan. 2	*8*	13;45	*8*	6;18	*8*	22;52	*8*	15;25
Dec. 30	*10*	4;55	*10*	21;29	*10*	14; 2	*10*	6;35
Dec. 31	⟨*1*⟩*8*	'17;37		–		–	⟨*1*⟩*8*	19;16

The values in cycles 1-3 fit those of cycles 2-4 above, to within some 3 minutes.

(j4) A calendar with 4 cycles of conjunctions, for the years 1311-1386,

Jan. 1		–	*19*	17¹/₃	*19*	9²/₃	*19* 2¹/₃
Jan. 2	*8*	20¹/₃	*8*	13¹/₃		–	*8* 22¹/₃
Dec. 30	*10*	11²/₃		–	*10*	20³/₃	*10* 13²/₃
Dec. 31	*18*	14²/₃	*10*	4¹/₃		–	–

is in E2,64r-69v. The canon, at 63r, stating that the calendar was made in 1313 by a Praemonstratensian, has adopted the letter table of Kal.canon B. The T.L. is attached to the calendar.

(j5) Calendar of ⟨*Walter of Elvedene*⟩. 3 cycles of conjunctions, 1330-1386 (cf.below).

Jan. 1		–	*19*	21;54	*19* 22;51
Jan. 2	*19*	3;56		–	–
Dec. 30	*2*	5;50	*2*	7;57	*2* 5;11
Dec. 31	*10*	14;59	*10*	14;59	*10* 15;33

Occurs as a later addition to Peter's Calendar in C,147+, and separately in P1,(21r-)26v. The present attribution rests on a note in C implying that the calendar covers the years 1330-1386.

A calendar ascribed to Walter occurs at the beginning of ms. Lo.

(j6) Lists of solar and lunar *eclipses*, beginning in 1330 or later and ending in *1386*, have been attributed to Walter of Elvedene (e.g. Zinner 1925, no.10890 with p.512, cf. no.5334-9 with p.445). Most of them contain values of times, magnitudes, *casus, mora* (lunar eclipses), and durations. Excerpts from the two last entries in each list:

		time	magn.	duration
solar	1384 Aug. 18	1ʰ;18,1	10P; 0,0	2ʰ;5,42
	1386 Jan. 1	22;36,26	7;36,52	1;55, 4

lunar	1385 Jan. 27	15;4,20	18;12,38	3;24,14
	1386 Jan. 16	16;27,35	9;12, 8	3; 2,36

Such lists occur with the calendar (j5) in the manuscripts C,147+ (distributed over the months in question and discarding the second-values in most cases); P1,7r-v (with a canon); Lo, ending at 9v. In more or less close connexion with Peter's Calendar they are found in Pd,66v+;Tr,261v;Pr,25r;Mj,11r; in the two last cases the lists have been merged and truncated at the end, but the remaining values are the same as elsewhere. Abbreviations are found severally in Md,77v (dates and hours only, much miswritten) and Ml,148r (lunar eclipses only, times different but durations as above, no second-values). Lists with dates one day lower (so that "Jan.0" occurs) and without second-values are in E2,72r-v (canon at 63r-v resembling that of P1 but noting that the dates are to be taken as elapsed; with calendar (j4)) and W,69v (with Peter's Calendar).

(j7) Calendar of *John Somer,* and cognates. Some of the 5 cycles of conjunctions

Jan. 1	*19* 21;45	–	*19* 23;49	*19* 7;53	?
Jan. 2	–	*19* 14;27	–	–	?
Dec. 30	*10* 9;59	*2* 2;21	–	*10* 16;18	*18* 11;24
Dec. 31	–	*10* 21;24	*10* 4;59	–	*7* 21;35
Cycle:	I	II	III	IV	V
	(1387-)	(1406-)	(1425-)	(1444-)	(1463-81)

are found in Ny,1r-15r (cycles I-IV); Cd,2v-13r (II-V); Bo,168r-173v (II,headed "secundus", regular entries only from year 11 (=1416) on); Pr,15r-21v (III-IV). Ny and Cd also have cycles of oppositions. In Pr the calendar has a canon (T&K 43) ascribing it to John Somer, and the canon of Ny "ad notitiam tabularum" is also attributed to that author (T&K 55).

In Pr the calendar follows upon that of Peter Philomena, with considerable confusion of their accessories. In Ny and Cd, as in Pr, it has adopted the T.L. in varying versions (*Pref.* §22). In Bo it has supplanted Peter's cycles of conjunctions, the rest of the context remaining intact. The texts appended to these calendars seem typically to include the table (b) above and the lists mentioned under (e2) and (j8); but the evidence available was not sufficient on this point nor as concerns the relationship of the present calendars with that of Nicholas of Lynn.

(j8) Lists or inscribed figures of solar and lunar *eclipses,* beginning in 1387 or later and ending with 1462, occur together with the calendars of John Somer or Nicholas of Lynn (cf. Zinner 1925, nos.6667-98 with p.466). The lists furnish values analogous to those of (j6) above. Excerpts from the three last entries in each list, mainly following Ny:

solar	1453 Nov. 30	1^h;25,46	9^P;59,30	2^h;5,45
	1460 Jul. 18	14;42, 0	7;29,47	1;53,34
	1462 Nov. 20	23; 0,15	1; 9, 1	1;53,40
lunar	1461 Jun. 22	6;46, 8	20;16,48	3;48,12
	1461 Dec. 17	1;38,10	12;55,29	3;25,40
	1462 Jun. 11	12;35,21	6;47,53	2;46,24

Such series are found with the calendars (j7) in Ny,20r-21r (lists) and Pr,28r-v (inscriptions to figures, with ascription to John Somer). In Lr, ending at 30v (figures) and Ln, ending at 32v (tables), the lunar series is found with the calendar of Nicholas of Lynn. In these two cases the times differ from each other and the excerpts above, and the dates are generally 1 greater; but the magnitudes and/or durations remain recognizable. Here as in (j7) the calendars, with eclipse lists, have been noted since they are accompanied by versions of the T.L.

The notes on solar and lunar eclipses in the Calendar of Bs (6v+), which end in 1462, yield dates+hours generally 1^d+1^h greater than those above.

(j9) Calendar of *John of Gmunden,* and other Austrian or German calendars. The cycle numbers in these seems generally to be the golden number; thus, the cycle numbers are mostly not in chronological succession within a cycle, and even where calendars show comparable values, some of these may appear shifted between adjacent cycles.

Four of the six cycles of conjunctions

Jan. 1		–	*19*	5;10,53		–		–	*8*	19;28	–
Jan. 2	*8*	1;19,59	*8*	17;51,54	*8*	10;23,49/;24	*8*	2;55,44/;56		–	*8* 12; 0
Dec. 30	*10*	16;29,53	*10*	9; 1,46	*10*	1;33,42/;34		–	*10*	10;38	*10* 3; 9
Dec. 31	*18*	12;38,59		–	*18*	21;42,48/;43	*18*	14;14,43/;15	*18*	6;47	*18* 23;19
Cycle:		I		II		III		IV		V	VI
		("*18*"=1404)				("*15*"=1439)					

are found in each of the manuscripts Sg p.14-25 (cycles I-IV, beginning in 1404, values to seconds; Zinner 1925,5364, sole instance) and Bf,15v+ (cycles III-VI, also for oppositions, beginning in 1439, values to minutes).

Cycles III-VI are those of the calendar by John of Gmunden (Zinner 1925,3624, and identical to the ascribed copy in the ms. Roma Vallicelliana R 63). This calendar was calculated for Vienna, as is also that of Sg (cf. Sg p.13+30-1). Sg has utilized several elements occurring with Peter Philomena's Calendar, notably the letter table with canon (p.13) and the *Qdie*-table originally by William (p.29).

The calendar in Bf,7r-12v, preceding John of Gmunden's has one cycle for 1425-43, thus:

Jan. 1	*19*	9;43
Jan. 2		–

Dec. 30   *10* 9; 2
Dec. 31   -
        (" *1* "=1425)

The value for Dec. 30 fits into cycle II above, and a similar fit can be made with the values not shown. This, then, is also a calendar for Vienna; cf. Zinner 1925,3512+ with p.423, who attributes calendars with this range to John of Gmunden on account of similarities of their canons. The T.L. at Bf,13v, was probably meant to serve this calendar.

My sole note from the calendar in the German manuscript Pf,57r+, might fit cycle IV above.

Another German calendar is Mz, 116v-128r (listed in Zinner 1925, 5427, as anonymous, with 3 other mss.). 4 cycles of conjunctions+oppositions for 1463-1538. Excerpt of the conjunction times:

Jan. 1   -   *8* 19;11   -   -
Jan. 2   *8* 2;40   -   *8* 11;43   *8* 4;15
Dec. 30   -   *10* 10;21   *10* 2;53   -
Dec. 31 *18* 6;30 *18* 23; 2 *18* 15;34   *7* 8; 6

With the displacements expected, the times appear to be 16-17ᵐ less than their counterparts in cycles IV+ above. This calendar has adopted an anonymous T.L.

Two German calendars which do not appear to fit the system above are: Bu,16r-21v (one cycle dated 1401. Jan. 1: *19* 18;9. Jan. 2: *8* 6;51. Dec. 30: *10* 22;1. Zinner 1925,5484) and the calendar preceding the two Viennese ones in Bf (2r-3v), which looks like an attempt to renew Peter Philomena's calendar within its own environment. A further late calendar is in Kh, 155r+ (undated. Jan. 1: *19* 0;36. Jan. 2: *8* 13;18. Dec. 31: *10* 4;26).

(j10) Other tables of conjunctions: Bs,6v+ and 14v ("lunationes secundum aequationem Iudaicam", 1392-1437); Bs,5v,6r,12v,13r ("tabula cycli lunaris magni", 1390-1465); Ba,150r (Jo. de Lineriis); Pr, Iv; Pf,52v; Md,73r. Eclipse lists whose values do not fit (j6) or (j8): N,70vb (1324+), and Mg,163r (1375-80).

The "tabula de incensione lunae", in Ml,148r and Md,73v, with golden numbers during a year, may be an extract from some calendar.

Appendix 6. Astrological additions to the Calendar and T.L.

(a) T&K 996. Manuscripts: Mk,14r-15v,10r-13v (Zinner 1925,3924); Bu,2r-9r; Bv,1r-9v (both in Zinner 1925,7931-3, together with ms. Bern, Burgerbibl., 524B,1-7, which I have not seen); So,53v-56r. First described by Thorndike, *Osiris* 8(1948)53, from Bv.

Contents of the manuscripts: *Mk*: §1-66 (text as printed here). *Bv*: §11 before §9-10, otherwise as Mk. *So*: §1-16; 39-47; 57. *Bu*: §1-21; 22-25 (with extensions); 26*-38* (the verses, with notes on elections not in Bv Mk, see below); 39-56 (with short additions at ends of §49-55); 58-66; 57 (table with extended explanation, see below); 26-38 (at f.9r-v; text as in Bv Mk, without the verses; ending as (d7) below).

Two specimens of the alternative texts in Bu:

(**§27***) (Hdg.:) Luna in ariete. (Txt:) Aries «est signum calidum et siccum, natura colericum, et» respicit caput, et tunc est in brachiis minuendum, balneandum, et quod cito debet finiri et non debet durare est incipiendum. Caput non est medicandum nec sanandum (lan- *ms.*); ad nasum non minuendum; matrimonium non contrahendum; in domum novam vel noviter susceptam non accedere ad immorandum. (Hdg.:) Versus. (Txt:) Nil capiti facias. . .radere cures.

(**§57**) (Hdg.:) Quis planetarum regnet in qualibet hora. (Txt:) Tabula sequens ostendit quis planetarum regnet in qualibet hora cuiuslibet diei naturalis. Si vis ergo scire, recipe in hac tabula numerum, cuius horam planetae illius diei velles habere, et directe de numero descende in linea ad dextrum latus, et cum perveneris ad spatium illius diei, de quo quaeris, qui in summo tabulae notatus invenitur, planeta in spatio inventus regnat ipsa die, eadem hora cuius numerum primo recepisti. Verbi gratia, si vis scire quis planeta regnet prima hora die solis, recipe numerum unarium et descende ad dextrum latus usque ad diem solis; tunc reperies quod sol in prima hora dominicae regnat. Si vero secundam horam desideras scire, recipe numerum binarium et descende usque ad diem solis; tunc reperis quod Venus in secunda dominicae hora regnat, et sic de aliis. (Table as printed below in §57).

The extra text in Bu has been summarily noted where it occurs; the apparatus only contains a selection of shorter passages which may have been involuntarily omitted in Bv Mk (So).

Where the texts are comparable, Bu should rank as equal with the consensus of the others, and So as equal with the consensus of Bv Mk. In fact, since the larger variants of Bu mostly look like innovations, I have mainly followed (So) Bv Mk. For convenience I have retained the rubrics of Mk (in italics), supplementing a few from Bv, generally without noting variants. The rest of the variant readings have been registered except where only one of Bv Mk So stands against the other manuscripts present. A few secondary additions and obvious errors in Bu alone have also been excluded.

(1) Omnis creatura et universa, quae sunt in mundo, efficiuntur[1] motu planetarum, signorum et stellarum, quemadmodum dicit Messahalla in Epistula sua capitulo primo. Et idem vult Ptolomaeus in Centiloquio suo propositione 49a, sic inquiens: Et[2] imagines, quae sunt in hoc compositionis mundo, caelestibus obediunt imaginibus. Et Haly commentator suus ibidem[3]: Vultus huius saeculi subiecti sunt vultibus supercaelestibus; verbi gratia, scorpio caelestis terrenis scorpionibus dominatur. (2) Item Haly Abenragel parte prima capitulo primo sic dicit: Duodecim sunt signa in caelo, membris corporum[4] similia, quorum naturis elementa quatuor gubernantur, quae elementa sunt radices corporum et in eis retenta sunt; et propter existentiam planetarum in signis et introitum planetarum in signa et exitum ex eisdem, et propter aspectum unius planetae ad alterum, fiunt diversitates temporum et aeris mutationes et augmentum caloris et frigoris quolibet anno. Item Guido in Summa sua, parte prima, capitulo secundo, dicit: Non enim credo alicui esse dubium, quin motus caeli circumdans elementa mutet[5] ignem in aerem, et ipsa mutent alia elementa, aquam scilicet et terram, et cuncta animantia et vegetabilia, et cetera quae sub lunari circulo existunt. (3) Item Albumasar, Alchibicius et fere omnes sapientes in scientia astrorum eruditi in hoc concordant, quod inferiora a superioribus gubernantur; quod etiam sapientissimus philosophorum Aristotiles protestatur in primo libro Metharorum[6], ubi sic dicit: Mundus iste contiguus est superiori latione[7], ut[8] tota virtus eius exinde gubernetur.
    (4) Quamvis autem inferiora ab omnibus superioribus continue alterentur[9], maxime tamen a motu solis et lunae in his inferioribus fit alteratio, quia sunt maxima corpora quantitate et influentia, unde Genesis primo: Fecit autem[10] Deus duo luminaria magna; magna, inquam, in quantitate quantum ad solem. (5) Nam auctoritate Ptolomaei in Almagesti et Alfragani differentia 22a, sol longe et multo maior est tota terra; et Haly Abenragel parte prima capitulo

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Bv Mk So Bu

[1]*omnes* Mk   [2]etiam Bu   [3]dicit *add.* Bu   [4]humanorum *add.* Bu   [5]mutat Bv   [6]Methur- Bu   [7]latior Bu   [8]*om.* Bu   [9]-rantur Bu   [10]*om.* Bu

quarto dicit[11]: Sol est lumen et candela caeli, gubernator mundi, factor temporum; per eum movetur omnis res movens, et per eum[12] nascitur omnis res nascens et crescit omnis res crescens, et per eum omne folium maturatur et omnis fructus; ipse est spiritus caeli magnus, per quem omnia vivificantur signa. Item Aristotiles secundo de generatione: Accessus et recessus solis in obliquo circulo est causa generationis et corruptionis in his inferioribus. Et idem secundo Physicorum: Homo generat hominem et sol. *Definitio solis*[13]. Item dicit quidam: Sol est oculus mundi, splendor firmamenti, horarum divisor, temporum distributor, in motibus planetarum particeps et eorum rector, origo vitae, terrae fecundator, fons caloris, totius naturae moderator[14] atque diei dominus. **(6)** Dicitur etiam deus fecisse duo luminaria magna; et dicitur 2[15] "magna", scilicet[16] influentia, et hoc quo[17] ad lunam. Nam quamvis luna sit minima stellarum visu notabilium, cum sit longe minor terra, tamen maximam virtutem solet exercere in his inferioribus, quoniam terrae propinquior est. Unde Zahel dicit: Scito quod luna, cuius circulus est omnium planetarum circulo propinquior terrae, prae omnibus planetis similior est rebus mundi; unde vides quod homo incipit esse parvus, deinde crescit donec firmatur, similiter facit et luna. **(7)** *Definitio lunae.*[18] Unde quidam describens lunam sic inquit: Luna est oculus mundi, splendor noctis, pedisequa solis, fex[19] superiorum, infimus planetarum, aurarum alteratrix, mensium permutatrix[20], fons humiditatis atque noctis domina. Habente igitur luna significationem omnium rerum, quia sanitas eius est sanitas omnis rei, et detrimentum eius est detrimentum omnis rei, insuper videmus medullam in ossibus et alios humores in corporibus augmentari et diminui secundum cursum lunae. Unde mare fluit et refluit secundum cursum lunae: cum enim luna movetur ad augem deferentis sui, augetur fluxus maris, cum vero recedit ab auge, minuitur[21], donec pervenit ad oppositum augis.

(8) Unde, quoniam haec duo corpora prae ceteris planetis magna sunt influentia et virtute, et magister Petrus de Dacia[22] in suo kalendario horum[23] motus et coniunctiones posuerit[24], idcirco de electionibus quibusdam, quae principaliter fiunt circa lunam, breviter est dicendum. - Cum igitur Magister reverendus in suo kalendario posuerit coniunctiones solis et lunae, sciendum est primo quod coniunctio, incensio et novilunium idem sunt, licet[25] nomina diversa. Dicitur, inquam, coniunctio pro tanto quia sol et luna pro tunc coniunguntur et sunt in eadem parte caeli. Vocatur autem incensio, quia tunc luna dicitur incendi a sole secundum vulgum, licet non sit verum, quia semper eius medietas est incensa et splendet, nisi esset eclipsis[26] lunae. Vocatur autem novilunium secundum vulgum, quia luna pro tunc acquirit

[11]definitio solis *add.*Bv Mk *(rubr.)*   [12]ipsum Bu   [13]alia d.s. Bv Mk; *om.*Bu   [14]-atio *omnes*   [15]2o Mk So; secundo Bu   [16]*om.*Bu   [17]quantum Bu   [18]*om.* Bu   [19]fex *omnes*   [20]m.p. *om.*Bu   [21]mare *add.*Bu   [22]datio Bv Mk   [23]horas So; hori Bv Mk; duorum lumin⟨ari⟩um *add.*Bu   [24]posuit Bu   [25]sed Bu

novum lumen, [27]licet non sit verum, ut dictum est, vel acquirit novum lumen[28·27] quoad nos, quia nobis iterum incipit apparere.

(9) *Sequitur de electionibus.* Post haec de electionibus quibusdam, et primo de his, quae fiunt circa locum lunae, est videndum. (10) *Quando sit bonum sanguinem extrahere*[29]. In minuendo sanguinem et ventosando[30] dicit Haly Abenragel: Sit luna in signis aereis vel igneis et sit fortunata. – Ut autem scias qualitates signorum et in quibus sit bonum minuere sive sanguinem extrahere[31], nota hos versus.
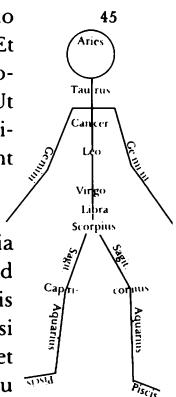
Versus de qualitate signorum:
[32]Ignea sunt A Leoque Sa, terrea Tau Cap et Virgo[33],
Ae Ge Libra[34] et Aqua, Scor Can Pis sunt quoque unda[35·32].
Est Aries minuendi[36] bonus, sic Libra Sagitta,
Sic et Aquarius est.
Item[37] *versus de qualitate signorum:*
Libra cum Geminis Aquario sanguinea sunt,
Sunt[38] quoque colerica Aries Leoque Sagitta,
Scorpio flegmatica Pisces sunt Canceres signa.
[39]Sunt Capri cornus Virgo terrestria Taurus[39].

Et quando volueris extrahere sanguinem cum ventosa, bonum est ut sit post oppositionem solis et lunae. Sed[40] si extrahis sanguinem de vena, melius est ut sit in prima medietate mensis, id est lunationis. (11) Et caveas ne tangas membrum[41] ferro, luna existente in signo membrum illud signante, quia dicit Ptolomaeus in Centiloquio propositione 20a: Operari cum ferro in aliquo membro, luna existente in signo membrum illud respiciente, horribile est. Et Haly commentator eius reddit rationem ibidem: Quia luna magnum humorem mittit[42] in membrum istud, cum in signo illius membri fuerit luna. Ut autem scias, quod signum cuilibet membro corporis influat[43], respice imaginem unam[44], in qua nomina signorum membris, quibus influunt, sunt inscripta:

45
Aries
Taurus
Cancer
Leo
Gemini
Virgo
Libra
Scorpius
Capri...
cornus
Aquarius
Piscis

(12) Item in[46] flebotomia ne[47] sit luna in geminis aut in piscibus aut in via combustionis, hoc est in fine librae et in principio scorpionis, in quolibet ad 12 gradus. *Quando sit bonum medicinam laxativam sumere.* In medicinis laxativis non sit luna in signis ruminantibus, sicut est aries taurus leo capricornus, nisi sit medicina vomica; sed sit luna in signo scorpionis aut in signo humido et frigido, vel ad minus humido. (13) *Quando sit bonum intrare balneum.* In introitu

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[26]-si Bv Mk   [27·27]om. Bu   [28]n.l.: lumen novum secundum nos vel So   [29]Bu; trahere Bv Mk   [30]-di *omnes*   [31]trahere Bv Mk So   [32·32]*vocabula expandit* Bu   [33]vir Bv Mk So   [34]lib Bv Mk   [35]in quibus signis bonum est (sit Mk) minuere *add.* Bv Mk (*rubr.*)   [36]-di *omnes*   [37]iterum So; *om.* Bu   [38]ignea Bv Mk   [39·39]*om.* Mk   [40]et Bu   [41]aliquod *add.* Bu   [42]ma.hu.mi.: ma.mi.hu. Bv Mk; mi.ma.hu. So   [43]c.i.: i.c. Bu   [44]hic infra *add.* Bu   [45]*(ad figuram)* Dominus signorum *add.* Bv Mk; *figuram om.* Bu   [46]*om.* Bu   [47]non Bu   [48]*om.*

balnei sit luna in ariete vel in[48] scorpione vel in piscibus[49] sagittario cancro libra vel in tauro. Et dicit Haly Abenragel quod melior electio in hoc est ut sit luna in signis aqueis, ut est scorpio cancer piscis. Et non intres balneum, luna existente in signis calidis et siccis, nisi feceris hoc in sanando de humoribus malis vel de paralysi. (14) *Quando sit bonum capillos tondere.* In tondendo capillos dicit Haly Abenragel quod melior electio est in hoc ut sit luna in libra sagittario vel aquario aut in piscibus. Et caveas ne applices ferrum capiti tuo, luna existente in ascendente, scilicet[51] in oriente. (15) *Quando sit bonum ungues praescindere.* In[52] incidendis unguibus dicit Haly Abenragel: [53]Electio melior est in hoc[53] ut sit luna aucta lumine, et quod non sit in geminis vel in piscibus vel quod aliquod istorum duorum signorum sit ascendens; sed sit luna in libra tauro vel ariete, scorpione cancro vel leone. (16) *Quando sit bonum novam vestem sarcire vel induere*[53a]. In incidendis et induendis novis vestimentis seu vestibus dicit Haly Abenragel quod melior est in hoc electio, quod luna sit in signis mobilibus, quae sunt aries cancer libra capricornus; et si etiam fuerit in signis communibus, non est malum, quae sunt gemini virgo sagittarius pisces. Caveas tamen[54] in coniunctione et oppositione; et caveas tibi ne sit luna in signis fixis, quae sunt taurus leo scorpius aquarius, in principio incisionis[55], nisi sit vestis armigera, quia in hoc fixa signa[56] mala non sunt. Et pone lunam in medio caeli, et sit luna crescens lumine; et sit luna, quando indueris vestem novam, in signo mobili; et inter omnia signa fixa deterior est leo, unde Ptolomaeus in Centiloquio, propositione 22a: Indumenta induere nova, luna existente in leone, horribile est[57], praesertim si maligna fuerit. (17) *Quando sit bonum venare.* In venando per terram et aquam dicit Haly Abenragel: Electio melior est in hoc ut luna sit in tauro, in virgine, in capricorno; et dixerunt sapientes quod qui voluerit venare per terram, bonum est ut ponat lunam in ariete leone vel sagittario, applicando[58] Marti bono aspectu cum receptione. Et dicit quod expertus sit vitae[59] nec umquam viderit venatorem, qui exiret venatum tauro ascendente aut geminis aut scorpione, qui rem aliquam caperet, licet etiam bonos haberet canes et eventus bonos in his haberet et similia, et licet bonus esset venator. Et quos vidit exire ad venandum ascendente capricorno, vidit quod venatio abscondebatur eis. Et hoc intelligitur[60] maxime in venando quadrupedes; sed si volueris capere aves, sit luna in geminis libra vel aquario, applicando Mercurio. (18) *Quando sit bonum cum mulieribus iacere.* In iacendo cum mulieribus dicit Haly[61] Abenragel: Sit luna in signis quae habent dilectionem in opere illo, quae sunt aries capricornus leo et libra; et cum hoc si luna applicaverit se Veneri vel Marti, erit melius, quia Venus signat[62] gaudium et dilectionem quae animalia habent[63] adinvicem,

Bv So   [49]vel in *add.* Bu   [50]d() *add.* Bu   [51]hoc est Bu   [52]*om.* Bv So
[53-53]quod in h.m. est electio Bu   [53a]primitus i. hic patet Bu   [54]hoc *add.* Bu
[55]vestium *add.* Bu   [56]*om.* Bv Mk So   [57]*desinit* So
Bv Mk Bu
[58]amplic- Bv Mk   [59]in te Bv; *om.* Mk   [60]-it Bu   [61]in *add.* Bu   [62]*vel* significat Bu Bv   [63]a.h.: anima (ve)l habet Bv Mk   [64]*vel* significat Mk   [65]in

Mars vero multum semen signat[64]. Caveas etiam in hoc opere ne luna sit in piscibus; sed si luna sit in geminis libra vel aquario, bonum est, et si feceris causa habendi filium, sit signum ascendens in oriente. **(19)** *Quando sit bonum iter incipere.* In iter arripiendo sit luna in signis mobilibus praeterquam in fine librae; et in eundo per aquam sit luna in ariete[65] cancro aquario et piscibus.

(20) *Sequitur quid sit signum et quot sint.*

Et quia multa de signis dicta sunt, ne per ambiguum procedatur, videndum est quid sit signum et quot sint[66] signa. *Definitio signi.* Ubi[67] nota quod signum est certum[68] spatium, puta duodecima pars zodiaci, ab astronomis inventum et a caeli compositione probatum. Vel[69] sic: Signum est certum spatium caeli, a stellarum dispositione et ordine a calculatorum sagacitate cum quibusdam limitibus determinatum. **(21)** *Quid sit zodiacus et unde dicatur.* Et quia dictum est de zodiaco, scias quod zodiacus est quidam latus circulus, habens in latitudine 12 gradus, et sub eo moventur omnes planetae; et dicitur zodiacus a 'zoe', quod est vita, quoniam secundum motum planetarum sub illo est omnis vita in rebus inferioribus. Vel dicitur a 'zodias', quod est animal, quia cum dividitur in 12 partes aequales, quaelibet pars appellatur signum et nomen habet speciale a nomine alicuius animalis propter proprietatem aliquam convenientem tam ipsi signo quam animali, vel propter dispositionem stellarum fixarum in illis partibus ad modum huiusmodi animalium. Et iste circulus Latine dicitur signifer, quia fert signa, vel quia dividitur in 12 signa; quorum nomina continentur his versibus.

Ordo numerus et nomina signorum continentur his versibus:
Sunt Aries Taurus Gemini Cancer Leo Virgo
Libraque Scorpius Arcitenens Caper Amphora Piscis.

Quodlibet autem istorum signorum habet signum sibi directe oppositum. Quod signum alterum[70] alteri opponatur, patet per hunc versum.

Oppositio signorum patet hoc versu:
[71]Est Ari Li,Scor Tau,Sa Gemin,Can Cap,Leo A,Pis Vir[71].
Nam aries opponitur librae, taurus scorpioni, gemini sagittario, cancer capricorno, leo aquario, virgo piscibus.

(22) *Item divisio signorum.* Istorum autem 12 signorum quaedam dicuntur mobilia tropica seu conversiva, quaedam dicuntur fixa stabilia seu[72] firma, et quaedam[73] communia. Et ut scias quae vocentur mobilia, quae fixa, et quae communia, nota hos versus[74]:

Mobilis est Aries Cancer Capricor quoque Libra,
Sed Leo sunt stabiles et Taurus Scorpio Lympha,
Virgo Sagit Pisces bipertita sunt geminique.

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add. Bv Mk   [66]sunt Bu   [67]verbi gratia Bu   [68]tertium Bv Mk   [69]aliter
add. Bu   [70]autem Bu   [71·71]*vocabula varie expansa*   [72]et Bu   [73]et q.: q.vero
Bu   [74]h.v.: v.h. Bv Mk   [75]*om.* Bv Mk   [76]quod Bv Mk   [77]in *add.* Bu

(23) *Quare quaedam signa*[75] *vocentur mobilia, et quid*[76] *bonum sit agere vel vitare, luna in eis existente.* Dicuntur autem aries cancer libra capricornus signa mobilia pro tanto quia, cum sol ingreditur ista signa sive initia istorum signorum, mutatur tempus ad substantiam sequentis temporis, quia cum sol intrat[77] arietem, mutatur ut frequenter tempus hiemale in tempus vernale, et sic de aliis. Unde[78], luna existente in istis signis mobilibus, omnia citius alterantur negotia: odium, inimicitia et adversitas instabilia sunt et infirma; aedificiorum fundamenta locare, vel castra vel civitates construere, penitus fieri non debet, quoniam instabilitas contra hoc ruinam minatur. In aegro diuturnitatem morbi negant. Vendere et[79] emere penitus est inutile, quia non diu manent vendita[80] apud emptorem. Siquid[81] promittitur vel datur, non multum durat. Data et accepta beneficia minime prosunt. Quidquid boni vel adversi occurrit, non[82] diurnum[83] neque stabile est. Medicus non curet aegrum, quia non convalescet[84] ad plenum, quia denuo recidivabit. *(28 verba add.* Bu) Scito etiam quod signa mobilia rerum mutabilitatem signant[85], et quod[86] nihil debet fieri in eis, quod durabile existere debet, vel incipi in eis, quod debet multo tempore durare aut stabile permanere. Sed festina et indurabilia et quorum finis cito desideratur, incipi debent in eis[87]. Si de carcere quis[88] effugerit sive exierit, cito recapietur. *(19 verba add.* Bu) Est autem[89] bonum conubia et amicitias tunc[90] tractare[91], sed non[92] firmare nisi in signis fixis. *(79 verba add.* Bu) **(24)** *Quare quaedam signa dicuntur fixa, et quid bonum agere sit vel quid vitare, luna in eis existente.* Dicuntur autem taurus leo scorpio et aquarius signa fixa stabilia sive firma, ideo quia[93], cum sol intrat in ista signa[94], tempus figitur in esse suo et non mutatur, quia cum sol[95] intrat taurum, figitur tempus vernale, quod incipit sole intrante in arietem. Item tempus si fuerit[96] calidum, sole intrante in aliquod istorum signorum, figitur tempus in calore, et sic de aliis. Et istud manifeste[97] videtur in qualibet parte anni. Unde[98] luna in eis[99] existente bonum [100]est omnia tractare et incipere[100], quae debent diu durare, unde bonum est[101] domum et alia aedificia incipere et aedificare, nuptias celebrare, quarum fuit[102] in signis mobilibus praemissa tractatio. *(8 verba add.* Bu) Promissum datur et ultra non revertitur. Irae[103], rixae et contentiones[104] exortae vix vel non pacificantur, nisi multa apponantur remedia[105]. Qui vinctus vel captus fuerit, prolongabitur eius labor. Condiciones[106] [107]et donationes accipere bonum est[107], *(14 verba add.* Bu) et omnia[108] quae ad utilitatem pertinent, [109]bona sunt: emere, vendere, novam domum intrare, [s]omnia bona[109]. *(7 vbb. add.* Bu) De carcere bonum est exire vel de captura[110];

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[78]sed Bu   [79]vel Bu   [80]*om.* Bv Mk   [81]sed quid Bv Mk   [82]*om.* Bv Mk
[83]diur- *omnes*   [84]-cit Bv Mk   [85]significant Bu   [86]*om.* Bv Mk   [87]in eis
om. Bu   [88]tunc *add.* Bu   [89]etiam Bu   [90]*ante* conubia Bu   [91]inter discor-
des *add.* Bu   [92]debes eas *add.* Bu   [93]*om.* Bu   [94]tunc *add.* Bu   [95]luna
Bu(*in ras.?*); debet dici sol Bu(*mg.*)   [96]t.s.f.: s.t.fuit Bu   [97]-tum Bu   [98]sed
Bu   [99]his 4 signis Bu   [100·100]erit om. inc. et tra. Bu   [101]tunc *add.* Bu
[102]fuerit Bu   [103]et *add.* Bv Mk   [104]tunc *add.* Bu   [105]a.r.: r.a. Bu   [106]con-
ductiones Bu   [107·107]*om.* Bu   [108]talia *add.* Bu   [109·109]*om.* Bu   [110]infirmita-

quidquid vis fixum et firmum permanere, fac et incipe, luna existente in his signis fixis. *(15 verba add.* Bu) **(25)** *Quare quaedam signa*[111] *vocantur communia, et quid sit bonum agere et*[112] *quid vitare, luna in eis existente.* Dicuntur autem signa communia gemini virgo sagittarius[113] piscis, propterea quia, cum sol moratur in his signis, tempus fit[114] commune, id est[115], medietas istius erit unius temporis et medietas erit alterius temporis. Verbi gratia, quando sol intrat geminos, quod est primum signum commune, fit tempus commune, id est, medium erit veris et medium aestatis; et sic[116] de aliis signis communibus. Et propterea dicuntur etiam bipertita sive[117] bicornia. Luna[118] in his signis existens[119] si qua emantur, non permanent diu apud emptorem. Siquis in his nascitur, fraudulentum et adulatorem aestima. *(73 verba add.* Bu). Non est bonum[120] fieri conubia; [121]quod promittitur et data et accepta beneficia[121] minime prosunt. Et[121a] caveas ne incipias, luna existente in his signis, aliquid quod vis diu permanere, sed incipe quidquid petis iterari vel duplari.

(26)[122] *De nominibus signorum 12, et quare sic vocentur, et quam partem corporis humani quodlibet respiciat, et quid bonum agere, quid vitare, luna in quolibet existente.* Duodecim sunt signa, scilicet aries taurus gemini cancer leo virgo libra scorpius sagittarius capricornus aquarius piscis. **(27)** Et quia aries in prima constitutione mundi coepit vergi ab oriente sursum[123], primum in ordine signorum dicitur. Primum autem signum idcirco aries dicitur[124], quia, quemadmodum aries est animal in parte posteriori debile, in parte vero anteriori forte, ita sol, cum est in illa parte caeli quae aries appellatur versum[125] illam partem quae hiemem respicit, debilis est et modicum habet caloris; in illa vero parte, quae respicit aestatem[126], fortior est sol in calore et fervore[127]. Est aries signum calidum et siccum, et respicit[128] in corpore hominis caput, faciem, pupillas, oculos, supercilia et frontem. *Luna in ariete*:

Nil capiti facias, aries cum luna refulget,
Brachia tunc minuas, et balnea tutius intres,
Non tangas aures, nec barbam radere cures.

(28) *Luna in tauro.* Taurus, secundum signum, sic appellatum ex eo quia tunc labores taurorum sive boum apparent, vel quia, sicut taurus est animal fortius ariete, ita sol in illa parte zodiaci existens, quae taurus appellatur, fortior est in calore. Et est signum frigidum et siccum, et habet respicere in corpore hominis collum et guttur.

Arbor plantetur, cum lunam[129] taurus habebit,
Aedificare potes, non spargas semina terrae,
Et medicus timeat cum ferro tangere collum.

(tes) curare et *add.* Bu   [111]*om.* Bv Mk   [112]*om.* Bv Mk   [113]v.s.: s.v. Bu [114]sit Bv Mk   [115]*om.* Bv Mk   [116]erit *add.* Bu   [117]et Bu   [118]sed 1. Bu [119]-ens *omnes*   [120]tunc *add.* Bu   [121·121]alia Bu   [121a]non sunt enim permanentia et ideo Bu   [122]§26-38 *rubricis* Mk *usus sum*   [123]ideo *add.* Bu   [124]a.d.: d.a. Bu   [125]-sus Bu   [126]r.a.: a.r. Bu   [127]c.e.f.: f.e.c. Bu   [128]habet respicere Bu   [129]luna Bv Mk   [130]germinat Bv; geminat Mk   [131]-sionum Bu

(29) *Luna in geminis.* Gemini, tertium signum, sic appellatum quia, sole in eo existente, geminatur virtus eius in calore; vel quia, sicut gemini depinguntur iuvenes amplectentes se, ita, quando sol est in illa parte caeli, quaedam terrae nascentia amplectuntur se per radices et pubescunt superius in herbam et germinant[130] suos fructus. Et est signum calidum et humidum, et respicit in homine humeros, spatulas et brachia usque ad manus.

Brachia non minuas, cum lustrat luna gemellos,
Unguibus et manibus cum ferro cura negetur,
Numquam portabis a promissore[131] petitum.

(30) *Luna in cancro.* Cancer, quartum signum, sic vocatum quia, sicut cancer est animal retrocedens, ita sol existens in illa parte[132] zodiaci a nobis incipit recedere: nam in ipsius principio est solstitium aestivale. Et est signum frigidum et humidum, et respicit in homine pectus, manus, pulmonem, costas et splenem.

Pectus pulmo iecur in cancro non minuantur,
Somnia falsa vides, est utilis[133] emptio rerum,
Potio sumatur, securus perge viator.

(31) *Luna in leone.* Leo, quintum signum, sic nuncupatum quia, sicut leo est animal calidissimae[134] naturae et implacabilis irae, ita sol existens in illa parte zodiaci est calidissimus in effectu, et sole in leone existente sunt dies caniculares. Et est signum calidum et siccum, et respicit in homine stomachum, cor, nervos[135], ossa lateris[136], dorsum.

Cor gravat et stomachum, cum cernit luna leonem,
Non facias vestes nec ad convivia vadas,
Et nil ore vomas, non sumas tunc medicinam.

(32) *Luna in virgine.* Virgo, sextum signum, sic dictum quia, sicut virgo sterilis est[137] et nihil parit, ita tempus, sole existente in illo signo, nihil producit sed producta maturat. Et est[138] signum frigidum et siccum, et respicit in homine ventrem et omnia loca occulta, hepar[139], intestina.

Lunam virgo tenens uxorem ducere noli,
Ungento costas caveas curare chirurge,
Detur agro semen, dubites intrare carinam.

(33) *Luna in libra.* Libra, septimum signum, sic vocatum, quia sole in eo existente librantur et aequantur dies et noctes, et in eo est aequinoctium autumnale. Est autem signum calidum et humidum, et respicit in homine inferiorem partem ventris, umbilicum, renes, anchas et vesicam, verenda, dorsum et ilia.

Libra nitens luna nemo genitalia tangat
Aut renes, nates[140], nec iter carpere temptes,
Extremam partem librae cum luna tenebit.

(34) *Luna in scorpione.* Scorpio, octavum signum, sic vocatum, quia scorpius dicitur quasi carpius, quia in fine carpit frigore. Sicut enim scorpio cum cauda

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[132]caeli sive *add.*Bu   [133]inutilis Bv Mk   [134]-mum Bu   [135]nerves Bv Mk
[136]o.l.: latera Bu   [137]*om.*Bv Mk   [138]et est: est Bv Mk; et (!) autem virgo Bu

pungit, ita matutina et vespertina illo tempore male vestitos frigore mordent. Est autem signum frigidum et humidum, et respicit in homine loca pudibunda[141] et vasa seminaria, viscera, testiculos, anum et vesicam, vulvam †et caliginem oculorum†, medullam, et earum infirmitates.

Scorpius augmentat morbos in parte pudenda,
Vulvam ne cures, caveas ascendere naves,
Nec iter arripias, caveas de morte ruinam.

(35) *Luna in sagittario.* Sagittarius, nonum signum, sic dictum, quia sole in ea parte zodiaci existente in nos emittuntur sagittae temporis illius, puta frigora, gelua[142] excellentiora quam sole existente in signis antecedentibus. Est autem sagittarius signum calidum et siccum, et respicit in homine superiora in membris, calvitiem, spinam dorsi, abscissiones membrorum, coxas et femora.

Luna nocet femori per partes mota sagittae,
Ungues et crines poteris praescindere tute,
Tunc barbas[143] radas et merces emere vadas.

(36) *Luna in capricorno.* Capricornus, decimum signum, sic appellatum quia, sicut caper[144] in pascendo ascendit sive caput seu cornua erigit, ita sol tunc ab inferiori hemisphaerio ad nostrum se erigit hemisphaerium superius, et in eo est[145] solstitium hiemale. Est autem signum frigidum et siccum, et habet respicere in[146] corpore hominis genua et eorum nervos.

Capra nocet genibus ipsam cum luna tenebit,
Intres aquas nauta, citius curabitur[147] aeger,
Fundamenta ruunt, nihil est quod duret in ipso.

(37) *Luna in aquario.* Aquarius, undecimum signum, sic nominatum, quia sole in eo existente ut frequenter tempus est aquosum et humidum. Est signum calidum et humidum, et habet in corpore hominis tibias[148], crura a tibiis usque ad talos, et nervos ibidem.

Tangere crura cave cum luna tenebit aquosum,
Insere tunc plantas, excelsas erige turres,
Et si carpis[149] iter, ad locum tardius ibis.

(38) *Luna in piscibus.* Piscis, duodecimum signum, sic nuncupatum quia, sicut pisces in fluvio natant, ita, sole existente in illa parte zodiaci, omnia in pluviis natare videntur. Sed si contrarium his omnibus quandoque contingit, hoc operatur[150] diversus aspectus et motus planetarum. Est autem piscis[151] signum frigidum et humidum, et habet in[152] corpore hominis pedes, nervos[153], dolores nervorum, et podagram. (*31 verba add.* Bu)

Piscis habet lunam, noli curare podagram,
Carpe viam tutus, fit potio sumpta salubris,
Embryo conceptus epyleuticus exit ab alvo.

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[139]et alia *add.* Bu   [140]nares Bu   [141]pudenda Mk; pudica Bv   [142]gelu Bu
[143]-am Bu   [144]capricornus Bu   [145]*om.* Bv Mk   [146]resp. in: ex Bv Mk
[147]-bit Bu   [148]*om.* Bu   [149]capis *omnes*   [150]*om.* Bv Mk   [151]pisces Bv Mk
[152]ex Bv Mk   [153]quos respicit similiter et nervos Bu; *om.* Mk

(39) *Sequitur de sphaeris et earum ordine*[154]. Nunc de sphaeris et de[155] planetis, quae per signa duodecim discurrunt et moventur, aliqua sunt dicenda, et primo de sphaeris et ordine ipsarum. **(40)** Ubi nota quod quatuordecim sunt sphaerae[156]: prima et maxima empyrea dicitur, et dicitur ab 'en', quod est 'in', et 'pir', quod est ignis, quasi totum in igne divini amoris, et ibi dicitur esse habitatio beatorum; et de ista sphaera philosophi et astronomi nihil senserunt, sed theologi ipsam ponunt[157]. Et ultra istam sphaeram non est locus neque tempus. Et est[158] sole clarior[159], eius distantia est ⟨in⟩investigabilis, et sicut est maxima ambitu, sic est[160] maxima in virtute; unde disponit ad infusionem animae rationalis. Cuncta etiam vegetat et conservat: natura enim lucis disponit ad vitam; et est immobilis. **(41)** *De sphaera primi mobilis.* Post hanc sphaeram sequitur sphaera primi[161] mobilis, quae secundum theologos dicitur caelum[162] aqueum sive crystallinum, cuius distantia est nobis ⟨in⟩investigabilis, quia non habet stellas. Cuius[163] motus est ab oriente in occidens, quo motu rapit secum omnes sphaeras inferiores. Et istud caelum maxime disponit ad animae sensibilis formationem. Et dicitur aqueum, quia aquae, quae ibi sunt, habent similitudinem cum aqua, quae apud nos est, in perspicuitate et in effectu, quia[164] frigiditas sua temperat calorem firmamenti; sed tamen[165] non sunt graves neque leves. **(42)** *De sphaera stellarum fixarum.* Deinde sequitur caelum sidereum seu firmamentum, quod caelum stellatum appellatur, eo quod in ipso omnes stellae fixae contineantur; ad quam sphaeram, propin-quior ubi[166] est terrae, veniret[167] homo in 7986 annis et 46 septimanis[168], si eius diaeta esset decem miliarium. Eius proprius motus est secundum Ptolomaeum in 100 annis[169] uno gradu: sed motu primi mobilis movetur omni die naturali semel circa terram. **(43)** *De sphaeris VII planetarum.* Post hanc sphaeram sequuntur sphaerae septem planetarum. Et prima post firmamen-tum est sphaera Saturni, ordo autem istorum[170] septem planetarum et nomina hoc versu continentur.

Versus continens nomina planetarum et ordinem:
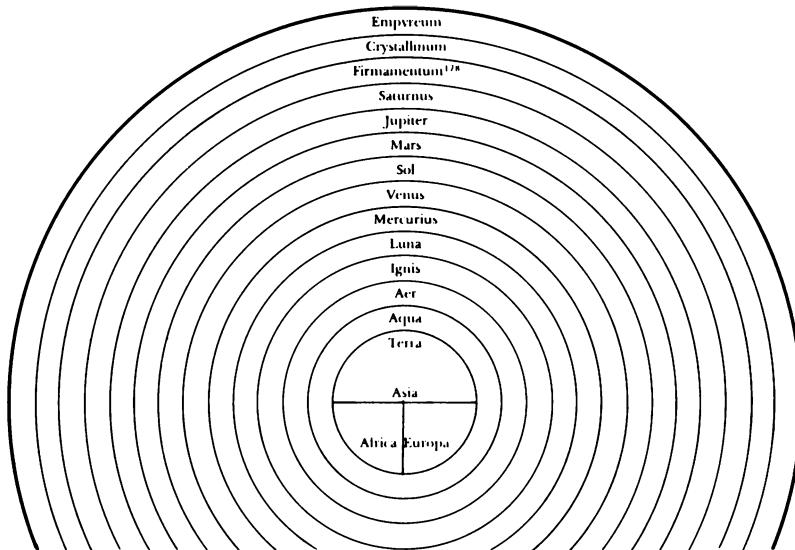
Cinthia Mercurius Venus et sol Mars Jove[171] Satur,

ita quod Saturnus est supremus, deinde Jupiter, deinde Mars, deinde sol, deinde Venus, deinde Mercurius, deinde luna, quae est planetarum infima et terrae propinquior. **(44)** *De sphaera ignis.* Post has septem sphaeras planetarum sequitur sphaera ignis, qui ignis est calidus et siccus, inter alia elementa maxime activus[172]; non est eiusdem rationis cum igne apud nos existente, quia iste ignis apud nos est corruptivus, ille est generativus et conservativus. Et nisi ille ignis coniunctus sit[173] alicui grossae materiae, non potest esse extra suam

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Bv Mk So Bu

[154]e.o.: eorum o. Bv Mk; planetis Bu   [155]om. Bu   [156]sequitur de sphaeris et eorum ordine, empyrea *add.* Bu *(rubr.)*   [157]ponant Bv Mk   [158]ista sphaera *add.* Bu   [159]et *add.* Bu   [160]om. Bv Mk So   [161]prima Bv Mk   [162]om. Bv Mk So   [163]eius Bv Mk   [164]qua Bu   [165]hae aquae *add.* Bu   [166]p.u.: u.p. Bu   [167]veniet Bu   [168]et hoc *add.* Bu   [169]100 an. in Bu   [170]istarum Bv Mk So   [171]ioua So; que iup Bu   [172]acciu()c(ur) Bu   [173]om. Bv Mk So   [174]sub. suam

sphaeram. Non videtur sphaera sua propter subtilem suam substantiam[174].
(45) *De sphaera aeris et eius interstitiis.* Ex hinc sequitur sphaera aeris, et est aer
calidus et humidus et maxime passivus. Et habet tria interstitia: supremum,
ubi est aer calidus et subtilis propter vicinitatem ignis; medium, ubi est aer
frigidus et caliginosus, et ibi dicitur esse habitatio daemonum, et ibi
generantur impressiones, grandines, nives et tonitrua; infimum interstitium est
apud nos, ubi est aer temperatus propter reflexionem radiorum solarium a
terra reverberantium. (46) *De sphaera aquae.* Sphaeram aeris sequitur sphaera
aquae, et est aqua frigida et humida et circumdat terram sicut cetera elementa,
praeter partem unam terrae, quae dispositione divina sicca permansit propter
vitam animalium inspirantium et respirantium conservandam. (47) *De sphaera
terrae et tribus eius partibus.* Deinde sequitur sphaera terrae, quae omnium est
infima et in medio totius universi orbis immobiliter locata; et est terra frigida
et sicca, et in eius medio infernus esse dicitur. Pars autem terrae habitabilis
dividitur in partes tres[175], scilicet Asiam, Africam et Europam, quae ulterius in
diversas provincias, regiones et regna dividuntur, ut in mappa mundi plenius
videre poteris. Nos autem Alemanni sive Germani in Europa parte constituti
sumus[176]. [177]Et has 14 sphaeras et tres partes terrae habitabilis in figura videre
poteris satis clare[177].

Bu   [175]p.t.: t.p. Bu   [176]sumas Bv Mk   [177·177]et harum omnium sphaera-
rum figuram habes verso folio Bu   [178]*sub circulo firmamenti habet* Bu *circulum qui
nomina signorum continet*

(48) *Sequitur de planetis magis specialiter.* Nunc de planetis magis in speciali est videndum. Et ut[179] scias qualitates planetarum, nota hos versus.

Versus de qualitate planetarum:
Frigidus et siccus Satur, Jupiter aestuat udus,
Mars et[180] sol sicci fervent, sed luna Venusque
Udae frigescunt, medius Cilleneus[181] esto.

Et nota quod calor Martis est mortalis, caliditas vero solis vitalis. Ut autem scias, quis planeta sit benevolus et quis malevolus et quis mediocris, nota hos versus.

Versus qui planetae boni, qui malevoli:
Jupiter atque Venus boni sunt, Sat Marsque maligni,
Sol et Mercurius cum luna sunt mediocres.

Et ut scias quanto tempore quilibet[182] planeta percurrat zodiacum, nota hos versus.

Versus quanto tempore quilibet[183] planeta percurrat zodiacum:
Annis triginta per signa meatque Saturnus,
Atque duodenis percurrit Jupiter annis,
Zodiacum totum Mars binis pervolat annis,
Trecentis sexagenis ac quinque diebus
Ac horis sex zodiacum sol pervolat omnem,
Trecentis bis viginti Venus octo diebus
Currit, trecentis bis denis Mercurialis,
Octo bis decem concurrit luna diebus.

(49) *Sequitur specialiter de Saturno.* Saturnus inter planetas nobis est remotissimus[184], frigidus et siccus effective, et ideo, cum hae[185] qualitates sint generationi contrariae, perdit omnia terrae nascentia in illa terra, in qua dominatur. Et ideo dicitur Saturnus quasi 'satur annus' per contrarium[186]. Percurrit zodiacum in 30 annis. Saturnus etiam est malevolus, et ideo in rebus malos causat effectus; praeest homini a 58 annis usque ad finem vitae; et primo mense conceptionis conceptum infrigidat sua frigiditate, et in matrice coagulat et siccat. Disponit hominem sub eo genitum fuscum, paucos pilos in barba et in maxillis habentem, qui cum ambulat, in terram oculos mergit; et est[187] macer, parvos habens oculos, pilos asperos et incultos[188] habet, piger, raro ridet, iracundus venenosus et turpis, ingeniosus circa artes viles, turpia amat vestimenta, callidus est, aliud sonans ore[189], aliud corde machinans. (*3 versus et alia pauca add.* Bu) **(50)** *De Jove.* Jupiter secundum suum effectum est calidus et humidus, et idcirco naturae amicus, cum hae qualitates sint principium generationis et vitae. Et ideo[190] dicitur Jupiter quasi 'iuvans pater'. Benevolus est; in 12 annis zodiacum percurrit; praeest homini a 46 annis usque ad 58; ex bonitate sua temperat et reprimit malitiam Saturni et Martis.

Bv Mk Bu
[179]e.u.: u.e. Bu   [180]*om.* Bu   [181]-nus Bu   [182]quae- Bv Mk   [183]quaelibet Bv; *def.* Mk   [184]est *add.* Bu   [185]dictae *add.* Bu   [186]anthipherisim sive per contrarium et Bu   [187]homo *add.* Bu   [188]-tus Bv Mk   [189]et *add.* Bu   [190]ergo *vel*

Est colore argenteus; mense secundo conceptionis fetui dat[191] membra et spiritum. Facit hominem bonum et honestum, cui barbam dat rotundam, pulchros oculos, dentes duos superiores dat maiores, et aliquando[192] aliquantulum divisos facit; huius hominis in facie est color albus mixtus rubeo, utitur libenter vestibus pulchris; capilli longi et pulchri more religiosorum; in eundo terram respicit; est misericors, diligens bonum, detestans malum. Disponit etiam ad artes subtiles, ut est legere, scribere, pulchras res tractare, ut pulchros pannos[193], aurum et argentum. (2 versus ins. Bu) **(51)** *De Marte.* Mars in effectu[194] calidus et siccus, quodammodo vitae contrarius, malevolus; et dicitur Mars quasi 'mors': per eius enim impressionem multae fiunt causae mortis. Dicitur etiam deus belli et discordiarum dominus; percurrit zodiacum in duobus annis; praeest homini a 31. anno usque ad[195] 46.; tertio mense conceptionis ossa conceptui[196] et membra interiora componit. Mars dat hominem curvum habere corpus ipsumque grossum; facit hominem scismaticum; huius in facie color rubeus mixtus nigro, id est brunum habet colorem, sicut qui ad solis radios[197] vadunt, et in facie saepe habet grana rubea; raros in barba pilos gerens, quasi spado deputatus est[198]. Sciunt et noverunt inter homines discordias seminare, dehonestant bella, inter[199] quietos lites seminant; qui sub eo nascuntur sunt igniferi, ut fabri, coci, macellarii[200], sanguinis effusores, crudeles et immisericordes et vindictam accipientes. Et ipse Mars est rutilans sicut ignis et disponit ad masculinum sexum. (*17 verba et 2 versus add.* Bu) **(52)** *De sole.* Sol calidus[201] et siccus in effectu; qualitates eius sunt vitales, et causa generationis mediocris est, id est, cum bonis bonus, cum malis malus; et dicitur sol quasi 'solus super omnia lucens'; omnes enim stellae lumen recipiunt a sole. Et est maxima stellarum et planetarum, quia est centies sexagesies maior terra; percurrit zodiacum totum in uno anno; praeest homini a 22. anno usque ad 31. annum; in quarto mense conceptionis dat conceptui[202] sanguinis caliditatem et perficit totum corpus. Disponit ad masculinum sexum, facit hominem plenum, pulchrae faciei et albae mixto[203] colore citrino, quandoque magnorum oculorum; iuxta magnos viros libenter moratur, humilis aliquando, licet ex natura nobilis; optat[204] dominia, et aliquando ex solaribus fiunt principes, et sunt agiles[205]. Sol etiam praeest auro et disponit ad opera auri, et est aurei coloris; sol cursu suo tempora distinguit, vapores elevat; appropinquans nobis aestatem facit, recedens[206] hiemem efficit, communis est omnibus medius planetarum. (*15 verba et 2 versus add.* Bu) **(53)** *De Venere.* Venus est planeta in effectu frigidus et humidus, benevolus, et idcirco[207] bonos habet effectus; percurrit zodiacum in tanto tempore sicut sol fere. Praeest homini a 14. anno usque ad 22. annum; mense quinto conceptionis dat conceptui plene[208] aures, supercilia, nasum, et faciei membra,

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igitur *omnes*   [191]f.d.: fecundat Bu   [192]eos *add.* Bu   [193]per annos Bv Mk
[194]est *add.* Bu   [195]*om.* Bv Mk   [196]-pti Bv Mk   [197]radies Bv Mk   [198]*om.* Bu
[199]homines *add.* Bu   [200]c.m.: cocinia cellarii Bu   [201]est *add.* Bu   [202]-ptui
omnes   [203]-tus Bv Mk   [204]optet Bu; aptet Bv Mk   [205]s.a. *omnes*   [206]a
nobis *add.* Bu   [207]ideo Bu   [208]c-tui p. *omnes*   [209]committatur Bv Mk

testiculos iuvat, disponit ad sexum femineum. Facit hominem pulchrum, pulchros habentem capillos et pulchra supercilia; dulcia ac mollia fundens verba, mediocris est staturae; totus Venereus, movet se in eundo aut aliquid faciendo leviter cum lascivia; cantator, saltator, amat instrumenta musicalia, delectatur in vestimentis pulchris. Venus quandoque est lucifer, quandoque vesperus, quia semper comitatur[209] solem, et maxima elongatio Veneris a sole est 45 graduum; et quando[210] praecedit solem, est lucifer, quando sequitur, est vesperus. (*2 versus ins.* Bu) (**54**) *De Mercurio.* Mercurius nullius qualitatis est determinate, quia nec calidus nec frigidus nec humidus nec siccus esse dicitur, sed indifferens est, sicut speculum indifferens est ad quamlibet formam recipiendam, quae sibi obicitur; unde cuicumque planetae coniungitur[211], eius qualitatem et complexionem inferioribus fortius nuntiat. Et ideo[212] bene dicitur interpres deorum, id est planetarum, qui dii dicebantur. Dicitur etiam Mercurius quasi 'mercatorum kyrios', id est dominus. Est mediocris sicut sol, id est cum bonis planetis bonus, cum malis malus; est minor inter planetas; complet cursum suum in[213] zodiaco trecentis XXXa diebus. Et praeest homini a 4. anno usque ad 14. annum; sexto mense conceptionis conceptui[214] foramina, nares, linguam ordinat. Raro videtur, quia semper prope solem graditur: maior enim distantia, qua a sole recedit, est 23 graduum. Coloris est fusci, quia radiis solaribus obumbratur. Disponit ad utrumque[215] sexum; disponit ad arismeticam et computationem; facit hominem gracile corpus habens[216]; est autem mercurialis homo sapiens, lectioni libenter vacans, staturae saepius mediocris, sufficienter acquirens amicos, sed non leviter retinens; pulchram barbam, subtilia quandoque gerit labra[217] et nasum similiter; quod inceperit cito complebit; coloris medii mixti et variabilis, quia nunc albus, nunc niger; frontem elevatam habens; iuxta potentes et nobiles libenter moratur. (*2 versus ins.* Bu) (**55**) *De luna.* Luna[218] humida et frigida: habet enim potentiam super humidum; mediocris est ut sol et Mercurius; percurrit zodiacum in 28 diebus et modico plus. Dicitur autem luna quasi 'luce nitens aliena'[219]. Praeest homini a nativitate usque ad 4. annum; septimo mense conceptionis plasmat pulmonem et dividit membra per loca sua; et si puer tunc nascitur, est vitalis, quia omnes planetae sunt in eo operatae[220] suum effectum. Sed si in octavo mense puer nascitur, non vivit, quia retrocessio fit ad Saturnum, qui frigiditate sua restringit membra concepti[221]. Nono mense natus vivit, quia regnat in eo Jupiter, qui nulli nocet sed omnibus prodest. Disponit ad sexum femineum. Luna autem dat hominem nullius esse servitii, qui die ac nocte ire desiderat, huc atque illuc discurrens, nec leviter stabilis manet alicubi. Faciem habet rotundam, staturam mediocrem; est autem illi unus oculus maior altero, vel est strabo vel omnino orbus altero oculorum; nullatenus vitio oculorum carebit. Nuntius est nugarum, venditor olei, mellis, ficuum et huiusmodi. (*11 verba et 2 versus add.* Bu)

Et haec de proprietate planetarum dicta sufficiant.

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[210]vero *add.* Bu   [211]iung- Bv Mk   [212]ita Bv Mk   [213]s.i. *om.* Bv Mk   [214]-pto Bv Mk   [215]utramque Bv Mk   [216]habens *omnes*   [217]labia Bu   [218]est

(56)[222] Et nota quod hi septem planetae[223] denominant dies hebdomadae: qui enim[224] in prima hora diei artificialis dominatur, totum illum diem denominat cum sua nocte. Secundum autem positionem philosophorum et astronomorum dominatur Saturnus in prima hora diei sabbati; datis ergo[225] horis subsequentibus planetis secundum ordinem planetarum, patet quod sol dominatur in diei subsequentis hora prima, scilicet in dominica, et sic de aliis. Ut autem scias quis planetarum regnet in qualibet hora cuiuslibet diei, vide tabulam infrascriptam[226], in qua facillime hoc videre[227] poteris hoc modo, quia in capite tabulae invenies septem dies hebdomadae: capias ergo numerum horae, de qua quaeris[228], et planeta stans e directo[229] illius numeri et sub die, de cuius hora quaeris, est planeta regnans in tali hora.

(57) [230]*Tabula ista ostendit quis planetarum regnet in qualibet hora cuiuslibet diei naturalis. Planeta igitur inventa e directo alicuius horae sub die, de cuius hora*[231] *quaeritur, regnat in tali hora*[230].

Numerus horarum diei naturalis				Dies solis	Dies lunæ	Dies Mart.	Dies Merc.	Dies Jov.	Dies Ven.	Dies Sat.
1	8	15	22	Sol	Luna	Mars	Merc.	Jup.	Venus	Sat.
2	9	16	23	Ven.	Sat.	Sol.	Luna	Mars	Merc.	Jup.
3	10	17	24	Merc.	Jup.	Venus	Sat.	Sol	Luna	Mars
4	11	18	0	Luna	Mars	Merc.	Jup.	Venus	Sat.	Sol
5	12	19	0	Sat.	Sol	Luna	Mars	Merc.	Jup.	Venus
6	13	20	0	Jup.	Venus	Sat.	Sol	Luna	Mars	Merc.
7	14	21	0	Mars	Merc.	Jup.	Venus	Sat.	Sol	Luna

add. Bu   [219]-ne Bu   [220]-ate *omnes*   [221]-pti *omnes*   [222]sequitur videre in tabula subsequenti quis planeta regnet in qualibet hora diei naturalis et quid sit agere bonum vel vitare in hora cuiuslibet planetae *add.* Bu (*rubr.*)   [223]supranotati *add.* Bu   [224]est Bv Mk   [225]*om.* Bv Mk   [226]v.t.i.: est quaedam parva tabula infra sequens Bu   [227]videri Bv Mk   [228]d.q.q.: de quacumque quaeris in sinistra parte tabulae positum Bu   [229]versus manum dextram *add.* Bu
Bv Mk So Bu
[230-230]*alia* So; *om.* Bu   [231]hore Bv Mk; *def.* So,Bu

(58)[232] Sed quia sic videri poterit[233] quis planeta regnet in qualibet hora diei, bonum est videre quid bonum sit agere vel quid vitare in hora cuiuslibet planetae[234]. (59) [235]*Quid bonum agere vel vitare in hora Saturni*[235]. In hora Saturni non bibas medicinam, nec incidas nec induas pannos novos, nec abradas caput, nec intres ad regem, nec intres ad navigium, nec emas servum vel servam[236], nec habeas placitum, nec minuas de vena nec ventosa, nec iter arripias[237] per terram nec per mare; sed potes inquirere inimicum, et fugit[238]; emere[239] arma, cavare fossam, arare terram. (60) *De hora Iovis.* In hora Iovis fac cum mulieribus coniugium, incidas pannos, incipe iter, semina, planta, incipias aedificium; non emas arma nec bestias nec aves, nec intres naves ut per aquam ambules. (61) *De hora Martis.* Hora[240] Martis in omni re abhorrenda est, [241]in omni initio et facto[241], qualecumque illud fuerit. (62) *De hora solis.* Hora solis est infortunata nisi in[242] intrando ad regem; sed non intres ad regem, quando sol occiderit. Potes autem[243] in ea[244] petere sapientiam, et domum emere et[245] arma, exire venatum, recipere dignitatem. (63) *De hora Veneris.* In hora Veneris intromittas te de ioculationibus et solaciis; facias cum mulieribus coniugium, bibas medicinam et species, incipias iter, fac quidquid ad mulieres pertinet; non intres in aulam, nec minuas de vena, nec ventosa, nec plantes arbores nec semines aliquod genus seminis. (64) *De hora Mercurii.* In hora Mercurii scribe cartam, mitte nuntium, mutua quidquid vis, bibas medicinam, planta arbores, pone puerum ad omnem disciplinam; non facias cum muliere coniugium, nec emas hereditatem nec servos, nec muta te de una domo in aliam domum. (65) *De hora lunae.* In hora lunae non incipias aedificium, non incidas pannos; sed incides arbores, fodias fossata et puteos, da filium ad discendum litteras.

(66) [234]Sunt autem hae electiones de horis planetarum receptae de libro Ababulae filii Saod, et de libro Albumazar[234].

Scias etiam quod dominium planetarum capitur penes horas inaequales, quae incipiunt in ortu solis et in occasu eiusdem; et sunt in quolibet die 12 horae et in qualibet nocte totidem, sive sint longae sive breves dies et nox.

[246]*Expliciunt electiones de horis planetarum*[246].

Bv Mk Bu

[232]quid sit bonum agere vel vitare *add.*Bu (*rubr.*)   [233]v.p.: videri Mk; videre poteris Bu   [234]sunt autem--Albumazar (§ 66 *init.*) *hic habet* Bu   [235·235]de hora Saturni Bu   [236]servas Bv Mk   [237]nec *add.*Bu   [238]e.f.: fugitque Bu   [239]eme Bu   [240]in hora Bu   [241·241]in omni initio Mk; inceptio causae vel facti Bu   [242]*om.*Bv Mk   [243]*om.*Bv Mk   [244]eadem hora Bu   [245]*om.*Bv Mk   [246·246]*om.*Bu

(b) Texts ascribed to Peter of Dacia in Lo,9v-12r. Apparently first noted by Eneström (1885,3)23; discussed by Olaf Pedersen 1976,31-3; and edited by myself (1980,621-7). The paragraphing of that edition has been retained for convenience; of the paragraphs here omitted, §11-2 equal App.3(a1), and §13 is a version of the T.L.

Anonymous versions, cf.T&K 891: Od,7r-9v (=Od₁) containing §14, App.3(c1) with a miswritten lunar table, §15-27 and part of §28, and §2-9; and Od,53r (=Od₂) containing §14, §28, and App.3(a2) with a 13×13 lunar table.

The ascription in Lo cannot be corroborated nor yet explained. The textual witnesses are English, and the varying versions of the T.L. with canons belong to those mostly found in the later English tradition (*Pref.* §22). The text itself is mainly a paraphrase of (d1) below.

In the present text, departures from Lo are noted. Longer variant readings from Od have been recorded, the rest only selectively. The rubrics, from Lo, are in italics. Od lacks headings except "Proprie-tates planetarum et tabula eorundem", in Od₁ to §2-9.

(1) *Hic est tabula planetarum secundum magistrum Petrum de Dacia, Parisius facta.*

Horæ dierum	Dies Sabbati	Dies Jovis	Dies Martis	Dies Domin.	Dies Veneris	Dies Mercur.	Dies Lunæ
1, 8,15,22	Saturn.	Jupiter	Mars	Sol	Venus	Mercur.	Luna
2, 9,16,23	Jupiter	Mars	Sol	Venus	Mercur.	Luna	Saturn.
3,10,17,24	Mars	Sol	Venus	Mercur.	Luna	Saturn.	Jupiter
4,11,18	Sol	Venus	Mercur.	Luna	Saturn.	Jupiter	Mars
5,12,19	Venus	Mercur.	Luna	Saturn.	Jupiter	Mars	Sol
6,13,20	Mercur.	Luna	Saturn.	Jupiter	Mars	Sol	Venus
7,14,21	Luna	Saturn.	Jupiter	Mars	Sol	Venus	Mercur.

(2) Septem sunt planetae, scilicet Saturnus, Jupiter, Mars etc., et dicuntur planetae quasi sidera errantia, non quia errant, sed quia moventur contra firmamentum. Movetur enim firmamentum ab oriente in occidentem, plane-tae autem moventur ab occidente in orientem ex motibus suis propriis; moventur tamen ex raptu firmamenti, qui dicitur motus diurnus, ab oriente in occidentem, et ille motus non est naturalis eis sive proprius, sed accidentalis et violentus.

(3) Saturnus frigidus est et siccus atque malevolus, in rebus inferioribus malos faciens effectus, et maxime quando est in domibus suis, scilicet capricorno(-nio *Lo*) et aquario: tunc enim fiunt diluvia aquarum, ex quibus

procedunt caristiae, fames et mortalitates in terra. Cursum suum, hoc est 12 signa zodiaci contra motum firmamenti, percurrit in 30 annis, manens in quolibet signo duobus annis cum dimidio; et cum in quolibet signo sunt 30 gradus, patet quod in mense solari, quod est 30 dies, unum gradum pertranseat. (4) Jupiter calidus est et humidus, omnibus benefacit et nulli nocet, cursum suum in 12 annis peragens, in unoquoque signo manens per annum et in uno gradu circiter 12 (7 *Lo* Od_1) dies. (5) Mars vero in duobus annis totum percurrit (circuit Od_1) zodiacum, manens in quolibet signo 60 diebus, in uno (Od_1; *om.Lo*) gradu per duos dies naturales, et est calidus et siccus in excessu, et est malus, gaudens in homicidiis et combustione domorum et in guerris. (6) Sol est calidus et siccus, temperatus et bonus, herbas et arbores crescere et fructificare faciens; cursum suum in 365 diebus 6 horis et 13 minutis et 45 secundis peragit, et dicitur annus ab "an", quod est "circum", eo quod sol in tanto tempore totum circuit zodiacum. Ex 6 horis, quae supersunt (superfluunt Od_1) in anno, in 4 annis colliguntur 24 horae, quod est una dies, et ponitur dies illa in Februario super 6.Kal.Martii, et dicitur bis sexto (sex Od_1) Kal., quapropter dicitur annus ille bisextilis; et sunt in anno illo 366 dies (Od_1; *om.Lo*). Ex 13 minutis et 45 secundis insimul collectis in centesimo anno fit una dies, et ponitur in Decembri, et continet annus ille 367 dies. (7) Manet itaque sol in quolibet signo 30 diebus et 10 horis, ex quibus insimul collectis in anno fiunt 5 dies, quorum unus datur Januario, secundus Martio, 3us Maio, 4us Octobri, 5us Decembri; nisi enim essent illae 10 horae residuae, quilibet mensis aequaliter 30 dies contineret. Nec obstat de Februario et Augusto, quia, quomodocumque Iulius Caesar a Februario duos dies subtraxerit et mensi suo apposuerit, et Augustus Caesar mensem nomine suo intitulatum ex 31 diebus constituerit, non est credendum quod sol aut magis aut minus moretur in uno signo quam in alio: ipsi enim non potuerunt (Od_1; poterunt *Lo*) in motu caeli quicquam variare. (8) Venus est bonus planeta (et est lucidissimus temperate frigidus et humidus *add.Od_1*), Mercurius cum bonis bonus, cum malis malus; et habent fere eosdem motus cum sole, modus tamen movendi est alter in ipsis et in sole (modus--sole *om.Od_1*). (9) Luna est infima planetarum, in cursu suo omnium velocissima, frigida et humida, plus se inclinans ad bonum quam ad malum; in 27 diebus et quasi 8 horis omnia signa pertransit, manens in quolibet signo duobus diebus naturalibus et fere 8 horis; in die naturali 13 gradus et 10 minuta percurrit.

(10) Habent itaque planetae alios cursus in 7 diebus septimanae, quia planeta, qui dominatur in prima hora diei, habet supereminentiam dominii in die illa, et ab ipso denominatur; alii tamen planetae vicissim, quilibet post alium secundum ordinem, in horis suis dominantur. Verbi gratia, Saturnus in die Sabbati habet primam horam, Jupiter secundam, Mars 3am, Sol 4am, Venus 5am, Mercurius 6am, Luna 7am; accedit iterum Saturnus, 8am sibi assumens, Jupiter 9am, Mars 10am, Sol 11am, Venus 12am, Mercurius 13am, Luna 14am; 3° redit Saturnus, capiens 15⟨am⟩, sicut patet in tabula.

(14) *Consequenter hic sequntur (ex* sequitur *corr.Lo) expositiones signorum secundum praedictum magistrum Petrum de Dacia.*

Multum prodest scire in quo signo (et in quo gradu signi *add.* Od_1 Od_2) est luna omni die, quia ipsa secundum Ptolomaeum in Almagesti in istis inferioribus ceteris planetis maiorem habet efficaciam, tum ratione propinquitatis eius ad terram, tum ratione velocitatis eius in cursu suo. Ipsa enim omnibus planetis est inferior et terrae proximior nec non (no *Lo*) et in cursu velocior, quia omni mense omnia signa percurrit et virtutem seu influentiam, quam a superioribus planetis vel stellis fixis recipit, terrae per radios suos refundit, et sic participat in virtute omnium planetarum et stellarum fixarum saltem dum eis coniungitur, nisi per aspectum alicuius alterius impediatur vel saltem minuatur. Ad ipsam igitur lunam praecipue, et ad signum quod ascendit nostrum (*om.* Od_1 Od_2) in oriente in hora operationis, debemus inspicere in factis nostris notabilibus.

(15) Quando luna est in ariete, bonum est loqui cum nobilibus potentibus, et exire (exiere *Lo*) ad pugnandum, et iter incipere versus orientem, mercimonia facere, cambire aurum, et operari omnia quae cum igne fiunt, et omnia facere quae cito vis fieri; exceptis istis, quod malum est caput lavare, radere, medicari; sanguinem de naribus minuere, exire de carcere, de aegritudine convalescere, matrimonium contrahere, religionem intrare, purgationem accipere, sicut in omnibus signis ruminantibus, prout sunt aries, taurus, leo, capricornus, et ultima pars sagittarii (et omnia facere quae debent diu durare *add.* Od_1). Idem dico quando aries est ascendens in caelo (idem--caelo *om.* Od_1). **(16)** Quando luna est in tauro, bonum est facere societatem et pactum, et de pace inter inimicos tractare, domos fundare, castra et possessiones novas intrare, dominium alicuius rei recipere; terras, vineas colere, seminare et plantare; uxorem ducere, et omnia facere quae diu debent durare; exceptis istis, quod malum est iter longum incipere, bellum vel placitum; in carcere poni, in aegritudinem cadere, coram domino vel iudice ire causa impetrandi gratiam, medicinam in collo vel gutture facere, et ibidem vulnerari, vel omnia facere quae cito vis fieri. **(17)** Quando luna est in geminis, bonum est iter incipere, et loqui cum parentibus et amicis et quibuscumque personis, et etiam cum inimicis si necesse fuerit; mulierem affidare, sed non ducere; societatem facere, pactum novum, et etiam mercimonia. Malum est sanguinem de brachio minuere, de carcere exire, religionem intrare, de aegritudine convalescere, et omnia facere quae diu debent durare. **(18)** Quando luna est in cancro, bonum est ire per aquam, et omnia facere quae de aqua vel per aquam fiunt, accipere purgationem, mercimonia facere, monetam in (et Od_1) argentum cambire, et omnia facere quae cito vis fieri. Malum est domos fundare, castra et possessiones novas intrare, matrimonium contrahere, religionem intrare, exire de carcere, de aegritudine convalescere, et omnia facere quae diu debent durare, et etiam medicari pectus et pulmonem(-one *Lo*). **(19)** Quando luna est in leone, bonum est loqui cum regibus et nobilibus (et iudicibus *add.* Od_1) et eorum loca tenentibus, operari in auro et illud (Od_1; eum *Lo*) cambire, mercimonia facere, et omnia facere

quae de igne vel per ignem fiunt, dominium alicuius rei recipere, domos aedificare, castra et possessiones novas intrare. Malum est vestimenta nova induere, sumere (suere Od_1) vel incidere; bellum et placitum incipere, iter longum arripere, in carcere poni, in aegritudinem cadere, et omnia facere quae cito vis complere. **(20)** Quando sol est in leone, tunc valde est intensus calor, et sunt dies tunc caniculares: est enim canis, a quo denominantur (Od_1; domin- Lo) dies illi, quaedam parva stella in ore leonis, calidae et siccae complexionis; unde cum sol, qui fons est caloris, tunc est in leone qui iterum est calidus et siccus, constat quod tunc temporis regnat calor superfluus, qui sine siccitate esse non potest, eo quod omne simile suum simile augmentat. Et propter hoc dicit Hippocras in Amphorismis: "sub cane et ante canem molestae fiunt purgationes" propter defectum humoris, quapropter cavendum est in diebus illis ab omnibus, in quibus est evacuatio humorum: sanguinem minuere, coire cum muliere. **(21)** Quando luna est in virgine, bonum est emere pannos et iocalia; terras colere, et seminare, arbores et vineas plantare, iter breve incipere, sed non longum, emere animalia quae non equitantur, famulos conducere, societatem et pactum facere et mercimonia. Malum est in carcere poni, in aegritudinem cadere, virginem in uxorem ducere, quia vel sterilis erit vel paucos habebit filios; secus autem est de corrupta (secus--corr. om. Od_1). **(22)** Quando luna est in libra, bonum est mercimonia facere, fodere et terras colere, et omnia facere quae cito vis complere. Malum est iter longum incipere, ne forte inimicos vel latrones in via invenias; ad pugnandum exire, proelium vel placitum incipere, matrimonium contrahere, societatem aut pactum incipere (matrim.--inc. om. Od_1), et omnia facere quae diu debent durare, exire de carcere, de aegritudine convalescere, religionem intrare, dominium alicuius rei recipere. **(23)** Quando luna est in scorpione, optimum est purgationem accipere et balneare. Malum est medicari (purgare Od_1) anum et pudibunda, tam mulieris quam hominis, atque matricem; iter, bellum vel placitum incipere; et omnia facere quae cito vis complere. **(24)** Quando luna est in sagittario, bonum est iter incipere versus orientem, medicinam accipere, praeterquam in ultima facie eius (iter--eius: terras colere et seminare, arbores et vineas plantare et omnia facere quae de igne fiunt, mercimonia facere, per terram ire Od_1 ex inferioribus), cum potentibus et iudicibus (nobilibus Od_1) loqui et maxime cum personis ecclesiasticis, mercimonia facere, cambire aurum, et facere omnia quae de igne fiunt; matrimonium contrahere, intrare religionem et beneficia ecclesiae, peregre proficisci, litteras et nuntios longe mittere. Malum est montes et loca alta ascendere, et medicari crura, et facere quae spectant ad aquam. **(25)** Quando luna est in capricorno, bonum est terras colere, seminare (om. Od_1), arbores et vineas plantare, et omnia facere quae de terra (igne Od_1) fiunt; mercimonia facere, per terram ire, cum nobilibus et potentibus loqui et quibuscumque iudicibus, dominium vel magnorum dominorum servitium intrare, possessionem novam vel domum novam. Malum est purgationem accipere, et genua medicari, et omnia facere quae cum igne fiunt. **(26)** Quando luna est in aquario, bonum est ire per aquam, loqui cum amicis et aliquid petere ab eis, uxorem ducere, religionem intrare, domos fundare, hereditates emere, dominium vel possessionem novam vel

servitia magnatum intrare, cum nobilibus vel potentibus loqui. Malum est iter longum incipere, bellum et placitum similiter, quia nimis durarent, et omnia facere quae cito vis fieri; medicari tibias, vel in ipsis laedi seu vulnerari. Idem dico quando aquarius ascendit in oriente. **(27)** Quando luna est in piscibus, bonum est purgationem accipere, praebendas vel dignitates ecclesiae de novo intrare, et cum personis ecclesiasticis loqui, et cum mulieribus; equos emere et magna animalia; ire per mare; matrimonium contrahere, si luna fuerit in augmento; si autem in decremento, non. Bonum est mercimonia facere, et omnia quae in aqua vel per aquam fiunt, sicut molendinum, aquae ductum (a.d.: aquaticum Od_1), piscare, et similia. Malum est alicui pecuniam praestare, depositum locare, petere debitum a debitore, in carcere poni, in aegritudinem cadere, bellum vel placitum incipere, quia tam carcer, bellum, aegritudo, et placitum (tam--plac. $om.Od_1$) nimis durarent; iter versus meridiem incipere, et omnia facere quae de igne fiunt; medicari pedes vel eorum cavillas, sicut (aut Od_1) in gutta podagrica, et in pedibus vel in eorum partibus laedi vel vulnerari. Idem dico de hoc signo, et de omnibus aliis, quando ascendunt in oriente.

(28) Et nota quod quando luna est in signis terreis, sicut sunt taurus virgo et capricornus, tempus naturaliter debet esse spissum, hoc est nebulosum, quia tunc nubes discurrent per aerem sine pluvia vel cum modica pluvia, et consuevit ut plurimum esse nebula, nisi per corporalem praesentiam vel per aspectum alicuius alterius planetae vel stellae fixae impediatur. Et quando luna est in signis aqueis, sicut sunt cancer scorpio et pisces, ut plurimum est tempus pluviosum vel saltem frigidum et humidum, quantum est de natura signi, nisi per alterius aspectum reprimatur. Quando luna est in signis aereis, sicut sunt gemini libra aquarius, tempus debet naturaliter esse calidum et humidum et instabile, quia ut plurimum nunc pluit, nunc est $(Od_2; om.Lo)$ clarum; plus tamen se $(Od_2; om.Lo)$ inclinat ad claritatem, nisi per alterius aspectum reprimatur. Quando vero luna fuerit in signis igneis, sicut sunt aries leo sagittarius, tempus naturaliter debet esse clarum et pulcrum. Quando tamen luna transit per flancos (fauces Od_2) leonis, aliquando pluere consuevit vel saltem esse nebula, nisi per aspectum seu praesentiam corporalem alterius planetae vel stellae fixae virtutem contrariam habentis hoc impediatur. Explicit.

(c) The planetary tables most commonly headed *Tabula ad sciendum quis planetarum regnat in qualibet hora diei* (*et noctis*) have 7 columns for the days of the week, nearly always beginning with Sunday, and mostly 24 rows for the (unequal) hours of day and night, beginning at sunrise. Within each column, and continuing from one column to the next, the planet names are entered according to the cycle Sun, Venus, Mercury, Moon, Saturn, Jupiter, Mars. Thus, equivalent tables can be made consisting of 14 or 7 rows with the entrance column of 24 hours appropriately telescoped; such tables are also often found (cf.,

e.g., this App.(a)§57;(b)§1). One further type, for the 12 hours of the day, is the upper half of the 24-row version. All these types can have a heading like that cited, and are commonly followed by the verses "Jupiter atque Venus boni sunt. . ." and "Frigidus et siccus Satur. . ." (=this App.(a)§48), or by the prose note "Jupiter et Venus sunt boni. . ."; for details on these points the descriptions should be consulted.

Examples of canons to these tables can be found in this App.(a), preamble and §56, and (b)§10. Several others occur, including the extract from Sacrobosco's Compotus in Le,19v+, but no recurrent ones have been found. In (c1) below I print that of Re.

I have seen a similar table in a set of glosses on Sacrobosco's Compotus (e.g. Princeton U.L., Garrett 99,140r; Stockholm,K.B., X 767, p.84; Paris, S.Geneviève, 1043, 13r; all from the late 13th or early 14th c.); that table has 24 rows, and columns for Saturday-Monday only. A table with 14 rows appears to be incorporated in the "anuli Salomonis" of Pd,106r-v, with a reference to Alchabitius. Elsewhere I have only seen such tables in connexion with Peter Philomena's Calendar or later ones, or in collections of texts also found with these calendars. The only ascription to Peter remains the one found in Lo (this App.(b)). It is certain that more could be done to trace this table.

In the references below, "c" denotes a canon other than the verses, etc., already cited.

The tables found in fairly close connexion with Peter's Calendar, or cognate texts, are of all four types mentioned, as follows: *24 rows*: A,14r; Mj,10r; O4,73v; X,9v (with a note delimiting the 12 hours of day-light); Om,42v(c); Bs,16v. *14 rows*: Pd,65r; Pe,42r-v (c, in French). *7 rows*: S,21r; cf. this App.(a) §57, and (b) §1 where the table is ordered peculiarly. *12 rows*: Re,7v (c, in French); D,15r-v (with all 24 hours in the entrance column); O5,236v. These examples do not indicate that the table, or any particular form of it, is regularly present in central parts of the tradition of the Calendar.

The remaining instances occur in varying contexts. *24 rows*: P1,31r (with Peter's Calendar and two others); Md,77v(c) and Ml,150v (in miscellany with Calendar). In British manuscripts and/or with British calendars: Ew,42v(c); Ny,15v(c); Lr,32r; Ln,33v+(Catalogue); Le,19v-20r(c); cf. Edinburgh,U.L., 126,8r (to a calendar dated 1482; ref.

O.Pedersen 1976,32). *14 rows*: W,69r (in miscellany following Ca-
lendar); E2,71v (with T.L. and calendar App.5(j4)); Pr,23v (with
calendars of Peter and John Somer); Kh,162v-163r (c, ref. to Alfar-
ganus) and 222v (contexts undetermined). *7 rows*: Ba,148v(c) (in mis-
cellany, different authors); Bf,14r(c) (also near calendar of John of
Gmunden); the hour-values in both of these happen to have been
truncated at 21^h. *12 rows*: W,57v (in miscellany preceding Calendar).

For various other forms or remains of them, most of them not
closely connected with the Calendar, see N,70r; Pc,58v; Ef,199v;
Bv,19r; Pf,55r(c).

(c1) Manuscript: Re,7v. To a planetary table with 12 rows, cf.
description.

(Hdg.:) Ch'est a sauoir quel planete regne a chacun heure du iour. (Txt:) Se
vous voules sauoir quel planete regne a chacun heure du iour, premierement
deves sauoir en quel iour vous estes, et queres 1 autel iour en la table des
planetes, et puis resgardes quel heure il est par le quadrant. Et queres une
autele heure en la table des planetes, et vous la troueres en la premiere ligne
vers la main senestre. Et quant vous aures trouee vostre heure en vostre table,
resgardes de sous ce mesme iour ou vous estes en contre sele mesme heure, et
dites tel planete regne a tel heure de ce mesme iour, et ainsiut en suiuant.

(d) *Excerpts of moon-books, planet-books, and canons to sign-men, occurring
more than once.*

The contexts in which these pieces occur should be sought under
the descriptions of manuscripts. Since the texts are generally extre-
mely labile, I print each of them from one manuscript to save space,
mostly ignoring variants and tacitly introducing a few strictly ne-
cessary and obvious corrections.

(d1) T&K 1205,1236,133; Zinner 1925,8082-7. Text from P3,96v (end
apparently lost). Other manuscripts: Y,296va-297vb(*a-h*; end lost);
Ny,21v+(*a-c,d-f*); Oa,152v+(*a*); Kt,10v-11v(*a-b* in French with exten-
sions on ancient authorities and medical advice); Bs,4r-5r(abbrevia-
tion of *d-e* as a gloss on (d6) below); Le,14r-17v(*a-b*, and *c-e* paired
with the corresponding sections of (d2) below); Pd,33r-37v(*d-e* plus
the pieces from (d2) below). More manuscripts in T&K and Zinner,

apparently of widely differing lengths. For a text similar to (c-e) see
Svenberg 1963,88-92 (Vat.Urb.Lat.1398, 23r, 15th c.)

(a) Qui cursum lunae recte scire desiderat, sciat primitus quomodo sol per
signa vadit. Sol namque in quolibet anno pertransit omnia signa, morando in
quolibet signo 30 diebus. Signa vero 12 sunt, videlicet ista, scilicet aries taurus
etc. Per ista 12 signa in unaquaque lunatione currit et decurrit autem luna, et
transit in 30 diebus omnia signa, manens in unoquoque signo 2 diebus et 8
horis; currendo per signa pervenit ad signum et gradum, in quo sol est, et
tunc iuncta cum sole dicitur esse in combustione, ibidemque perficit cursum
suum. . .si luna renovatur a medio mense Martii usque medium mensem
Aprilis, tunc luna initium habet a signo arietis, et sic de ceteris signis. – (b)
Multum enim prodest scire in quo signo sit luna omni die, quoniam luna est
aliis planetis terrae proximior et rebus mundi plus aliis praestat effectum
suum, secundum naturas et coniunctiones signorum per quae discernitur
(?discurrit). Bonum est enim statum lunae cognoscere, quia possumus per hoc
scire, quid sit bonum incipere et facere, et quid non. Possumus etiam per hoc
cognoscere quale tempus debet esse, naturis signorum et coniunctionibus
semper consideratis. De quibus breviter de unoquoque signo, et de luna cum
est in aliquo signorum, per ordinem et aperte dicemus.

(c) Aries quoque habet caput et faciem et pupillam oculi et intestina, et
quidquid accidit in eis et in oculis atque auribus ex infirmitatibus. – (d) Cum
quidem luna fuerit in ariete, signo orientali calido et sicco, igneo colerico et
masculino, bonum quoque est iter versus orientem incipere, et ad illam
partem ad mercandum ire, et qui tunc in illam partem incipit iter, bene et cito
complebit. Bonum enim est incipere vel operari quidquid cum igne fit;
bonum quoque est sanguinem de brachio minuere, balneum intrare, et omne
opus incipere et facere quod vis cito finire nec multum durare. Malum enim
est caput lavare ac medicare, radere quoque, vel ventosas in collo ponere, et
sanguinem de naribus minuere, ac uxorem ducere, domum vel castrum
fundare, et dominium de aliqua re intrare, de carcere exire, cartam de
possessione facere, quamvis permanere dicatur. Et quoniam aries est animal
ruminans, medicina non accipiatur cum luna est in ariete, quia si accipiatur
evomitur. In omnibus enim signis ruminantibus, ut aries taurus capricornus et
ultima pars sagittarii, potio vel medicina non debet dari quia, siquis eam
susceperit, evomet. Idem dicendum est de omnibus signis quae consurgunt ab
oriente. Cum enim hoc signum surgit ab ortu, tempus dat calidum. –
Taurus. . . (e) Pisces. . .Tempus vero dat aquosum frigidum et humidum.

(f) Signa quidem tropica sunt 4, scilicet aries cancer libra capricornus, quae
ideo dicuntur tropica sive mobilia quia, sol cum ingreditur istorum signorum
initia, mutatur tempus ad temporis substantiam sequentis, †quando enim
ipsorum conversiva motione ab alia natura instituitur† dum sol principia
eorum invadit. – Signa quoque fixa. . .Signa vero communia. . .prima frigida et
sequens calida.

(g) Quousque de 12 partibus caeli compendiose ubicumque auctorum
sententiis ordinavi; nunc autem de 7 planetarum naturis aliqua breviter

scribo. - **(h)** Sunt itaque 7 planetae, quae dicuntur sidera errantia, quae sunt (?quia secundum) omnium artium magistra (?-am), sicut et praedicta 12 signa, hos 7 planetas posuit deus omnipotens super isto caelo sidereo, ut moverentur contra ipsum ad retardandum firmamenti velocitatem, ita tamen ut numquam exea⟨n⟩t latitudinem orbis signorum. Inter has 7 (7 h. P3) stellas sol quasi rex existit medius, et tamquam [quasi] fons luminis ⟨et⟩ caloris cuncta illuminat et calefacit super se opposita et etiam (*inv.* P3) subtus se ordinata; a quo maxime temporum habemus diversitatem, ut annus mensis et dies. **(j)** Sed pri⟨m⟩us horum 7 planetarum, descendendo inferius, est Saturnus, qui est planeta frigidus et siccus atque malevolus: ideo in rebus mundi malos habet effectus. Iste dum est in domiciliis suis, scilicet in aquario et capricorno, multa mala fiunt in orbe, maxime quando est in prima domo, scilicet in aquario: tunc enim fiunt magna diluvia in terra, et odia in gentibus implacabilia. Iste planeta mense primo conceptionis frigiditate sua conceptum infrigidat, in matrice coagulat et desiccat. Et quia ex coloribus habet nigredinem, facit saturnianum esse fuscum, paucos pilos in barba et in maxillis, qui cum ambulaverit, in terra oculos mergit; et est macer, habens oculos parvos et cutem siccam; est iracundus, venenosus, noxius, turpis, ingeniosus tamen circa artes viles et graves, ut est fodere terram, ru⟨m⟩pere lapides, construere domos, conducere aquas, et huiusmodi. Callidus est, aliud ore sonans, aliud corde machinans. - Planeta secundus est Iupiter. . . **(k)** Luna in omnibus aliis planetis est inferior, septimus a Saturno, et terrae proximior, frigidus et humidus, et receptio est omnium dispositionum, quia mutat, ut dicitur, esse suum ad planetam cui adiungitur; et est delatrix omnium planetarum, quia defert dispositionem unius planetae ad alterum; omniumque planetarum qui supra se sunt naturam recipit, quia omni mense omnia signa et planetas requirit, et quod a singulis recipit †iniectus† inferius in terra radiis et ⟨in⟩ ipsa[m] stantibus refundit. Ad solam ergo lunam debemus respicere in factis agendis, quia ipsa (-se P3) teste Ptolomaeo, cum terrae proximior, in rebus mundi maiorem efficaciam habet. Luna mense septimo conceptionis dat plasmati pulmonem et dividit membra per loca sua. Et si puer tunc nascitur, erit vitalis, quia omnes planetae sunt in eo omnem suam potentiam operati; si autem octavo mense nascitur, non vivet, quia fit retroversio ad Saturnum qui, ut supradictum (super P3) est, sua frigiditate et siccitate membra concepti astringit. Nono autem mense (sexus *add. et del.* P3) natus vivit, quoniam regnat in eo Iupiter qui, ut dictum est, nulli nocet sed omnibus benefacit. [Luna] lunarii (-ios P3) nulli⟨u⟩s esse servitii, sed semper ire vagando desiderant, et sunt nuntii, nugarumque et rumorum reguli, et aliorum servitiis occupati; habentque unum oculum maiorem altero, et raro accidit quin sint strabi et in uno oculo laesi. Sunt autem lunarii venditores mellis et olei et ficus et dactilorum et huiusmodi.

(l) Ex ipsis 12 signis, ut communis astrologorum auctoritas testatur, sunt sex feminea et sex masculina, et [non] similiter succedit masculinum femin⟨e⟩o et femin⟨e⟩um masculino usque in fine signorum. - Quattuor ex eis dicuntur tropica et conversiva sive mobilia, scilicet aries cancer libra et capricornus, quae ideo dicuntur tropica sive mobilia quia, sol cum ingreditur istorum

signorum initia, mutatur tempus ad temporum substantiam sequentis tempo-
ris †conversiva mutatione ab alia natura instituit† dum sol principia eorum
invadit. Luna quoque, cum est in istis tropicis signis, omnia citius alternat
negotia, unde odium et inimicitia vel adversitas instabile est et inconstans;
aedificiorum fundamenta locare vel castra et civitates construere penitus
inutile est, nec fieri debent, quoniam instabilitas lapsum tunc minatur. Luna
cum tropicis signis, si quis aegrotus fuerit, morbi diuturnitatem negat.
Dissensiones et iurgia in conversivis nec firma sunt nec diuturna. Vendere
autem et emere penitus inutile est quoniam, si qua ementur, non permanent
diu apud emptorem: fraude namque et dolo persaepe ac violentia[s] compli-
cari solent. Data et accepta beneficia minime prosunt. Quidquid boni ⟨vel⟩
adversi recurrat, non diuturnum est nec stabile. Si quid promittetur (per- P3),
non datur; vel si datur, multum accipienti durat. Medicus non curat super eis,
nec convalescit aeger ad plenum, quia denuo recidivabit. Scito enim quod
signa tropica vel mobilia sive conversiva rerum mobilitatem significant, fieri
festinanter, et nihil durabile fit in eis, nec tempore eorum prolonga[n]tur. Non
itaque aliquid est incipiendum in eis quod volunt multo tempore permanere
stabile; sed omne, quod instabile et festinosum volunt, sub eis incipiatur. Si
de carcere exierit vel fugam quis inceperit, cito recaptus erit; quod si quis
perdat rem, invenit. Connubiorum et amicitiarum vincula si firmantur, stante
luna in tropicis, dissolventur; est autem bonum et amicitias et connubia
incipere et tractare, sed bonum est in signis firmis firmare. – Signa quoque
firma. . . (P3 ends in this section.)

(d2) T&K 131. Text from T,181r. Other manuscripts: W,58v-59r;
Le,14r-17v (conflated with (d1) above); Pd,33r-37v (somewhat ex-
tended, also paired with (d1)). W and Pd begin with Aquarius. The
present text is related to (d4) below.

Aries est signum mobile, calidae et siccae naturae, et dat esse mediocris
staturae et pulchrae, habentem scapulas strictas, coxas longas et longum
collum et longam faciem et pedes magnos et mentem subtilem et brachia
subtilia et nasum subtilem et capillos multos et subtiles, et pulchrior est retro
quam ante, et oculos magnos et curvum corpus, et duas dentes superiores
ceteris maiores et divisos, et animum levem, et honeste euntem. Bonum est
facere ad mobilitatem (W; nob- T), et bonum est ire ad balnea. – Taurus. . .
Aquarius est signum firmum, calidae et humidae naturae, et dat hominem
esse mediocris staturae, habentem rotundam faciem. . .(W, *def.*T:) Pisces est
signum conversivum (corporeum W), frigidae et humidae naturae, et dat
hominem esse pulchrae staturae, habentem amplum pectus. . .loqui cum
pugnatoribus. Pedes non medices.

(d3) T&K 314,315? Text from L,9r. Also in W,67v-68r. Both
connected with a 12×12 lunar table and the canon App.4(a4).

Cum luna est in ariete, bonum est minuere sanguinem in brachio, et balnea intrare, et iter incipere ad omne negotium, et facere cum festinatione. Medicinam capiti adhibere non est bonum. – In tauro. . . In pisce bonum est accipere medicinam, et tractare de his quae pertinent ad pacem. – Praeterea sciendum est quod, quandocumque luna est in fine geminorum et cancri et librae, et in scorpione et in aquario et in pisce et in omnibus praedictis locis, aer mutatur ad pluviam, et tempus non disponatur (W; ? L), et mare in his temporibus incipit ingrossari. Et haec de signis sufficiant.

(d4) T&K 130. Text from W,70v-74r. Also in Mj,13r-27r, from which the corrections have been taken unless otherwise noted. The Jo. de Restail in the subscription of W may be the scribe.

Aries est primum signum caeli «que» zodiaci, domus diurna (diuina W) Martis, exaltatio solis (saluus W), masculinum, mobile, calidae et siccae naturae ut ignis, quare dicitur igneum, colericum; orientale, eo quod eius virtus et potestas plus est in parte orientali quam in alia. Dominatur naturaliter capiti ac ipsum quandoque bullat de virtute suae proprietatis. Et facit hominem mediocris staturae et pulchrae convenienter, habentem faciem longam et quasi mentem subtilem, collum longum vel scapulas quasi strictas, brachia subtilia, nasum subtilem, vel quasi multos capillos, coxas longas vel quasi macras, pedes magnos, corpus curvum, oculos mediocres, duos dentes superiores ceteris maiores et aliquantulum divisos, mobilis animi, honestae essentiae (euntem Mj). Et quando vadit, multum respicit in terra. – Luna morante (-ans W) in eodem signo, bonum est facere quidquid pertinet ad mobilitatem, ut incipere iter (aliquid W) per terram, mutare locum, id est stationem, per terram, intrare balneum, id est stupam, incidere ungues ⟨et⟩ vestimenta nova et ea sarcire et induere, et tractare de nuptiis et de pace seu concor⟨dia⟩ litigantium, loqui de amore ad mulierem, petere dilectionem, facere experimentum ad amorem habendum, ire ad rectorem loci, pannos rubeos comparare et omne genus armorum, ut scutos, enses, loricas, aes, cuprum, equos bellicosos et principaliter rubei (-eos W) pili; tollere servos et ancillas atque animalia, ut oves et capras, canes et falcones; vendere vel plumbum et ferrum et margaritas; fundare habitationem, ut furnum et fornacem et coquinam et fornacellam, fornellum; incipere studium, et vinum statuere ad vendendum, praestare pecuniam, locare depositum, «et» addiscere artem, et facere societatem cum altero. Cavendum ne tondantur capilli, ne rad[i]atur caput, ne medeatur apostema capitis, nec sangui[ni]s extrahatur, nec scolare (scotare Mj) aures, nec medicare caput, nec ducere uxorem, nec plantare arbores nec vineam. Et quando sol et luna intrant illud signum, tempus naturaliter (Mj; vel W) mutatur in ventum vel in serenitatem ac calorem.

Aries est primum signum caeli, et dicitur mobile naturaliter calidum et siccum, masculinum orientale colericum, et cuius stellae sunt calidissimae, et ob hanc causam omnis planeta in eo signo recipit ab eo augmentum caloris,

et aer magis fit calidus, et quando aliqua stellarum intrat, tempus mutatur ab
esse in esse. Verum est quod talis calor secundum naturam et proprietatem
ipsius planetae magis apparet (m.a.:Mj; nig() W) ut si est calidus, minus ut si
est frigidus: calidus ut Mars et sol, frigidus ut Saturnus. – Hoc quidem signum
est bonum, domus Martis, exaltatio solis, et casus Saturni. Igitur quando Mars
est in eo, gaudet regnat et dominatur sicut homo in propria domo. Quando
sol est in eo, gaudet regnat et dominatur sicut magister in kathedra, rex in
solio, episcopus in sede sui honoris, prior ordinis in loco sibi deputato.
Quando Saturnus est in eo, tristatur multum, quia est in suo casu tamquam
princeps eiectus de suo honore excellenti, et est similis homini confinatus in
extranea provincia, et ibi perdit suas vires; tamen, quando est in ariete
tempore veris, valde infrigidat aerem, claudit poros terrae arborum herbarum
ac hominum in suis corporibus, cuius ⟨causa⟩ multae tardantur res in suo
augmento, et venti non habent multam potentiam spirandi fortiter (-tis W). Et
quando luna est in ariete, confortatur ⟨aer⟩ et siccatur humiditas eius [cuius
aequum] (c.a. om.Mj) et serenatur, et ventus fortificantur (ferociter W) ad
spirandum per orbem. – Hoc quidem signum habet multas stellas parisimiles
(parissibiles Mj), dispositio quarum sic certificatur: In quolibet cornu eius
(c.e.: Mj; est W) una. In fronte 1. In naribus 3. In collo 2. In dorso 4. In
ventre 3. In summitate cuiuslibet pedis unam. In cauda unam. Et haec est
forma sui aspectus in caelo. – Conceptus vel natus sub hoc signo secundum
proportionem gradus ipsius erit complexionatus corpore et fortunatus ad
habendum de rebus bonis et malis. Igitur si sub prima ⟨facie⟩ (parte Mj;
om.W), erit (erat W*p.c.*) calidus et siccus, colericus macilentus audax fortis
vanus superbus clamosus furiosus; timebitur amabitur (ambitus W), divitiis
abundabit (-antibus W), ad honores perveniet. Si 2ª facie, erit bonus pius
debilis pacificus ac utilis et infortunatus. Si sub tertia facie, erit bonus mitis
(iustus Mj).

Taurus est 2m signum caeli zodiaci. . .Pisces est 12m signum caeli, com-
mune naturae, frigidum et humidum, femineum septentrionale . . .Pisces est
12. signum caeli zodiaci, domus Iovis in nocte, cuius regimini aer fit turbidus
pluvialis. . .piger vel quasi facile pavidus et timidus, vanus (et constans W) et
inconstans. (*W*:) Expliciunt dicta et naturae 12 signorum, completa Aquis per
manus Iohannis de Restail, anno domini 1º3º4º9º in die sancti Matthaei
apostoli et evangelistae. (*Mj*:) Explicit tractatus de 12 signis.

(d5) T&K 569 (with attribution of (*a*) to Gerlandus, presumably on
the basis of the Contratabula Gerlandi at P1,32v). Text from P1,28v-
30r (*d,b,c*) and 31v-32r (*a*). Another witness is N,70r-v, containing
a,b,c, and a shorter version of *d* much like Svenberg 1963,78-9 (from a
ms. of the 12th c.).

(a) Frater Vincentius, si quis a me quaerit quis sit effectus proprius
planetarum omnium, respondeo qua brevi potero narratione, comprehen-

dens uniuscuiusque planetae quosdam effectus proprios secundum quod philosophi invenerunt eos, certis experimentis et rationibus necessariis approbatos. – Dico ergo quod sol est calidus siccus colericus igneus masculus aureus, regnandi cupidus... Reliquorum autem planetarum proprietates, ut vitem prolixitatem, absque expositione narrabo, quia perito in naturis et astronomicis sufficiunt quae dixi in ex⟨ponendo⟩ proprietates solis ad exponendum proprietates reliquorum. – Est Saturnus frigidus et siccus, accidentaliter tantum humidus, et terreus melancolicus plumbeus obscurus, amans vestes nigras, tenax religiosus agricultor. – Iupiter...Luna est frigida et humida, fleumatica feminea argentea, mediatrix mundi superioris et inferioris, amans geometriam et quidquid ei attinet, rotunda facie, mediocris staturae.

(b) Quattuor sunt tripli⟨ci⟩tates signorum: prima constat ex ariete leone et sagittario, et est calida sicca et colerica; secunda...quarta... fleumatica. – Signorum quaedam sunt ignea orientalia, ut aries leo sagittarius; alia aerea... alia terrea meridionalia, ut taurus virgo capricornus. Unde ignea sunt colerica...et terrea melancolica.

(c: to a sign-man, missing in N:) Notandum est quod aries tenet caput et faciem. Taurus...Piscis tenet pedes et cavillas et plantas pedum. Et hoc patet in ista figura istius hominis. Explicit.

(d) Luna existente in ariete non radas caput, nec sanguinem per ventosas a cervice extrahas, nec mediceris ea quae ⟨ad⟩ caput pertinent, ut auribus oculis et aliis huiusmodi. Tamen de brachio minui aut balneum ingredi utile est. Est autem signum mobile masculinum igneum colericum orientale diurnum amarum, valde bonum. Cum oritur, tempus dat calidum et fuscum. – Luna existente in tauro...Luna existente in piscibus iter arripere, potionem accipere bonum est...mediocriter malum. Cum oritur, tempus dat aquosum frigidum et humidum.

(d6) T&K 912 (from the Regimen Salernitanum). Svenberg 1963,15. A version of the whole text is in this App., (a)§27-38. Other manuscripts: Pl,27v; L,9v; Pn,1r-v; Bs,4r-5r(with a gloss, cf. (d1) above); Kh,154r(to a sign-man); S(incorporated in a prose work ending at 19v). Very common.

> Nil capiti facies, aries cum luna refulget...
> Carpe viam tutus, fit potio sumpta salubris,
> Embryo conceptus epileuticus exit ab alvo.

(d7) T&K 475. Canon to a sign-man. Printed in Sudhoff 1914,211. Text from A,14v. Also in T,188v; Mj,12r; Om,42r; Oa,160+(Cat.). Texts beginning approximately as the present one, but longer and without sign-men, are in Bf,5v; O5,233v and 234r-v; Bu,9ra-vb; cf. (a) above, preamble and §26ff.

For the sign-man cf. Bober 1948,16-7 and Pl.5(a-d), showing the sign-men of Om, Mj, and of Pn,2r(apparently without a canon) and Kt,12r(with its own canon in French). See also this App., (a)§11; (d5*c*); (d8) for sign-men with other canons.

(Hdg.:) Dominium signorum. (Txt:) Duodecim sunt signa, scilicet aries, taurus. . .aquarius, pisces. Et quia aries in prima mundi constitutione coepit vergi, inde est quod caput hominis habere dicitur. Taurus habet collum et guttur. . .Pisces habet pedes. Et ita membra humani corporis per signa supercaelestia dividuntur. Luna existente in signo membri patientis, nullum medicamen facias illi membro.
    (Addition in A, not in Mj:) Aries leo sagittarius sunt signa calida et sicca, et sunt de natura solis et Martis. (Subscr.:) Orientalia. (Txt:) Taurus virgo capricornus. . .

(d8) T&K 129. Canon to a sign-man. Printed in Sudhoff 1914,212, who cites Cd and some other mss. in England. Cf. Bober 1948, 24 and Pl.9b(from a ms. of Nicholas of Lynn's calendar). Text from Le,18r. Also in Cd,1r(with a calendar, cf. App.5(j7)).

Aries. Cave ab incisione in capite vel in facie, et ne incidas venam capitalem. Taurus. . .Pisces. Cave ne incidaris in pedibus vel venis eorum (v.v.e.: dum ibi manet luna, scilicet februario et martio, et sol Cd).

(d9) Svenberg p.80 (from Paris B.N., n.a.1.299, 13th c.). Text from P3,96r. A similar text in Sx,1v-5r.

Martius. Cum quidem luna fuerit in ariete, bonum est versus occidentem tendere, et bonum est scribere texere, per mare navigare, arma manus(!) componere, fabricare quoque [[cum calce, ?muros facere]] ≪et omnia quae ad ignem pertinent operari≫ fenum secare, et omnia facere quorum finis cito desideratur. Et est malum incipere rem stabilem atque firmam, ut coniugium vel societatem; aedificare quoque malum est turrim castrum vel domum. [[?Malum intrare in tenutam]] ≪Malum quoque est intrare in dominium vel in domum aut in tenutam alicuius rei. Tempus dat calidum atque pulchrum. –Et malum est medicari caput, quia qui tunc vulneratur aut ⟨?⟩, morietur. Laesio aut debilitas semper in capite remanebit. Bonum autem est omnia, quae in igne vel cum igne vel ad ignem pertinent, operari.≫ – Cum quidem luna fuerit in tauro. . .Cum luna fuerit in pisc(). . .tempus dat nubilosum vel aquosum.

(d10) Some lesser notes, and texts occurring only once, are briefly recorded below. Excerpts of most of them can be found in the

descriptions. A lot of them bear some resemblance to the texts above and to each other, but I have not been able to determine any close relationships.

Verses: "Si quis nascatur dum Saturnus dominatur" (Walther 17938): Ml,152r; Pf,55v; Kh,221r. "Luna vetus veteres, iuvenes nova luna requirit" (not in Walther), Bs,4r-5r; Sg p.26.

Sign-books, with properties of signs and/or elections according to the place of the moon: Mj,12r; Kt,11v-12r; Oa,153r+; Ef,198v,200r; Md,84r; Pn,3r-11v(coupled to text of Albandinus, (e2) below); Bu,11ra-13ra(also with dietary rules); Bx,2r-7v,10r-18v (some of the text strongly resembling (d1) above); Sg p.31(might be an extract of (d1)); Kh,161r+.

Longer lists of elections according to the moon's place among the signs: Ma,11v; E2,71r; Pr,26r-27v; Pe,45v+, with canon 44r; Bv,18r. Short lists: D,25r-v; Pd,56v.

Elections according to age of moon: W,57r; Le,20r-21v; Bf,12v+. Rotae with prognostications, 30 days: D,23r-v; N,71v, the latter much as the birth-prognostications in Wistrand, Lunariastudien 1942,8. Cf. generally Svenberg 1963.

Planet-books: O5,234v-235r; Kh,163v+.

Tables of relationships between signs and planets, mostly showing houses, exaltations, etc., for each sign: Fp,1r-2r; Pr,22v-23r; Ba,149v; Mj,12v; Ew,42r; Le,17v (a rota); X,10v (figures).

Lesser notes, verses or tables on properties of planets or signs, sometimes with melothesy: Ca,148v; S,21v; X,9r; Pn,13r; Ml,151r; Ny,16r; Od,9v-10r and 52v (mentioning Albumasar, de revolutionibus); Bf,6v; Pc,58v; Pe,43r. See also above, (d5b).

Other rules: Kt,9v-10v.

(e) Rotae or tables used for calculation.

(e1) The Sphere of Pythagoras/Petosiris, a rota with 23 divisions for the letters, for judging on mortality of illness (cf. Thorndike, Hist. of Magic. . .I(1923)682-4), is in W,57r; Md,74v and 83v; So,53r; Wi,11r; Pn,12r-v. There are varying canons: W and So have the "pone feriam diei in qua infirmitas accidit. . .", and the same plus Md,74v have the verses "Collige per numerum quidquid cupis esse probandum. . .vita patet sursum, mors est signata deorsum"(T&K 234). Two similar rotae are at Md,83r(for finding sign of nativity); Wi,8v(?).

(e2) The "liber similitudinum omnium filiorum Adae fortunatorum" (Alban-dinus, from T&K 616), with a numbered alphabet for finding sign of nativity, is at Pd,56r and Pn,3r-11v; in the latter case it has been coupled to a sign-book, and the piece has been attributed to Albumasar.

Other alphabets, for nativities or mortality, are in Wi,8v-9r, and a list for calculating from the date alone, in So,57r.

(f) Various texts whose connexions have not been determined.
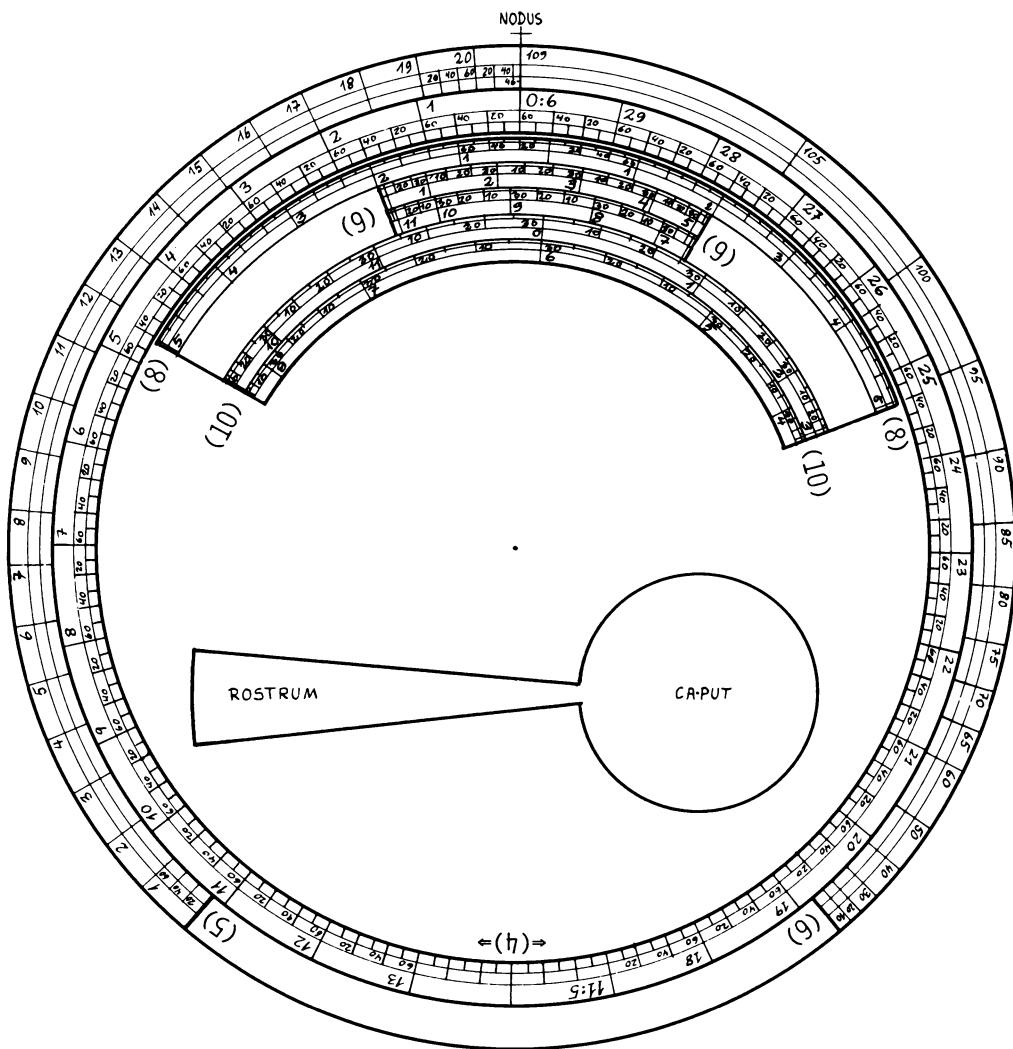
Temperaments: Wi,11v-14r; Pd,38v; L,9v; Bs,4r-5r; Bu,13r; O5,233v.

Phlebotomy: Bu,13r; Pd,58r; Sg,p.32 and 37-8. I have seen no figures of vein-men.

Month-rules, mainly on diet and in Calendar:"Escas per Ianum calidas est sumere sanum. . ."(Walther 5538): L,9r-v; Oc,38v-44r. Prose rules in W,61v+; Bs,6v+; Wu,2v+.

Rules on weather: Sx,1r-v; Bs,4v; both quite common. Also "Vincentii festo" (App.5(f1)), in Sc and Pl.
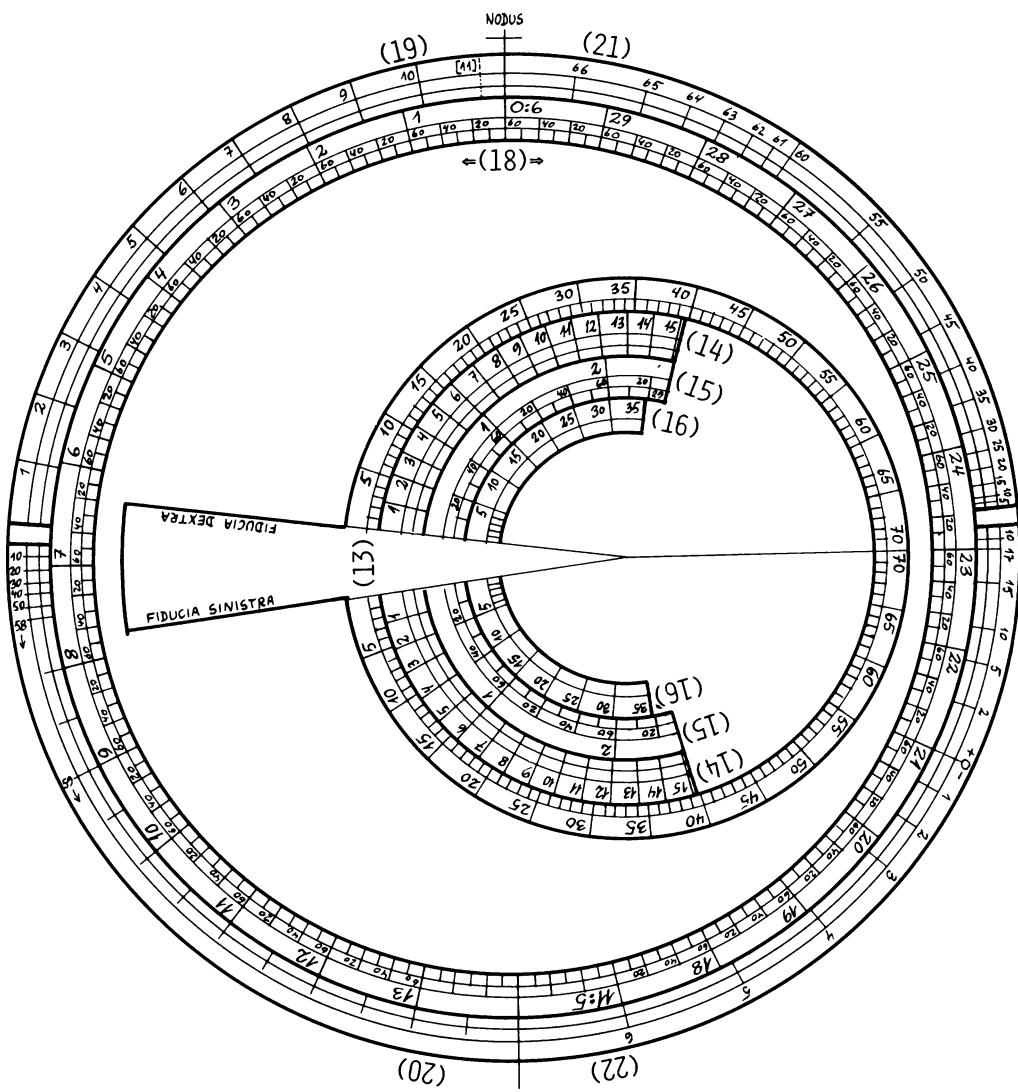
Tractatus
instrumenti eclipsium
(*Eclipsorium*)

Front of main disc (*facies*), with *cursor*.
Inserted: *novella lunae.*
Scale numbers refer to the relevant paragraphs of the text.

Back of main disc (*dorsum*).
Inserted: *novella solis*.
The joining of the parts is shown on p.465. See also p.463.

§1. This text was earlier edited by me from manuscript F (F.S.Pedersen 1978). More detail on the points mentioned below can often be found in the notes to that edition. For other references see *Introduction* §3d. The present text follows manuscript N; numbers in parentheses refer to my paragraphing of this text. A concordance with the earlier edition is in §8 below.

§2. *Manuscripts.*

N Napoli, Bibl.Nazionale, VII.A.26. Vellum, 24 × 16½, ff.1+258. Our treatise fills a separate part (243r-258v) from the 14th c. Provenance "S.Francisci Capistrani" (1r; Cenci). Some user has marked the tables (41-42) against the rows for 1289, thus dating his interests to 1312 or earlier.

Cenci, Manoscritti francescani I,1971,379-80 (description and summary of earlier registration). Kristeller I,403a. OP 7.2;8.2;9.3.

243ra-253vb (Hdg.:) Incipit tractatus instrumenti eclipsium magistri Petri de Dacia. (:Txt, §1-112:) Prolixitatem quae quamplurimos...ab alterutro nodorum [[Explicit.]]   **254r-257v** (Tables (113-125).)   **258r** (Additional tables (28a-31a,116a,118a-120a): see §6 of this Preface.)

Besides the hand of the text and rubrics (=N) there occur at least two hands, which are contemporary with N and may be by the same scribe:
  (Na) the corrections of (54-55), and possibly of (58);

(Nb) the corrections of (60); glosses on (1,2,37,38), see below; possibly the corrections to (25); models for the rubrics, generally written at the bottom of the pages; and annotations "bona" to most of the tables. – The glosses by Nb are as follows:
  (1): Tractatus iste dividitur in 3 partes: in prooemialem, executivam, ⟨composi⟩tionis rationis redditivam. Secunda in capitulo proximo, ibi *Exquisite* (2); tertia in capitulo ultimo, ibi *Expedito* (*84*). In prooemio (*1*) primo ponitur intentio in generali; secundo, ibi *Et quia instrumento* (*1*) ponitur ordo.
  (2): *Exquisite*: pars executiva, in qua tria fiunt: primo enim ⟨**⟩ (incomplete).
  (37, "De *primo*"): id est de tempore mediae coniunctionis vel oppositionis.

(37, *"primum* enim"): id est, subtrahas illud, quod invenitur in tabula communi de tempore mediae coniunctionis vel oppositionis, de illo, quod invenitur de tempore in tabula mediae coniunctionis, si sit de sole, vel de tempore in tabula mediae oppositionis, si sit de luna. *Et residuum per tertium extendas*: id est, addas residuo post subtractionem illud, quod invenitur de tempore in tabula tertia, id est in tabula mensium, in directo illius ad quem intrasti.

(38, *"tempus* Ianuario ascriptum"): ⟨id est illu⟩d quod ⟨stat⟩ in directo Ianuarii de tempore.

(Letters lost in the photo and not supplied with confidence are in ⟨ ⟩.)

F Firenze, Bibl.Nazionale Centrale, II.III.24. Vellum, 33 × 22½, ff.303, early 14th c. From convent of S.Maria, Florence. In one hand throughout.

OP 7.1;8.1;9.1. F.S.Pedersen 1978 (edition). See also *Calendar, Pref.*§2b, ms.F.

-208rb (Saphea Azarchelis, *transl.* Jo.Brixiensis.)   **208rb-214ra** (Hdg.:) Prooemium in tractatum eclipsorii Petri Daci. (:Txt:) Prolixitatem quae etiam plurimos...(209r-210r, three diagrams of instrument) ...(212ra, §58 *p.16-17* of text:) Vero igitur loco solis in octavo orbe addas motum octavae sphaerae, qui nunc est 10 g(raduum) et 22 m(inutorum), et exibit locus solis in nono orbe...et habebis tempus verae coniunctionis vel oppositionis aequatum ad Parisius, cui 25 minutis superadditis erit tempus eiusdem coniunctionis vel oppositionis ad Roskildis Daciae. Et haec est illa...(214ra, (112):)...eum non contingat.   **214r-217r** (Tables (113-6,118-22). Hdg. of (113):) Tabula magistri Petri Philomenae de Dacia... utrisque maioribus.   **218r+** (Thebit, de motu octavae sphaerae.)

A fragment is in

Bibl. Apostolica Vaticana, Reg.lat.1452. Vellum, ff.122, 28 × 20 except the last quire (ff.118-21), which is 26 × 18. 14th c. Earlier in Dominican house at Clairmont, donated by a *decanus* of the church of Cébazat (Puy-de-Dôme; note at 121v, possibly still 14th c.).

Eneström (1885,3)21, and (1885,8)66-7 disbelieving in the existence of another manuscript recorded by Montfaucon. Leonardi, *Aevum* 34(1960) 468-9 no.207 (on owner's note). Kristeller II,402. OP 2.3;2.4.

?115r-121v (Astrology, in at least two hands of the 14th c., including extracts from Haly's commentary on Ptolemy's Centiloquium. The text leaves off at 117v and is resumed at 119v, after the tables to be mentioned.)

118r-119r (with independent pagination "6-8": table like (113). Heading, in a hand unlike those just above:) Tabula magistri Petri Philomenae de

Dacia ad inveniendum propositionem(!) cuiuslibet numeri secundum propositionem cuiuslibet alterius ad 30 vel 60. Et deservit prima columna utriusque(!) minoribus 31, secunda alteri minori et alteri maiori, tertia vero utrisque maioribus.   **119v** (list of five eclipses, 1309-1312, in same hand as table preceding: I give a straightforward transcription of the figures, without keeping the lay-out. The time-columns are headed "anni perfecti a Martio", "menses a Martio", etc.:)

			Pcta. diam.	Pcta. superf.	Tota eclip.	Ini- tium ecl.	Finis eclip.	
1309	5me 21^d	9^h; 2	30	0	3^h;30	7^h;17	10^h;47	oppositio
1309	10 30	23; 0	10	40	2 ; 0	22 ; 0	24 ; 0	oppositio
1312	8 14	4;27	9	0	2 ; 6	3 ;24	5 ;30	oppositio
1312	3 18	8; 5	10	20	2 ;56	6 ;37	9 ;33	oppositio
1312	4 5	20;51	5	40	1 ;40	20 ; 1	21 ;41	coniunctio

On the basis of the format and pagination of the quire f.118+, one would like to think that it formed part of an unfinished manuscript of the Eclipsorium, and was detached and re-used for the present purpose.

§3. *Authorship, place and date.*

The passages of F quoted above yield the full name of the author and serve to connect him with the town of Roskilde (OP p.34). By the same token he may have known the round value of 30°E for the longitude of Roskilde, implied by the Liber Daticus (*Introduction* §18a), supposing that he used the value 23°;45 for the longitude of Paris (*ibid.*).

The treatise itself was meant for use in Paris and was no doubt composed there (OP,*l.c.*). Indeed, (58) and the tables (41-42) mention Paris, and the tables probably use the parameters of William of St.Cloud's *Almanach* from 1292 (*Intr.*§21). I do not understand the statement of the first version of N in (58).

A *terminus post* for the texts in N and F would seem to be the precession values 10°⅓, resp. 10°;22, of (58), surely deriving from William's *Almanach*, which has these values for the years 1297 and 1300. Thus, even allowing for the possibility that the values were taken to be 2' lower than intended by William (cf. *Intr.*§11a), one may feel safe in dating the treatise to about A.D.1300 or not much later. It is later than 1292, the date of the *Almanach*, and later than the Calendar, since it uses parameters more recently determined; but the Calendar itself has not been dated with any precision (*Intr.*§8).

§4. *Remarks on the text printed.*

The text (including the headings to the chapters and tables) follows N. I have used F only to correct what looked like obvious errors. The signs ⟨⟩ for insertion and [ ] for deletion, by the editor against N, are used only occasionally. Italics are used for everything except the text-hand, such as rubrics, marginals, etc. Where numbers could be re-calculated (for details see F.S.Pedersen 1978) I have generally adopted the majority of N, F, and the re-calculated value, ignoring what might be round-off errors.

The apparatus is intended to record all departures from the wording and numbers of N, except for: paragraphing, punctuation and orthography, which are by the editor; ordinal numbers, which have been spelled out; banal dittographies and misplaced zeros in the table-headings, which were ignored; and running corrections to the tables, which were adopted. F is only adduced occasionally, and the longer passages from F are only quoted to illustrate some point emerging in this Preface.

The diagrams, drawn from the description in N, follow (3),(7), and (91) in taking *supra* to mean "farther from the centre than. . .", etc., contrary to the *Quadrans vetus*. In drawing I have supposed the node plus the cursor to stay in their topmost positions, and interpreted the left/right directions accordingly. In (4), however, the signs for "11 et 5 signa" should be to the right. – On the cursor (7-10), as in the Quadrant, the most finely-divided zone of each scale is outermost, whereas elsewhere, at least in (3),(4), and (14), the opposite is the case, as it seems to be in all scales of F. I have kept this apparent inconcinnity.

§5. *Remarks on the versions of N and F.*

The versions differ so much that it is impossible to work them into one edition in their entirety. As for N, its tables happen to be much less erroneous than those of F. This may partly be due to revision: indeed, the error in (42) against F seems introduced by a mechanical check against (41); and in (28) an extra entry has been added in an attempt to smoothe out a mis-reading. The latter error has then been taken up by the text of N (19), which may, then, have been gone over on the same occasion or later. This may explain why N looks more

polished idiomatically than does F, and why N omits the specific references to the author's home and surname (cf. §3 above). One feature of N which may be an innovation is the (correct) introduction of two kinds of *minuta proportionalia* by the correction of Na in (54), which leaves traces in (60)(version of Nb) and in (73,75,82)(text-hand). This, of course, is most easily explicable when assuming that all the hands are by one scribe who was also the reviser in this respect. The distinction of the *minuta* seems to be neglected in (56) and (62), which, together with the close of (65), are the passages using the *tabula erroris tollendi,* absent in F: this, then, may be original or at least earlier than Na/Nb and overlooked in that revision.

On the other hand, in matters of construction of the instrument and use of the tables, F seems to be the one to seek for simplicity, even at the cost of substituting wrong parameters for correct ones, as detailed in §6. F also seems to have improved upon N's version once or twice, notably at (80) (the placement of the *fiducia,* cf. the explanation of F after (111)), and before (81) where a test is provided for discontinuing calculation.

On the whole, then, it may be safest to assume that both F and N are revisions of some original, but that the corrections of N mainly concern the details of the text and tables, whereas F has revised the procedure thoroughly without unnecessarily altering the details of the wording.
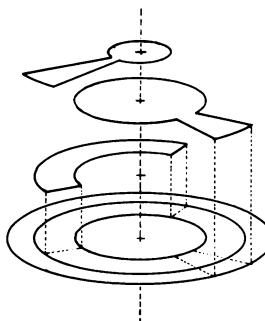
§6. *The instruments and tables of N and F.*

Besides the *novella solis* and *novella lunae,* F has another set of similar pointers named *novella maior/minor.* These are always fixed to the back of the instrument, and the former always to the front. When inscribing the scales of the instrument, N, like the *Quadrans vetus,* uses a ruler through the centre, whereas F uses the *fiduciae,* having prepared and mounted the *novellae* as early as necessary.

In the summary descriptions of scales and tables given below, "Scale 6" or just "6" refers to the scale described in (6), and analogously for tables. Some linear scales will be characterized by "(greatest value read on scale → extension measured on Scales 4 or 18)", where a "±" means that the figures are valid for either part of a scale made up of two symmetrical halves. Tables of magnitudes or durations may be labelled as either **(L)** look-up tables, where

INSTRUMENT OF N (=edition):   SCALES:

    novella lunae   -

    novella solis   13-16

    cursor   8-10

main disc (limb)   front: 4-6
                                              back : 18-22

INSTRUMENT OF F: SCALES:

    novella lunae   -

    novella solis   *,16

    cursor   8-10

    main disc   front: 4-6
                                              back : 18,19,21;
                                                          *,14,15

    novella maior   13

    novella minor   -

                                              (*: elongation)

the independent variable is entered in round values and mostly at equal intervals, or as (I) scale-inscribing tables, with round values of the dependent variable. Scales or tables of durations may use either of two sets of values for angular velocities at apogee/perigee, labelled (A) 30';18/36';4 per hour, for phenomena near the true syzygy such as obscuration and parallax; and (B) 30';12/36';10 per hour, presupposing an elongation of 7º and supposed to be adequate for finding the interval between the mean and true syzygies; cf. (95-6) of the text, and Toomer 1968 no.56-7.

The following scales or tables are essentially the same in F as in N: 41-44 (tables of mean motions, F showing the range A.D.1073-1601); 113-115, 121-122 (general); 8-10, 26-27 (scales on cursor, and tables for inscribing them).

The *scales for argument of latitude* (4 and 18) are shorter in F than in N, corresponding to a change in Scale 13, cf. (85) and (75). Thus,

		N	F
4	argum.lat.	front, limb ($\rightarrow$28°)	front, limb ($\rightarrow$24°)
18	argum.lat.	back, limb ($\rightarrow$28°)	back, limb ($\rightarrow$24°)
13	div.asp.lat.	nov. solis ($\pm$70'$\rightarrow$$\pm$13°;25)	nov. maior ($\pm$60'$\rightarrow$$\pm$11°;30)

Scales and tables for magnitudes and for durations. All but one of the tables here recorded occur in two versions in N. The alternative versions appear as additional tables at the end of N or, in one case, in the form of corrections to the first version; they are all scale-inscribing tables, also in the cases (116a, 118a-120a) where the texts of both F and N provide for look-up tables rather than scales. The (A)-values of the angular velocity are appropriate for computing durations and are in fact those used for the first versions in N.

Magnitudes:

		N	F	N,additional
5	pc.lun.	front, limb	(as in N)	
24	tab.pc.lun.insc.	I	(construction, approximating N)	(none)
19	pc.sol.	back, limb	(as in N)	
28	tab.pc.sol.insc.	I (with error against F)	(construction, approximating N)	I (as N,reversed)
20	diff.pc.sol.	back, limb	(*omitted*)	
29	tab.diff.pc.sol.	I	(*omitted*)	I (as N,shorter, reversed)
118	tab.diff.pc.lun.	L	L (as N)	I

Durations:

		N	F	N,additional
6	dur.lun.	front, limb	(as in N)	
25	tab.dur.lun.insc.	I(A),*corr.to* I(B)	I(B) (as N*p.c.*)	
21	dur.sol.	back, limb	(as in N)	
30	tab.dur.sol.	I(A)	I(A) (as N,shorter, reversed)	I(A) (as F)
22	diff.dur.sol.	back, limb	(*omitted*)	
31	tab.diff.dur.sol.	I(A)	(*omitted*)	I(A) (as N,shorter, reversed)
119	tab.diff.dur.lun.	L(A)	L(A) (as N)	I(A)
120	tab.morae	L(A)	L(A) (as N)	I(B)
116	tab.diff.morae	L(A)	L(A) (as N)	I(B)

Notes: Table 119 shows no alternative to the (A)-values, and since it was probably calculated alongside with Table 25 originally, the

inappropriate use of the (B)-values in the alternative version of Table 25 must be taken as secondary. Of the *additional tables in N,* 116a and 120a use the (B)-values inappropriately, against both F and the first versions in N, and are thus likely to be secondary (cf.§7); they may be the result of a plan for extending the instrument with more scales, known and rejected by N (104). N has room for *Scales 20 and 22,* cf. (86) "addendo ibi quaedam ne vacarent loca". F has no room, and also leaves out any tables to be used instead of the scales; correspondingly, instead of the first half of (82), F has a short text with the instruction "aeques sicut supra in eclipsi lunari", where scales were used.

Scales 14 and 15, using the velocities (B) to determine the time elapsing between the mean and true syzygies, are on N's *novella solis* and designed to be entered with $^{13}/_{12}$ of the elongation, cf. (49) and (93-6). For the same purpose N provides Table 125 in case Scale 14 is too short to be accurate (83). F, on the other hand, manages to extend Scales 14-15 by placing them on the *dorsum* ("tempus enim huius longitudinis commodius in dorso ordinavi" F, instead of (95-6)) covering the whole circumference, and by adding a reference scale co-extensive with them and measuring 7°, thus intending the scales to be entered with the elongation alone. Then F also uses the scales for determining the time elapsing for a given parallax in longitude, whereas N provides a table (123) using the proper velocities (A) for this. Thus the distribution

		N	F
14	temp.long.	nov.solis (B)(±15^h;4 → ±7°;35)	back (B)(15^h;4 → 7°)
15	diff.temp.long.	nov.solis (B)(±2^h;29 → ±7°;35)	back (B)(2^h;29 → 7°)
--	longitudo	(none)	back (7°)
125	tab.temp.i. 2 opp/conj	L(B)	(none)
123	tab.temp.asp.+duodec.	L(A)	(none)

Here again F seems to be the innovator, having partly forgotten the distinction between the values (A) and (B).

Both N and F have *Scale 16* on the *novella solis,* for the twelfth of the elongation in a mean syzygy. F has a parallel scale for the elongation itself, and uses it with Scale 16 for taking the twelfths both of the elongation (cf. (47)) and of the parallax. N uses Table 124 in the latter case (79). Thus,

		N	*F*
16	duodec.longit.	nov.solis ($\pm 35' \rightarrow \pm ca.6^\circ$;58)	nov.solis ($\pm 35' \rightarrow \pm 7^\circ$)
--	longitudo	(none)	nov.solis ($\pm 7^\circ \rightarrow \pm 7^\circ$)
124	tab.duodec.cuiusl.num.	L	(none)

Finally, N has the *tabula erroris tollendi* (117), missing in F.

§7. *Note on sources.*

No sources are cited in the text. The following is a sample of parallels from texts which can be supposed to have been within easy reach of our author.

The contents of the preamble (1) has counterparts in several contemporary preambles to treatises on instruments or tables, such as Campanus' Theorica Planetarum (Benjamin & Toomer 1971), the Quadrant treatise by Profatius Iudaeus from 1301 (Boffito & Melzi D'Eril 1922,25), and later on, Jo. de Lineriis' "Multiplices philosophiae" (T&K 889; ms. Par.lat.7281,201v-202r). The similarity to the preamble of the *Semissa* treatise was pointed out by O.Pedersen (1976,49).

The descriptions of the limb and cursor (2,7,9), and the terminology used in the construction generally, are probably modelled on the *Quadrans vetus* "Geometriae" (ed. Tannery 1922, 118 ff.): for instance, as concerns the *cursor* and its "zodiac"-scale, our (7-8) may be compared to §11-13 of the Quadrant treatise. The device of two pointers named *novella solis/lunae* is not elsewhere in evidence before Profatius Iudaeus' second version of the *Quadrans novus,* from 1301 (*Intr.* §12a; Poulle 1964,I,161;II,184,187). This seems to speak in favour of a latish dating of our treatise, cf. §3.

Instructions for using tables can be found in (32-6)(mean syzygies) and (70-7)(parallaxes). In both cases, quite close parallels in wording are offered by the *canones Azarchelis* "Quoniam cuiusque", accompanying the Toledan Tables (Toomer 1968). As concerns the instructions on mean syzygies, closer parallels might be supposed to occur among canons to tables which, like those of our treatise, are based on the Christian calendar rather than the Arabic one. Such tables were the Toulouse Tables for planetary mean motions, which were then current in Paris alongside with the Toledan ones, and were utilized in

the *Semissa* (cf. *Intr.*§21, and below). That treatise does not, however, furnish canons for tables of mean syzygies, and I do not know of any other canons to the Toulouse Tables. Canons to other tables using Christian year-reckoning occurred later on, such as those of Jo. de Lineriis "Cuiuslibet arcus"/"Priores astrologi", for the Alfonsine Tables. These canons offer parallels for the terms "radix anni" (34) and "argumentum latitudinis primo aequatum" ((50), etc.), which were no doubt current in the period: an instance of the latter is found in a contemporary gloss to the tables of William of St.Cloud's *Almanach* in the manuscript Vat.lat.3572,1r. As for the parallax calculations, our text differs from the Canones Azarchelis at some points of procedure which were in any case debated in the time, notably in using the table of *minuta proportionalia* with a maximum of 60° instead of the correct one with a maximum of 12° ((73); this kind of mistake is censured by John of Sicily); and in making the parallax in longitude change its sign at the meridian, not at the point of the ecliptic 90° from the horizon ((79,110); both methods are reported by John of Sicily indiscriminately, though the latter had been pointed out as correct e.g. in Albattani ch.39). A comparison with the *Semissa* in these respects can be found in *Intr.*§14.

The determinations of true conjunctions (45-48) and of magnitudes and durations (59-66,80-2) are mainly done by means of the instrument, and the procedures are those commonly used, in the Canones Azarchelis and elsewhere.

Some stray parallels to the argumentative chapter (84-112) can be found in John of Sicily, notably to (101), in N only, and to (111-12). The passage of F after (111) might be an after-throught based on the Canones Azarchelis (e.g. Par.lat.7406,16ra).

We are on surer ground as concerns the tables. The mean conjunction tables (41-43) resemble the Toulouse Tables in using 24-year intervals. The years themselves are, however, different, and consequently (43) has been revised to take account of the altered position of the leap-years. The parameters used were probably those from the *Almanach* of William of St.Cloud (*Intr.*§21). The tables of magnitudes and durations (24-5,28-31,116,118-20; see §6 above) are based on the Toledan Tables (Toomer 1968 no.58,60,cf.56-7); it may be here noted that the tables of durations in lunar eclipses (116,119,120, in N and F) rest on a mis-reading of the Toledan Tables, namely, the value

12°;47 of the *dimidium morae* for an argument of 3°;30 and the moon in the apogee, whereas the analogous tables (116a) and (120a), appended to N, presuppose the correct reading of 13°;47. (The table (25) does not use the value.) – Except for (117), which I have not been able to identify, and for (123-5), which are banal, the rest of the tables are identical to, or simple transforms of, the Toledan/Toulouse Tables. Thus, (26) corresponds to Toomer 1968 no.37; (27) to 39; (114) to 80; (115) to 17; (121) to 26; (122) to 72.

Tables of proportions like (113) were known at the time: at least, a triangular "tabula de minutis proportionalibus" is found in the 13th-century collection of Toulouse Tables Par.lat.16658(66r-69v). Later on, a canon resembling (53) is found in the "Cuiuslibet arcus" of Jo. de Lineriis (ms. Par.lat.7286C,27r; Vat.Pal.lat.1412,49v), whether copied from our treatise or from some common source.

On the whole, the *Eclipsorium* is well accounted for by sources current in Paris about the year 1300, and may itself have been used by Jo. de Lineriis. Finding more sources appears to be a project by itself.

§8. Conspectus of paragraph-numbering in this edition compared to the edition of F (F.S.Pedersen 1976). Some small variations in paragraph-limits are ignored.

1	1,1	27	Table 4	83	2,49a (N only)
2	1,2;1,7	28	Table 9 (N only)	84-86	3,1-3
3	1,8	29	Table 11 (N only)	87	3,4-5
4	Scale 3; 1,9-10(12)	30	Table 10	88-94	3,6-12
5	Scale 1; 1,11	31	Table 12 (N only)	95-96	3,12a-b (N only)
6	Scale 2; 1,12	32-37	2,1-6	97-99	3,13-15
7	1,3;1,13-15	38-39	2,7	100-101	3,15a-b (N only)
8	Scale 4; 1,16	40	2,8	102	3,16
9	Scale 5; 1,17-18	41	Table 5	103	3,17-18
10	Scale 6; 1,19-20	42	Table 6	104	3,18a (N only)
11	1,20	43	Table 7	105-111	3,19-25
12	1,4(25)	44	Table 8	112	3,27
13	Scale 15; 1,30;1,29	45-46	2,9	113	Table 24
14	Scale 13; 1,31;1,33	47	2,10-11	114	Table 20
15	Scale 14; 1,31;1,34	48	2,12	115	Table 1
16	Scale 8; 1,23-24	49	2,12a (N only)	116	Table 17
17	1,5	50-52	2,13-15	117	Table 21 (N only)
18	Scale 11; 1,25	53	2,18-20	118	Table 16
19	Scale 9; 1,26	54-55	2,21-22	119	Table 18
20	Scale 16 (N only)	56	2,22a (N only)	120	Table 14
21	Scale 10; 1,27	57-61	2,23-27	121	Table 2
22	Scale 17 (N only)	62	2,27a (N only)	122	Table 19
23	1,6	63	2,27-28	123	Table 22 (N only)
24	Table 13 (N only)	64	2,30(32)	124	Table 25 (N only)
25	Table 15	65-80	2,31-46	125	Table 23 (N only)
26	Table 3	81-82	2,48-49		

Sigla testium.
N Napoli, B.Naz. VII.A.26, s.xiv[1], 243r-258r
F Firenze, B.Naz.Centr. II.III.24, s.xiv[1], 208r-217r

(1) *Incipit tractatus instrumenti eclipsium magistri Petri de Dacia.* Prolixi-
tatem quae quamplurimos in proiectione eclipsium laborantes, citra
finem affectos taedio, ab amore artis retrahit, intendens praescin-
dere; formidinem quoque quae nonnullos, labore prorsus indefes-
5 sos, in pronuntiatione earundem praeoccupat, praecludere; quo-
modolibet modum novum in utraque eclipsi investigandi necessaria,
multiplicatione et divisione exclusis penitus, succincte faciliter et
sensu palpandum plurimum propono tradere, qui inspiravit altissimo
aspirante. Et quia instrumento plerumque uti oporteat, eius compo-
10 sitio praemittatur.

(2) *Adaptatio materiae instrumenti et inscriptio argumenti latitudinis.*
Exquisite igitur complanetur tabula et ad formam circuli redigatur.
Fiatque in ea circulus ad sextam partem semidiametri vel circiter a
limbo, et dividatur spatium quasi in duo aequalia per circulum; et ad
15 aequalitatem minoris sumatur de maiori, et fiat circulus iuxta alium,
ut sint in medio duo circuli distinctionis gratia, duo aequalia spatia
superius et inferius cum limbo et primo circulo continentes; quorum
spatiorum utrumque in tria inaequalia dividatur, sic ut utriusque
quod infimum sit minimum et maximum quod supremum. **(3)**
20 Deinde circulus centro vicinior per 28 aequalia dividatur, positaque
in centro regula protrahantur lineae a punctis divisionum per tria
spatia inferiora; una autem, quam volueris, ad limbum per omnia
protrahatur, quae vocetur intersectio sive nodus; **(4)** a quo hinc inde
argumentum latitudinis lunae ad metas eclipsium inscribatur isto
25 modo: Sinistrorsum enim a nodo in 13 spatiis superioribus ponantur
13 gradus argumenti, ab uno iuxta nodum inchoando; dextrorsum
autem ponantur in primo spatio superiori 0 et 6, in secundo 29, in
tertio 28, et deinceps ad 18 minuendo; in spatiis autem duobus, quae
inter huius 18 et 13 alterius lateris relicta sunt, scribantur 11 et 5

1 incipit--Dacia: prooemium in tractatum eclipsorii petri daci F   **3** praescin-
dere: F; praecindere N   **18** inaequalia: aeq. N*a.c.*

30 signa in sinistro, in dextro vero tituli inscriptionum. Et erunt inscripta
signa et gradus argumenti latitudinis lunae, quibus subscribantur
minuta, singula vel bina vel alias secundum capacitatem materiae, et
minutorum numeri, qui in utroque latere crescant sinistrorsum.

(5) *Inscriptio punctorum eclipsis lunaris.* Tria autem spatia superiora
35 dividantur isto modo: In centro enim posita regula, per 25. minutum
argumenti (*4*) sinistrorsum a nodo ducatur linea, omnia tria superiora
spatia occupando; sicque fiat ad 56. minutum, et consequenter, ut in
tabula (*24*) punctorum eclipsis lunaris inscribendorum continetur;
eruntque 21 spatia, in quorum ultimo scribatur 1, in paenultimo 2, et
40 deinceps usque 20, ut spatium primum vacet. Erunt igitur haec 20
20 puncta eclipsis lunaris ad augem epicycli, quibus subscribantur
minuta singula et eorum numeri, qui crescant versus nodum. Vacanti
autem spatio 46 minuta tantummodo subscribantur.

(6) *Inscriptio dimidii durationis eclipsis lunaris.* Reliqua vero pars, quae
45 est in dextro latere, iuxta tabulam (*25*) dimidii durationis eclipsis
lunaris inscribatur. ⟨In⟩ inscriptione autem minutorum singulorum
servetur eadem proportio inter duo singula, quae est inter 5 et 5 vel
decem et decem. Et erit inscriptum dimidium durationis eclipsis, ea
condicione, ut sit luna in sua longitudine longiori, quae est aux
50 epicycli.

Et potes hanc partem, cui haec 3 inscripta sunt, vocare limbum.

(7) *Adaptatio cursoris.* Ut autem inscribantur reliqua, fiat circulus a
limbo nunc inscripto distans ad quartam partem semidiametri totalis
instrumenti; et quod inter hunc circulum et limbum fuerit, evacue-
55 tur, ut in eo quaedam tabula moveri possit, quae habeat in longi-
tudine 10 gradus et 2 minuta argumenti latitudinis nunc inscripti.
Latitudo vero eius in 5 aequalia dividatur, et quodlibet eorum in tria
inaequalia, ut sit semper quod supremum minimum et maximum
versus centrum. Longitudo autem aequaliter dividatur per rectam
60 lineam, quae occupet tria spatia proxima limbo et sex proxima
centro, sex intermediis omnino intactis; et erit haec linea diameter
epicycli lunae et deferentis solis, ad auges amborum circulorum
terminata.

---

28 18: decem et octo N   **32** alias: N; *def.* F   **46** in inscriptione: inscr. N;
inscribendo F

(8) *Inscriptio arcus aequationum.* Situetur igitur haec tabula, sic ut
65 dicta linea media principium alicuius gradus limbi attingat, et
dividantur hinc inde tria suprema spatia secundum divisionem
graduum limbi, ut sint ex utraque parte 5 gradus et unum minutum;
et sic erit inscriptus arcus zodiaci, a quo epicyclus lunae comprehen-
ditur, et in quo omnes aequationes solis et lunae cadunt, unde et
70 vocetur arcus aequationum.

(9) *Inscriptio deferentis solis.* Post hunc arcum zodiaci sic inscribas:
Numerentur enim in dicto arcu aequationum 4 minuta in dexteram a
linea media, et ibi fiat signum; sicque fiat ad 24 minuta, et conse-
quenter, ut in tabula (26) zodiaci inscribendi continetur. Et a signis
75 ducantur lineae, sic quod in complemento signi ducatur linea per tria
spatia arcui aequationum proxima, aliae autem per duo solum.
Cum etiam ad unum gradum et 59 minuta, quae sunt maxima solis
aequatio, factum fuerit, cum aliis divisionibus per alia tria spatia
inferius ad sinistram recurratur, usque dum iterum pro uno gradu et
80 59 minutis signetur: tunc enim est per prima spatia superius ad
lineam mediam redeundum. Quo facto scribantur signa inferius, et
singuli gradus et eorum numeri superius, proviso quod signum
tertium ponatur ad medium superioris medietatis; crescant etiam
numeri graduum secundum ordinem signorum; eritque hoc modo
85 inscriptus zodiacus sive deferens solis.

(10) *Inscriptio epicycli lunae.* Hoc autem modo epicyclus lunae in sex
inferioribus spatiis inscribatur: Numerentur in eodem arcu aequatio-
num 24 minuta a linea media similiter in dextram, et ibi signetur, et
ad 48 minuta et consequenter, sicut in tabula (27) epicycli lunae
90 inscribendi continetur. Ducantur etiam sicut prius in complementis
signorum lineae divisionum per 3 spatia, lineam mediam statuendo
initium primi signi in medietate superiori. Fiant autem alia omnia hic
ut in inscriptione zodiaci (9), nisi quod hic ad 5 gradus et unum
minutum fiat reditio per 3 inferiora spatia ad lineam mediam in
95 complemento tabulae, quam iterum a capite incipias, partem si-
nistram epicycli sicut dexteram inscribendo.

(11) Et erit epicyclus lunae inscriptus, et tota tabula consequenter.
Vocetur quoque haec tabula cursor: curret enim, sed cum difficul-
tate quadam, in spatio sibi adaptato.

---

71 zodiaci: -cum N

100   **(12)** *Adaptatio novellae solis.* Inscriptis limbo et cursore, fiat novella
magna, cuius caput cursorem contingat secundum circulum; rostrum
autem eius cum limbo terminetur. Habeat etiam hoc rostrum in
latitudine 70 minuta de arcu aequationum, comprehensum duabus
lineis a centro capitis ductis, quae vocentur duae fiduciae novellae
105   solis, dextra et sinistra.

    (13) *Inscriptio diversitatis aspectus lunae in latitudine.* Locetur quoque
centrum capitis huius novellae ad centrum instrumenti, sic ut caput
novellae supra centrum instrumenti moveri possit; positaque alteru-
tra fiduciarum in principio alicuius gradus limbi, numerentur in
110   partem novellae 13 gradus et 25 minuta, ubi, posita regula, ducatur
linea a limbo capitis versus centrum; eritque haec linea aequedistans
ab utraque fiduciarum. Quo facto fiat circulus a limbo capitis
⟨distans⟩ secundum quantitatem quae competere possit inscriptioni
minutorum singulorum cum numeris eorundem. Unde iuxta hoc,
115   spatium istud secundum latitudinem in duo inaequalia dividatur;
longitudo vero eius ab alterutra novellarum ad lineam mediam in 14
aequalia dividatur, et posita regula supra centrum, protrahantur
lineae divisionum per ambo spatia. Item pars quaelibet in 5
dividatur, et protrahantur lineae divisionum minus spatium occu-
120   pando; et erunt 70 minuta, quibus sui numeri ascribantur, qui
initium habeant a novella. Sicut autem dividitur unum latus, sic et
reliquum; et erit inscriptus circulus diversitatis aspectus lunae in
latitudine.

    (14) *Inscriptio temporis longitudinis et duodecimae.* Ordine hoc his expe-
125   ditis, numerentur ab utraque fiduciarum hinc inde 39 minuta et 34
secunda in circulo diversitatis aspectus *(13)*, et utrobique posita
regula, ducantur duae lineae versus centrum, inter quas ducatur linea
circularis, aequedistans circulo aspectus secundum quantitatem quae
solet inscriptioni graduum et minutorum singulorum cum suis
130   numeris assignari; et secundum hoc dividatur spatium in 3 inae-
qualia in latitudine. In longitudine vero utrimque a fiduciis per 15
aequalia fiat divisio, dimisso secundum aestimationem in ambabus
extremitatibus spatio pro quintadecima parte unius; et hinc inde in
aliis 15 spatiis scribantur superius 15 horae, a fiduciis inchoando, et

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110 novellae: fiduciae F   114 cum numeris: et numerus N; cum suis numeris
F   115 inaequalia: aequalia N*a.c.*

135 sub eis minuta singula et numeri minutorum; et erit inscriptum
tempus maximae longitudinis et suae duodecimae inter solem et
lunam, vel eius nadair, cum secundum medios motus coniunguntur.

(15) Sed quia hoc tempus supponit lunam esse in auge epicycli,
ducatur iterum linea aequedistans prioribus ad quantitatem quae ut
140 prius solet inscriptioni graduum et minutorum cum suis numeris
assignari; et iuxta hoc, spatium secundum latitudinem in 3 inaequalia
dividatur, secundum longitudinem vero in hunc modum: Numeren-
tur enim ab utraque fiducia hinc inde 12 horae et 8 minuta de horis
longitudinis (14), et utrobique posita regula, ducantur lineae per
145 omnia 3 spatia. Deinde longitudo utrimque ad fiducias in duo aequa-
lia dividatur, et ut prius omnia tria spatia occupentur; et erunt utrim-
que 3 spatia, in quorum primis a fiduciis scribatur 1 et in secundis 2;
ultima autem vacent, quibus 29 minuta singulis subscribantur; aliis
autem singulis sua minuta cum minutorum numeris integraliter
150 deputentur. Et erunt hinc inde duae horae et 29 minuta, quae sunt
differentia temporis maximae longitudinis et suae duodecimae, luna
in auge existente, ad tempus eiusdem longitudinis, ipsa in opposito
augis existente.

(16) *Inscriptio duodecimae longitudinis.* Modus autem inscribendi
155 duodecimam longitudinis sit iste: Ducatur linea aequedistanter infi-
mae iam factarum, secundum quantitatem convenientem inscriptioni
minutorum cum suis numeris; et dividatur spatium iuxta hoc in duo
inaequalia secundum latitudinem, secundum longitudinem vero sic:
Numerentur enim utrimque a fiduciis 2 horae et 17 minuta cum
160 dimidio de tempore differentiae nunc inscripto (15), et utrobique
posita regula, ducantur lineae per ambo spatia. Deinde longitudo
utrimque ad fiducias in 7 aequalia dividatur, et protrahantur lineae
divisionum per ambo spatia; dividatur quoque quodlibet spatiorum
in 5, et protrahantur lineae divisionum per minus spatium, ut sint 35,
165 quae sunt minuta duodecimae maximae longitudinis inter solem et
lunam, vel eius nadair, secundum medios motus coniunctos; quibus
ascribas suos numeros, qui initium habeant a fiduciis, dextrorsum
eundo et sinistrorsum.

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147 1: unum superius N   **151** maximae: inscriptae F   **158** inaequalia: aeq.
N*a.c.*

(17) Et erit inscripta novella magna, quae vocetur novella solis, cui
170 adiungatur quaedam alia cuiuscumque magnitudinis; coextendatur
autem alteri in longitudine, et habeat duas fiducias sicut et alia; quae
vocetur novella lunae. Et erit completa pars prima, quae vocetur
facies instrumenti.

(18) *Inscriptio dorsi instrumenti.* Expleta facie, fiat in dorso limbus, et
175 dividatur in latitudine consimiliter sicut limbus faciei; secundum
longitudinem etiam dividantur tria inferiora spatia sicut ibi (*4*), et
inscribatur argumentum latitudinis consimiliter, proviso quod nodus
huius limbi sit contra nodum alterius.

(19) Deinde numerentur sinistrorsum a nodo 13 minuta argu-
180 menti, et ibi et in centro posita regula, ducatur linea per omnia tria
spatia superiora; sicque fiat ad 48 minuta, et deinceps secundum
tabulam (*28*) punctorum eclipsis solaris inscribendorum. Et erunt
12 spatia, in quorum [primo iuxta] ultimo ponatur 1, in paenultimo
2, et deinceps ad 11, ut primum vacet, cui 45 minuta subscribantur,
185 aliis autem singulis 60 et eorum numeri sicut supra; et erunt inscripta
puncta et minuta punctorum eclipsis solaris, ea ut supra condicione,
ut sit luna in sua longitudine longiori.

(20) Secundo enim sinistrorsum etiam a nadair nodi numeres 30
minuta, et ibi et in centro posita regula, ducatur linea per duo spatia
190 minora trium superiorum; sicque fiat ad unum gradum, et conse-
quenter secundum tabulam (*29*) differentiae duarum longitudinum in
punctis eclipsis solaris; et erunt 19 spatia, quae secundum nunc
dictam tabulam inscribantur; et erunt 59 minuta unius puncti,
secundum quae plus eclipsari contingit de diametro solis, in longitu-
195 dine propiori luna existente, quam ipsa existente in longitudine
longiori: unde et placuit vocare ipsum differentiam duarum longitu-
dinum in punctis.

(21) Hoc facto eatur ad nodum iterum, et ab eo dextrorsum
numerentur 39 minuta, ibique et in centro posita regula, ducatur
200 linea per duo minora spatia trium superiorum; sicque fiat ad unum
gradum et 18 minuta, et deinceps secundum tabulam (*30*) dimidii
durationis eclipsis solaris, proviso quod in complemento horae
omnia 3 spatia occupentur; et erunt 19 spatia in longitudine, quae

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179 13 minuta: N *ex* §28; *om.* F *recte*   **183-4** 12...11: N *ex* §28; 11...10 F *recte*
184 et deinceps: ut d. N   **201** gradum: *ins.* N (=Nb?)

secundum dictam tabulam inscribantur; et erit dimidium durationis
205 eclipsis solaris inscriptum, ea similiter condicione, ut sit luna in sua
longitudine longiori.

(22) Ob hoc igitur dextrorsum a nadair nodi signes unum gradum,
et occupentur duo minora spatia trium superiorum; sicque fiat ad 2
gradus et 7 minuta, et deinceps iuxta tabulam (31) differentiae
210 duarum longitudinum in dimidio durationis eclipsis solaris; et erunt
13 spatia, quae secundum nunc dictam tabulam inscribantur. Et
erunt inscripta minuta temporis, in quo dimidium durationis eclipsis
solaris maius esse contingit ad longitudinem longiorem; et ideo
vocatum est et istud differentia duarum longitudinum in dimidio
215 durationis eclipsis solaris.

Et haec de inscriptione dorsi sufficiant.

(23) *Modus connectendi partes instrumenti.* Nunc vero perforetur instru-
mentum ad centrum, sic ut clavis notabilis quantitatis intrare possit,
qui ambas novellas contineat ad instrumentum per cuneum, qui per
220 clavum transeat, sic ut novellae nunc in facie, nunc in dorso, ut opus
fuerit, poni possint. Demum fiat foramen per utrumque nodorum, ut
in eo axis armillae moveatur, per quam aptius portetur instru-
mentum.

Et completa sit in hoc compositio instrumenti, quod vocetur ⟨**⟩.

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221 demu(m): N   **224** ⟨**⟩: *vacat* N; *def.* F

(24) Tabula punctorum eclipsis lunaris inscribendorum
Argum: latit.

Gr.Mi.	Pc.Mi.
0 0	20 46
0 25	20
0 56	19
1 28	18
2 0	17
2 31	16 0
3 2	15
3 34	14
4 5	13
4 36	12 0
5 7	11
5 39	10
6 10	9
6 41	8 0
7 12	7
7 44	6
8 16	5
8 47	4 0
9 19	3
9 50	2
10 20	1
10 50	0 0

(25) Tabula dimidii durationis eclipsis lunaris inscribendi
Argum. latit.

Gr.Mi.	Ho.Mi.
0 0/ 0	0 109
2 43/50	0 105
4 2/ 9	0 100
5 14/18	0 95
6 4/ 6	0 90
6 44/47	0 85
7 19/20	0 80
7 50/51	0 75
8 16/17	0 70
8 39/40	0 65
9 1/ 2	0 60
9 37/38	0 50
10 3/ 4	0 40
10 23/23	0 30
10 35/34	0 20
10 42/42	0 10
10 50/49	0 0

(26) Tabula zodiaci inscribendi

Arcus æquationum	Partes zodiaci
Gr.Mi.	Si.Gr.
0 4	2 20
0 24	3 0
0 43	3 10
1 1	3 20
1 18	4 0
1 32	4 10
1 43	4 20
1 52	5 0
1 57	5 10
1 59	5 20
1 57	6 0
1 52	6 10
1 43	6 20
1 31	7 0
1 15	7 10
0 58	7 20
0 38	8 0
0 17	8 10
0 4	8 20
0 26	9 0
0 46	9 10
1 5	9 20
1 22	10 0
1 36	10 10
1 47	10 20
1 54	11 0
1 58	11 10
1 59	11 20
1 56	0 0
1 49	0 10
1 36	0 20
1 26	1 0
1 11	1 10
0 54	1 20
0 36	2 0
0 16	2 10

(27) Tabula epicycli lunæ inscribendi

Arcus æquationum	Partes epicycli
Gr.Mi.	Si.Gr.
0 24	0 5
0 48	0 10
1 12	0 15
1 35	0 20
1 58	0 25
2 20	1 0
2 41	1 5
3 1	1 10
3 20	1 15
3 38	1 20
3 54	1 25
4 9	2 0
4 22	2 5
4 34	2 10
4 43	2 15
4 51	2 20
4 57	2 25
5 0	3 0
5 1	3 5
5 0	3 10
4 57	3 15
4 51	3 20
4 42	3 25
4 32	4 0
4 19	4 5
4 4	4 10
3 46	4 15
3 27'	4 20
3 6	4 25
2 43	5 0
2 18	5 5
1 52	5 10
1 25	5 15
0 57	5 20
0 29	5 25
0 0	6 0

(28) Tabula punctorum eclipsis solaris inscribendorum

Argum. latitudinis

Gr.Mi.	Pc.Mi.
6 37	0 0
6 3	1 0
5 27	2 0
4 51	3 0
4 17	4 0
3 42	5 0
3 7	6 0
2 33	7 0
1 58	8 0
1 23	9 0
0 48	10 0
[0 13	11 0]
0 0	10 45

(29) Tab. differentiæ duarum longitudinum in punctis eclipsis solaris

Argum. latitudinis

Gr.Mi.	Mi.
7 11	0 0
7 5	0 10
6 58	0 20
6 50	30
6 43	40
6 36	50
6 30	0 58
6 0	0 58
5 30	0 58
5 0	59
4 30	59
4 0	59
3 30	0 59
3 0	0 59
2 30	0 59
2 0	59
1 30	59
1 0	59
0 30	0 59
0 0	0 59

(30) Tabula dimidii durationis eclipsis solaris

Argum. latitudinis

Gr.Mi.	Ho.Mi.
6 37	0 0
6 34	0 5
6 31	0 10
6 24	0 15
6 15	0 20
6 5	0 25
5 53	0 30
5 36	0 35
5 15	0 40
4 50	0 45
4 21	0 50
3 42	0 55
2 46	1 0
2 35	1 1
2 21	1 2
2 4	1 3
1 43	1 4
1 18	1 5
0 39	1 6
0 0	1 6

(31) Tab. differentiæ duarum longitudinum in dimidio durationis ecl. solis inscrib.

Argum. latitudinis

Gr.Mi.	Mi.
7 11	0 0
7 5	0 10
7 0	0 17
6 41	0 15
6 14	0 10
5 55	0 5
5 30	0 2
5 0	0 0
4 40	0 1
4 17	0 2
3 50	0 3
3 2	0 4
2 7	0 5
1 0	0 6

§25 *litteris inclinatis dantur numeri minutorum ab* ?Nb *additi, qui cum* F *concordant* 4°2': *ex tab. Tolet.*; 4,12 N   (*100ᵐ*) 9': Nb, F; 3 *ex tab. Tolet.*   (*col. dext.*) 90ᵐ--60ᵐ: 95--65 N   §26 (*0ᵎ20°*) 1°36': NF; 1,39 *ex tab. Tolet.*

§28 (*11ᵖ;0*) *lineam om.* F *recte*   10ᵖ,45: F *in textu*; 11,45 N   §30 ho.: horae F; pc. N   §31 ecl. sol(is): *om.* N; *ins.* Nb   0°17ˊ: N; 0,14 *fere ex tab. Tolet.*

225   **(32)** *Investigatio eorum ex quibus de eclipsi arguitur.* Ad investigandum
igitur ea, [ex] quibus ut suppositionibus utendum est, et ex quibus
eclipsis cuiuscumque necessitas vel impossibilitas arguitur, sic proce-
das: Si enim in quocumque mense anni cuiuscumque, an eclipsis
futura sit, volueris investigare, cum annis domini, annumerato eo de
230   quo intenderis, tabulam coniunctionis *(41)* si de eclipsi solis propo-
sueris, vel oppositionis *(42)* si de eclipsi lunae, intres, et quod de
ultimo titulo edirecto fuerit, extra scribas. **(33)** Quod si nihil fuerit in
signis et minus 12 in gradibus, vel 5 in signis et plus 18 in gradibus
usque ad 6 signa, erit eclipsis solis possibilis circa principium illius
235   anni, si tabulam coniunctionis intrasti. Si autem tabulam opposi-
tionis intrans inveneris de eodem ultimo titulo 0 vel 6 in signis et
minus 12 in gradibus, aut 5 vel 11 in signis et plus 18 in gradibus,
erit eclipsis lunae possibilis circa principium eiusdem anni. **(34)**
Quod si annos intentos non inveneris in tabula, tunc pauciores,
240   propinquiores tamen, quaeras; et quod edirecto eorum fuerit de
eodem ultimo titulo, extra scribas. Deinde cum eisdem annis omni-
bus intentis tabulam *(43)* communem coniunctioni et oppositioni
intres, et quod edirecto eorum fuerit de eodem ultimo titulo, alteri
prius extracto subscribas et eidem aggreges, eo modo qui in
245   collectione mediorum motuum planetarum observatur; et aggrega-
tum si in aliquo dictorum casuum fuerit, erit eclipsis illius luminaris
possibilis, de quo intendisti, circa principium anni ut prius. Et hoc,
quo circa principium anni indicatur eclipsis possibilis, dicitur radix
anni.
250   **(35)** Si etiam, utrum in quocumque mense anni eiusdem sit eius-
dem luminaris eclipsis possibilis, scire volueris, tabulam *(44)* men-
sium intrans, quod edirecto cuiuslibet mensis fuerit, etiam de ultimo
titulo, radici anni seorsum aggreges; et ⟨si⟩ ex cuiuscumque ad
radicem anni aggregatione aliquis dictorum casuum provenerit, erit
255   illius luminaris eclipsis possibilis circa illum mensem, ex edirecto
cuius sumpto, et radice anni, casus provenit.
(36) Et cum aliquem dictorum casuum inveneris, intres secundo
eandem vel easdem tabulas, et eodem vel eisdem locis; et quod
edirecto ex tribus primis titulis fuerit, eo ordine qui est in tabula

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260 extra scribas, quodlibet sub alio sui generis collocando; duoque
ultima eodem modo aggreges, sicut de eo iam dictum est quod ad
ultimum titulum extraxisti.

(37) De primo autem alia ratio est: primum enim per secundum
minuas, et residuum per tertium extendas, et quod provenerit, a
265 principio mensis introitus numeres; et ubi dies fractionum ceciderit,
erit coniunctio vel oppositio, si annus sit communis; si autem bis-
sextilis, erit procul dubio in die praecedente. (38) Si autem secun-
dum a primo non possit subtrahi, tertium primo superaddas et ab
aggregato secundum minuas, et residuum a principio mensis in-
270 troitus numeres, et cetera sicut prius. Si etiam a primo et tertio simul
iunctis aut a primo, non existente tertio, secundum non possit
subtrahi: ei, quod minus est, tempus Ianuario ascriptum superaddas,
factaque subtractione residuum de diebus kalendaribus mensis prae-
cedentis mensem introitus minuas, et quod superfuerit, a principio
275 eiusdem praecedentis numeres, et cetera sicut prius. Et invenies diem
et horam, minutum et secundum, quo luna soli coniungetur sive
opponetur per motus medios ad meridianum Parisiensem, in meridie
hesterna die hac incepta.

(39) Sed diligenter caveas ut, si tempus edirecto Ianuarii inventum
280 modo qui dictus est aliquando addideris, quae edirecto eiusdem ex
aliis titulis fuerint, ab aliis prius collectis minuas, quodlibet scilicet ab
alio sui generis.

(40) Et habebis per primum aliorum trium generum medium
motum solis et lunae, quod est distantia epicycli lunae, vel eius
285 nadair, ab ariete ad horam primo extractam. Per secundum autem
habes argumentum lunae verum, quod est distantia lunae ab auge
vera epicycli secundum motum lunae in epicyclo considerata; per
ultimum vero, ex quo primo possibilitatem eclipsis arguisti, argu-
mentum latitudinis, quod est arcus orbis cadens inter centrum
290 epicycli lunae et caput draconis in hora mediae coniunctionis vel
oppositionis.

(41) Tabula mediae coniunctionis solis et lunae
in annis Christi solaribus ad Parisius.

Anni Christi collecti	Tempus mediæ coniunctionis solis et lunæ				Medius motus solis et lunæ				Argumentum lunae verum				Argumentum latitudinis lunae			
	Di	Ho	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a
1217	8	20	51	5	9	16	37	33	7	0	10	18	4	27	22	9
1241	13	10	55	35	9	20	59	31	10	17	44	1	8	16	31	26
1265	18	1	0	5	9	25	21	29	2	5	17	43	0	5	40	42
1289	22	15	4	36	9	29	43	27	5	22	51	26	3	24	49	59
1313	27	5	9	6	10	4	5	25	9	10	25	9	7	13	59	15
1337	2	6	29	33	9	9	21	3	0	2	9	51	10	2	28	17
1361	6	20	34	3	9	13	43	1	3	19	43	34	1	21	37	34
1385	11	10	38	34	9	18	4	58	7	7	17	17	5	10	46	50
1409	16	0	43	4	9	22	26	56	10	24	50	59	8	29	56	6
1433	20	14	47	34	9	26	48	54	2	12	24	42	0	9	5	23
. . . .	(vacat)															
1577																

(42) Tabula mediae oppositionis solis et lunae
in annis Christi solaribus ad Parisius.

Anni Christi collecti	Tempus mediæ oppositionis solis et lunæ				Medius motus solis et lunæ				Argumentum lunae verum				Argumentum latitudinis lunae			
	Di	Ho	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a
1217	23	15	13	7	9	2	4	24	1	13	4	48	10	12	2	2
1241	28	5	17	37	9	6	26	21	5	0	38	31	2	1	11	19
1265	3	6	38	4	9	10	48	19	7	22	23	14	5	20	20	35
1289	7	20	42	34	9	15	10	17	11	9	56	56	9	9	29	52
1313	12	10	47	5	9	19	32	15	2	27	30	39	0	28	39	8
1337	17	0	51	35	9	23	54	13	6	15	4	21	4	17	48	24
1361	21	14	56	5	9	28	16	11	10	2	38	4	8	6	57	41
1385	26	5	0	35	10	2	38	9	1	20	11	47	11	26	6	57
1409	1	6	21	2	9	7	53	46	4	11	56	29	2	14	35	59
1433	5	20	25	32	9	12	15	44	7	29	30	12	6	3	45	16
. . . .	(vacat)															
1577																

(43) Tabula communis mediae coniunctioni et oppositioni solis et lunae in annis Christi solaribus expansis.

Anni Christi expansi		Tempus coniunctionis vel oppositionis solis et lunae				Medius motus solis et lunæ				Argumentum lunae verum				Argumentum latitudinis lunae			
		Di	Ho	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a
1314	1290	10	15	11	20	11	19	16	2	10	9	48	2	0	8	2	48
1315	1291	21	6	22	40	11	8	32	5	8	19	36	3	0	16	5	36
1316	1292	2	8	49	57	11	26	54	27	7	25	13	5	1	24	48	38
1317	1293	14	0	1	17	11	16	10	30	6	5	1	7	2	2	51	26
1318	1294	24	15	12	37	11	5	26	32	4	14	49	9	2	10	54	14
1319	1295	5	17	39	53	11	23	48	54	3	20	26	11	3	19	37	16
1320	1296	16	8	51	13	11	13	4	57	2	0	14	12	3	27	40	3
1321	1297	28	0	2	33	11	2	20	59	0	10	2	14	4	5	42	51
1322	1298	9	2	29	50	11	20	43	22	11	15	39	16	5	14	25	53
1323	1299	19	17	41	10	11	9	59	24	9	25	27	18	5	22	28	41
1324	1300	0	20	8	27	11	28	21	47	9	1	4	20	7	1	11	43
1325	1301	12	11	19	47	11	17	37	49	7	10	52	21	7	9	14	31
1326	1302	23	2	31	7	11	6	53	51	5	20	40	23	7	17	17	19
1327	1303	4	4	58	23	11	25	16	14	4	26	17	25	8	26	0	21
1328	1304	14	20	9	43	11	14	32	16	3	6	5	27	9	4	3	9
1329	1305	26	11	21	3	11	3	48	18	1	15	53	28	9	12	5	57
1330	1306	7	13	48	20	11	22	10	41	0	21	30	30	10	20	49	59
1331	1307	18	4	59	40	11	11	26	43	11	1	18	32	10	28	51	47
1332	1308	28	20	11	0	11	0	42	46	9	11	6	34	11	6	54	35
1333	1309	10	22	38	16	11	19	5	8	8	16	43	35	0	15	37	37
1334	1310	21	13	49	36	11	8	21	11	6	26	31	37	0	23	40	24
1335	1311	2	16	16	53	11	26	43	33	6	2	8	39	2	2	23	26
1336	1312	13	7	28	13	11	15	59	35	4	11	56	41	2	10	26	14

§41 1265ª: 1245 Na.c.   (*1409ᵃ, arg.lun.*) 50ʹ: *ex computatione*; 51 NF
(*1433ᵃ, arg.lun.*) 24ʹ: F, *comp.*; 25 N   **§42** (*1217ᵃ*) 9,2,4,24: 10,1,10,43 F *recte*
(*1217ᵃ*) 10,12,2,2: 11,12,42,17 F *recte*   (*1241ᵃ*) 9,6,26,21: 10,5,32,41 F *recte*
(*1241ᵃ*) 2,1,11,19: 3,1,51,33 F *recte*

(44) Tabula communis mediae coniunctioni et oppositioni solis et lunae in mensibus kalendaribus.

Menses kalendares	Tempus mediæ coniunctionis vel opp-onis				Medius motus solis et lunæ				Argumentum lunae verum				Argumentum latitudinis lunae			
	Di	Ho	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a	Si	Gr	Mi	2a
Ianuarius	29	12	44	3	0	29	6	20	0	25	49	0	1	0	40	14
Februarius	28	1	28	7	1	28	12	40	1	21	38	0	2	1	20	28
Martius	29	14	12	10	2	27	18	1	2	17	27	0	3	2	0	42
Aprilis	28	2	56	13	3	26	25	21	3	13	16	1	4	2	40	56
Maius	27	15	40	17	4	25	31	41	4	9	5	1	5	3	21	10
Iunius	26	4	24	20	5	24	37	1	5	4	54	1	6	4	1	24
Iulius	25	17	8	23	6	23	44	21	6	0	43	1	7	4	41	38
Augustus	24	5	52	27	7	22	50	42	6	26	32	1	8	5	21	52
September	22	18	36	30	8	21	57	2	7	22	21	1	9	6	2	6
October	22	7	20	33	9	21	3	22	8	18	10	1	10	6	42	20
November	20	20	4	37	10	20	9	42	9	13	59	2	11	7	22	34
December	20	8	48	40	11	19	16	2	10	9	48	2	0	8	2	48

(45) *Via communis procedendi in utraque eclipsi.* De eclipsi igitur utrius-
libet luminaris intendens, via hac communi incedas: Inventa enim
possibilitate, scribantur dicta 4 capitula, scilicet argumentum latitu-
295 dinis, et argumentum lunae, medius motus solis et lunae, et tempus
omnium horum. Deinde simile argumento latitudinis quaeras in
alterutro laterum faciei instrumenti (*4*), et sub ultimo minuto eius
statuas mediam lineam cursoris. **(46)** Locato autem sic cursore,
quaeras in eo (*9*) simile medio motui solis et lunae, et super ultimum
300 eius gradum ponas alteram fiduciarum novellae solis. Quaeras etiam
simile argumento lunae (*10*), et super ultimum minutum eius ponas
alteram fiduciarum novellae lunae, sic ut quantum ad utrumque
utaris fiducia dextra in sinistra parte cursoris et e contra. **(47)** Et
notentur loca novellarum in arcu aequationum (*8*): quod enim de
305 ipso fuerit inter lineam mediam cursoris et novellam solis, erit aequa-

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§**44** (*Mart., med.mot.*) 18′: NF; 19 *ex computatione*   (*Iun., med.mot.*) 37′: NF; 38
comp.   (*Dec., arg.lun.*) 48′: F, *comp.*; 49 N   (*Dec., med.mot.*) *sub columna*
11,5,15,37 *add.quidam*
300 alteram: ultimam N*a.c.*

tio solis; quod etiam de eodem arcu fuerit inter eandem lineam
mediam et novellam lunae, erit aequatio lunae. Quod vero inter
utrasque novellas fuerit, est corporalis distantia solis et lunae, vel eius
nadair, secundum medios motus coniunctorum, quod vocatur longi-
310 tudo, et dicatur illius, cuius novella fuerit ad sinistram magis; quod
etiam inter eas fuerit de arcu duodecimae longitudinis (*16*), erit
duodecima longitudinis praesentis. **(48)** Quae quia correspondet
motui solis in tota longitudine, ad quantitatem eius moveas novellam
solis in arcu aequationum (*8*), recedendo semper a novella lunae
315 stante; et quod post motum fuerit de arcu aequationum inter lineam
mediam cursoris et novellam solis, si in parte dextra fuerit, de medio
motu solis minuatur, vel eidem addatur, si fuerit in sinistra; et
habebis verum locum solis ad horam coniunctionis vel oppositionis
in octavo orbe, unde fit, ut iste sit locus coniunctionis vel oppositio-
320 nis corporalis in octavo orbe.

    (49) Notetur etiam in eodem arcu aequationum, quod fuerit inter
utrasque novellas, et haec erit longitudo cum duodecima. Videatur
etiam, quantum de tempore longitudinis (*14*) fuerit inter easdem; et
hoc erit praesentis longitudinis et suae duodecimae tempus, sed ea
325 condicione, ut sit luna in sua longitudine longiori; quod si ibi non
fuerit, videatur, quantum inter dictas novellas fuerit de differentia
duarum longitudinum (*15*). **(50)** Quibus extra scriptis, notetur locus
novellae lunae in gradibus limbi (*4*); et habebis argumentum latitu-
dinis quod apud aequantes vocatur argumentum latitudinis primo
330 aequatum, quod est distantia lunae a capite draconis in hora mediae
coniunctionis vel oppositionis. **(51)** Notetur iterum locus novellae
solis in gradibus limbi; et habebis argumentum latitudinis quod
aequantes vocant secundo aequatum, quod est distantia lunae a
capite draconis in hora coniunctionis vel oppositionis verae.

335 **(52)** Videas igitur, si haec novella solis plus 13 gradibus et 15
minutis a nodo distiterit, quia non erit eclipsis lunae possibilis ista
vice; si etiam plus 12 gradibus ab eodem nodo elongata fuerit, im-
possibile est fieri eclipsim solis.

    (53) *Usus tabulae portionis.* Ad aequandum igitur in posterum singula
340 absque multiplicatione et divisione, tabulam portionis (*113*) compo-
sui, cuius usus est iste: Cum duorum numerorum portionem unius

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335 13°,15′: N; 12°,48′ F

volueris secundum proportionem alterius ad 60, ut in aequationibus
planetarum plerumque accidit, unum horum, quem volueris, quaeras
in capite alicuius columnae dictae tabulae portionis, et alterum in
345 latere eiusdem columnae; et quod in cellula communi fuerit, erit
portio quam volebas, ita quod numerus superius scriptus in dicta
cellula erit eiusdem generis cum numero, cuius portionem quaere-
bas, et qui inferius, posterioris. Verbi gratia, si de 49 secundis portio-
nem volueris secundum proportionem 39 minutorum ad 60 minuta,
350 tunc in capite alicuius columnae dictae tabulae invenies 49 et in latere
eiusdem 39, vel e converso; et in cellula communi stabunt 31
secunda superius et 51 tertia inferius, eadem proportione in aliis
servata. Si etiam in alterutro numerorum sint diversa genera fractio-
num, cum quolibet sui et reliquo divisim intres, et quae inveneris
355 aggreges, quodlibet ad aliud sui generis. Si etiam in utroque sint
diversa genera, cum quolibet unius et quolibet alterius intres seor-
sum. Si etiam alicuius numeri portionem volueris secundum pro-
portionem alterius ad 30 minuta, sicut contingit, cum extrahere
oporteat aliquid ex tabulis crescentibus per dimidium gradum, modo
360 iam dicto opereris, et quod inveneris duples, praeter ultimum, si
minus sit 30.

(54) *Modus aequandi tempus longitudinis et per ipsum tempus coniunctionis
vel oppositionis verae.* Consequenter resumatur argumentum lunae, et
addatur ei medietas longitudinis et duodecimae *primo, et tota longitudo*
365 *cum duodecima secundo,* si solis fuerit longitudo, vel easdem ab eodem
minuatur / *seorsum minuas,* si lunae fuerit longitudo;

et cum argumento lu-   *deinde cum his argumentis lunae aequatis tabu-*
nae sic aequato intres,   *lam minutorum proportionalium (114) seorsum*
et quod edirecto eius   *intres, et minuta edirecto utriusque vel minoris*
370 vel minoris proximi   *proximi sumas; et minuta primo sumpta vocen-*
fuerit, de minutis pro-   *tur minuta proportionalia prima, et secundo se-*
portionalibus (114) su-   *cunda.* (55) *Hoc igitur facto, cum minutis pri-*
mas. (55) Quibus habi-   *mis*
tis, cum eis

360 duples--30: NF   362-3 coniunctionis v. o. verae: *om. rubricator* & *in mg.
add.* Na, *exemplar ab* Nb *praescriptum secutus*   364-5 primo--secundo *ins.* Na
365 easdem: Na; eadem N   366 minuatur/seorsum minuas: N/Na
367-74 *(col.* 1): N; *(col.* 2) Na   368 aequato: aequato tabulam minutorum
proportionalium F

375 et differentia duarum longitudinum prius (49) sumpta in instrumento
tabulam portionis (113) modo supradicto intres, et partem propor-
tionalem, quam ibi inveneris, semper demas de tempore longitudinis
et duodecimae sumpto etiam ex instrumento; et residuum erit
tempus longitudinis et duodecimae ad longitudinem lunae praesen-
380 tem, (56) sed aliquando non praecisum, nec videbatur possibile
errorem non incidere aliquem. Eum autem corriges isto modo:
Intrans cum minutis proportionalibus tabulam erroris tollendi (117),
minuta, quae edirecto eorum fuerint, considera. Pro tot enim minutis
de tempore longitudinis et duodecimae deminutis residuo semper
385 unum addas, et praecise aequatum erit. Erit igitur tempus nunc
aequatum, quod cadit de tempore inter ambas coniunctiones vel
oppositiones, mediam scilicet et veram.

(57) Videas igitur, cuius erat longitudo; et si solis fuerit, quia tunc
media coniunctio vel oppositio praecedit veram, addatur tempus
390 longitudinis nunc aequatum super tempus coniunctionis vel opposi-
tionis mediae; vel idem ab eodem minuatur, si longitudo lunae fue-
rit, quia tunc vera coniunctio vel oppositio praecedit mediam; et
quod post additionem vel minutionem fuerit, erit tempus coniunc-
tionis vel oppositionis verae, sed ea condicione, ut dies naturales
395 omnes sint aequales. (58) Quia igitur propter inaequalitatem ascen-
sionum buth solis, superadditarum revolutionibus caeli diurnis, dies
naturales efficiuntur inaequales, excrementum inaequalitatis, quod
vocatur aequatio dierum, cum gradu solis accipitur. Vero igitur loco
solis in octavo orbe addas motum orbis eiusdem, qui nunc est 10
400 graduum et tertiae unius; et habebis locum solis in nono orbe, cum
quo tabulam aequationis dierum (115) intres, et aequationi edirecto
eius vel minoris proximi ascriptam dicto tempori verae coniunctionis
vel oppositionis semper addas; et habebis tempus verae coniunc-
tionis vel oppositionis, diebus aequatis ad
405 meridianum civitatis, cuius longitudo ad orientem de │ *Parisius.*
Parisius est 32 minutorum temporis.   │

Et haec est illa, de qua dixi, in omni eclipsi communis via.

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384 deminutis: de min. N   398-406 vero igitur--orbe. . .et habebis--temporis:
de F *v.praef.* §2   401 dierum intres: i.d. *notis inv.* N   405-6 *(col.* 1): N; *(col.* 2)
?Nb

(59) *Via specialis pro punctis et dimidio durationis eclipsis lunaris.* Via autem speciali pro eclipsi lunae complenda sic procedas: Fiduciam
410 enim dextram novellae utriuslibet ponas super argumentum latitudinis secundo aequatum (*51*) in dextro latere (*4*), et sinistram alterius super consimile in sinistro; et habebis ad sinistram (*5*) puncta et minuta de diametro lunae eclipsanda, ad dexteram autem (*6*) dimidium durationis eiusdem, sed ea condicione, ut sit luna in sua
415 longitudine longiori.

(60) *Aequatio praemissorum.* Si igitur alibi fuerit,

cum argumento latitudinis secundo aequato tabulam (*118*) differentiae duarum longitudinum
420 in punctis eclipsis intres[, et quod edirecto eius fuerit, semper addas punctis et minutis in instrumento inventis]. Si etiam tabulam bis intrare oporteat, cum
425 differentia duorum introituum, quae stat ad dextram, et cum minutis, pro quibus secundo intraveris, tabulam portionis (*113*) intres modo qui supradictus est;
430 et quod inveneris duplans, cum cautela ibidem tradita, addas supra id quod ad primum introitum invenisti, si ipsum secundo minus fuerit; si vero maius, idem
435 minuas ab eodem. Et erit differentia aequata in punctis, quam ⟨**⟩ semper addas punctis et minutis ex instrumento acceptis.

cum distantia novellarum a nodo tabulam (*118*) *differentiae duarum longitudinum in punctis eclipsis intres, et quod edirecto eius fuerit de punctis et minutis sumas. Si etiam bis intrare oporteat, cum differentia amborum introituum, quae stat in tabula semper edirecto posterioris, et cum minutis, pro quibus secundo intraveris, tabulam portionis* (*113*) *intres, et quod in angulo communi fuerit duples, et duplatum primo addas. Et erit differentia duarum longitudinum in punctis aequata, cum qua et minutis proportionalibus secundis* (*54*) *intres tabulam portionis, et quod inveneris punctis et minutis, quae in instrumento invenisti, semper addas.*

Et habebis puncta et minuta de diametro lunae eclipsanda ad
440 locum lunae praesentem, quae in particulari eclipsi versus meridiem numeranda sunt, si argumentum latitudinis, per quod puncta sumpta sunt, 0 vel 5 sit in signis; si vero 6 vel 11, versus septentrionem.

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(61) Consimiliter quoque operaberis pro differentia earundem longitudinum in dimidio durationis, intrando tabulam (*119*) ad hoc
445 constitutam, et differentiam aequatam addas semper dimidio durationis quod ex instrumento accepisti; et habebis dimidium durationis eclipsis, sed non praecisum. (62) Cum minutis igitur proportionalibus tabulàm erroris tollendi (*117*) intres, et pro tot minutis, quot ibi inveneris, unum de dicto dimidio durationis tollas. (63) Et erit
450 dimidium durationis aequatum, quod si de tempore oppositionis verae, quod est tempus mediae eclipsis, minueris, remanebit hora initii eclipsis; et si idem eidem addideris, exibit eius finis; si etiam ipsum duplaveris, habebis totalem eclipsis durationem.

(64) *Inventio morae.* Nec te etiam latere convenit, si quando eclipsis
455 universalis fuerit, quantam moram luna faciet in umbra. Est autem mora tempus deambulationis lunae in umbra terrae absque lumine solis. Pro mora igitur habenda, cum dicto argumento latitudinis secundo aequato tabulam (*120*) dimidii morae intres, et minuta quae inveneris extra scribas. Si etiam bis intrare oporteat, opereris cum
460 differentia duorum introituum et minutis, pro quibus secundo intraveris, sicut in capitulo proximo dicebatur (*60*); et habebis dimidium morae, ea autem condicione sicut supra, ut sit luna in sua longitudine longiori. (65) Ea igitur alibi existente, cum eodem argumento latitudinis tabulam (*116*) differentiae duarum longitudi-
465 num in dimidio morae intres, et opereris per omnia sicut prius, quodque aequando inveneris, dimidio morae nunc invento semper addas; et habebis dimidium morae ad locum lunae praesentem. Sed quia nec hoc omnino praecisum est, opereris sicut in capitulo proximo nunc (*62*) dictum est. (66) Et erit dimidium morae aequatum,
470 quod si de tempore mediae eclipsis minueris, remanebit initium morae, quod est instans exstinctionis lunae totalis; et si idem eidem addideris, exibit finis morae, qui est instans primae reaccensionis lunae; si etiam idem duplaveris, exibit mora totalis.

(67) *Modus investigandi utrum eclipsis futura sit in nocte.* Ad sciendum
475 autem, an eclipsis inventa futura sit de die vel de nocte tota vel in parte, cum gradu solis in nono orbe (*58*) tabulam (*121*) temporis diurni ad clima tuum vel civitatem intres, et medietatem temporis diurni, quod edirecto eius steterit, extra scribas; et hoc erit tempus a meridie ad occasum solis in die gradus solis. Similiter quoque extra
480 scribas tempus diurnum, quod e directo nadair gradus solis fuerit; et

hoc erit tempus noctis gradus solis. Addito igitur hoc ad primum, exibit tempus a meridie diei praecedentis ad ortum solis in sequente. Videas ergo, si tempus finis eclipsis fuerit minus 12 horis: erit enim tunc ante mediam noctem eclipsis tota. Si etiam tempus initii eclipsis
485 fuerit maius 12 horis, erit post mediam noctem eclipsis tota. **(68)** Si igitur ante futura sit, medietatem temporis diurni subtrahas de quolibet temporum eclipsis seorsum, et residuum cuiuslibet ostendet horam sui post occasum solis. A quocumque vero non potuerit subtractio fieri, hoc in die erit, et ante occasum solis secundum diffe-
490 rentiam utriusque. Si vero post mediam noctem futura sit, medietatem temporis diurni iungas tempori suae noctis, et ab aggregato tollas unumquodque temporum eclipsis seorsum; et scies per residuum, quantum unumquodque futurum sit ante ortum solis. Sed si aliquod horum tolli non potuerit, hoc iterum in die erit, et post ortum solis
495 secundum differentiam utriusque.

Et haec plerumque sufficiunt pro eclipsi lunae.

(69) *Via specialis de eclipsi solis, utrum coniunctio futura sit in die.* Aliter autem procedas deinceps in eclipsi solis: Inventis enim argumento latitudinis, quod secundo aequatum dicitur (*51*), et tempore coniunc-
500 tionis verae (*58*), videndum est, utrum haec coniunctio sit diurna vel non, et si diurna, utrum ante meridiem vel post. Ad hoc ergo sciendum tabulam (*121*) temporis diurni cum gradu solis, ut in capitulo proximo (*67*) dictum est, intres, et medietatem temporis gradus solis et tempus totale nadair extra divisim scribas. Sique tem-
505 pus coniunctionis verae minus fuerit medietate temporis gradus solis, erit illa coniunctio in die, et ante occasum solis secundum differentiam utriusque. Si vero tempus coniunctionis mediete eadem maius fuerit, eidem medietati tempus nadair superaddas; et si aggregatum minus fuerit tempore coniunctionis, erit iterum illa coniunctio in die,
510 et post ortum solis secundum differentiam utriusque. Si vero tempus coniunctionis fuerit plus mediete temporis gradus solis et minus aggregato, erit de nocte, et non erit ulterius laborandum.

(70) *Inventio diversitatis aspectus in longitudine et latitudine.* Invento autem quod coniunctio futura sit de die, cum tempore coniunctionis
515 verae operaberis, si sit post meridiem; si vero ante, tunc tempus

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482 praecedentis--in sequente: praesentis--inde sequentem F   **497** aliter: specialiter F

coniunctionis verae de 24 minuens cum residuo operaberis. **(71)**
Cum utrolibet ergo tabulam (*122*) diversitatis aspectus ad clima tuum
vel civitatem intres sub signo coniunctionis, et ante titulum Recessus,
si futura sit ante meridiem, vel post, si post sit futura, et diversitatem
520 aspectus tantum in longitudine edirecto stantem accipias; et si pro
minutis horae secundo intrare oporteat, cum eis et differentia
duorum introituum tabulam portionis (*113*) modo consueto intres, et
quod inveneris, aspectui primi introitus semper addas; et erit diversi-.
tas aspectus ⟨aequata⟩ pro parte horae ad signum coniunctionis. **(72)**
525 Sicque facias intrando sub sequente signo, si coniunctio non fuerit in
principio signi; et erit aspectus aequatus pro parte horae ad signum
sequens. Deinde videas, quot gradibus distet haec coniunctio a
principio signi, et quae sit differentia amborum aspectuum; et cum
utrisque tabulam portionis intrans, quod inveneris duples, et dupla-
530 tum aspectui primo addas, si minor sit secundo, vel idem ab eodem
minuas, si sit maior; et erit aspectus aequatus pro parte horae et pro
parte signi. **(73)** Cum quo et minutis proportionalibus secundis (*54*)
tabulam portionis intres, et quod ibi inveneris, eidem aspectui addas,
si minuta proportionalia plura fuerint 29, vel idem ab eodem minuas,
535 si fuerint pauciora; et erit diversitas aspectus aequata pro parte horae,
pro parte signi et pro parte epicycli. **(74)** Cum qua tabulam (*123*)
temporis aspectus et differentiae intres, et quod ibi de tempore
aspectus et de differentia duarum longitudinum fuerit, seorsum
extra scribas. **(75)** Deinde cum ipsa differentia et secundis minutis
540 proportionalibus tabulam portionis intrans, quod ibi inveneris, de
tempore diversitatis aspectus semper minuas; si etiam diversitas ipsa
maior 60 minutis fuerit, primo pro 60 et secundo pro residuo intres.
Et erit tempus diversitatis aspectus aequatum primo, quod semper
addendum est tempori, cum quo tabulam diversitatis aspectus in-
545 trasti.

    (76) Hoc facto, cum tempore excrescente eandem tabulam diversi-
tatis (*122*) et sub eisdem signis intrans, per omnem modum facias
sicut prius; et tempus diversitatis aspectus, quod in fine inveneris,
addas eidem tempori cui et prius addidisti. **(77)** Adhuc cum tempore
550 nunc excrescente eandem tabulam diversitatis, et sub eisdem signis,
tertio intrans, accipias de utraque diversitate aspectus, scilicet in

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524 aequata: F; *om.* N

longitudine et latitudine, et utramque aeques seorsum ad partem
horae, ad partem signi et ad partem epicycli, sicut alteram solam
prius bis aequasti. Et erit diversitas aspectus in longitudine sic
555   aequata arcus orbis cadens inter locum lunae, in quo est corpora-
liter, et locum ad quem proicitur visibiliter versus orientem vel occi-
dentem; diversitas vero aspectus in latitudine est arcus orbis cadens
inter eadem loca versus austrum sumptus.

(78) *Usus diversitatis aspectus utriusque.* Omnino autem sicut prius
560   cum hac diversitate aspectus in longitudine intres tabulam (*123*)
temporis aspectus, et quod ibi aequando inveneris, addas iterum illi
tempori cui iam bis addidisti; et de tempore, quod nunc excreverit,
tollas id quod per tabulam (*117*) erroris tollendi per ea quae
supradicta sunt est tollendum; et tempus, quod remanserit, erit
565   coniunctionis visibilis, quod est tempus mediae eclipsis, a meridie
ante vel post numerandum.

(79) Item cum eadem diversitate aspectus in longitudine intres
tabulam (*124*) duodecimae cuiuslibet numeri, et quod edirecto eius
inveneris, eidem addas; et habebis diversitatem aspectus in longi-
570   tudine cum sua duodecima, quae est arcus orbis a loco lunae in hora
coniunctionis verae ad locum eiusdem in hora coniunctionis visibilis
versus orientem vel occidentem protensus. Et ideo addere oportet
hunc arcum supra locum lunae in nono orbe sumptum et supra
argumentum latitudinis secundo aequatum, si coniunctio futura sit
575   ante meridiem, vel eundem ab eisdem minuere, si post meridiem sit
futura; et habebis locum lunae ad horam coniunctionis visibilis, et
similiter argumentum latitudinis tertio aequatum, quod est arcus
orbis cadens inter caput draconis et locum in quem luna ad visum est
proiecta.

580   (80) Hoc expedito transferantur novellae ad dorsum instrumenti,
et quaeratur simile (*18*) argumento latitudinis tertio aequato, quod si
in dextro latere inveneris, super ipsum statuas sinistram fiduciam
novellae solis, vel dexteram, si fuerit in sinistro. Locata igitur fiducia,
quaeras in circulo (*13*) diversitatis aspectus in latitudine simile diver-
585   sitati aspectus in latitudine iam aequatae, et ibi posita novella lunae,
notetur locus eius in limbo (*18*); et habebis argumentum latitudinis

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573 lunae: solis F   **581-3** si in dextro latere inveneris . . .si fuerit in sinistro: si
in signo 5 vel 6 fuerit. . . si in signis fuerit 11 vel 0 F (*cf.ad l.* 789)   **583** vel: F;

quarto aequatum, quod est arcus orbis cadens inter caput draconis et
terminum lineae exeuntis a loco lunae visibili, aequedistanter eclipti-
cae, quae est via solis.

590   (81) Stante autem novella lunae in hoc situ, ponas novellam solis
super argumentum consimile in alio latere; et habebis puncta et
minuta eclipsis solaris ad sinistram (19) et dimidium durationis ad
dexteram (21), ea autem ut supra condicione, ut sit luna in sua longi-
tudine longiori. (82) Alibi vero ea existente, videas diligenter distan-
595 tiam novellarum a nodo, et in eadem distantia hinc inde a nadair
nodi ponas easdem; et habebis differentiam duarum longitudinum in
punctis ad sinistram (20) et differentiam earundem longitudinum in
dimidio durationis ad dexteram (22), et haec divisim serves. Deinde
cum secundis minutis proportionalibus (54) et differentia in punctis
600 tabulam portionis (113) intrans, quod inveneris punctis et minutis
prius acceptis semper addas; et erunt puncta eclipsis solaris aequata,
quae sunt partes duodecimae diametri solaris eclipsanda. Intres con-
similiter eandem tabulam portionis cum differentia in dimidio
durationis et eisdem minutis proportionalibus; et quod inveneris,
605 dimidio durationis addas, si ipsum dimidium durationis minus fuerit
44 minutis, vel idem ab eodem minuas, si sit maius. Et erit dimi-
dium durationis eclipsis solaris aequatum, quod si de tempore
mediae eclipsis minueris, remanebit tempus initii eclipsis, et cetera,
sicut supradictum est de luna (63). Quae etiam pars solis eclipsanda
610 fuerit, scies sicut ibi dicebatur (60).

    (83) *Investigatio temporis longitudinis et duodecimae.* Ne autem, parvo
quandoque existente instrumento, in acceptione temporis longitudi-
nis et duodecimae in utraque eclipsi aliquod contingat dubium, lon-
gitudinem ipsam cum duodecima diligenter ab instrumento extrahas,
615 sicut supradictum est (49); et cum ea tabulam (125) temporis longitu-
dinis et duodecimae intrans, invenies edirecto eius suum tempus, ea
condicione, ut sit luna in sua longitudine longiori. Quod si bis intrare
oporteat, cum differentia duorum introituum et minutis, pro quibus

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ad N   **590** *ante* §81 *add.* F nunc quoque diligenter videas distantiam no(vel)lae
lunae a nodo in partem alterutram, quae si fuerit 7 in gradibus et plus 10 minutis,
impossibile erit hac vice eclipsim solis fieri, si vero minor fuerit, ponas no(vel)lam
solis. . .
608 eclipsis: solaris *add. & del.* N   **617** longitudine: *om. & in mg.ins.* N

secundo intraveris, tabulam portionis intrans, quod inveneris duples,
620 et duplatum tempori primi introitus addas; et habebis tempus longi-
tudinis et duodecimae, de quo dubitabas. Tempus autem differen-
tiae duarum longitudinum (*15*) praecise satis ex instrumento habebi-
tur cum aliis, quae sunt necessaria ad eclipsim.

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(84) *Ratio eorum, quae circa compositionem et usum instrumenti dicta sunt.*
625 Expedito eo quod intendebatur ab initio, ut 'propter quid' viso audi-
tor factus scientior fidem omnimodam dictis accommodet, visum est
perutile singulorum, quae in compositione et usu instrumenti, immo
simpliciter eorum, quae in investigatione utriusque eclipsis dicta sunt,
reddere rationes.
630   (85) Constitui igitur in facie instrumenti utrimque a nodo 14
gradus argumenti latitudinis lunae (*4*), non quia meta eclipsis ultra 13
gradus et 16 minuta sit possibilis, sed propter circulum minutorum
aspectus addidi quod est ultra. (86) Puncta etiam et minuta eclipsis
lunaris aequavi pro argumentis latitudinis singulis, et singulis apposui
635 singula a nodo sinistrorsum (*5*); dimidium autem durationis argu-
mentis similibus ascripsi dextrorsum ab eodem nodo (*6*); sed hoc erat
ad placitum, quia poteram latera permutasse; sicque feci in dorso (*19,*
21), addendo ibi quaedam (*20,22*), ne vacarent loca.
       (87) Quia in hora coniunctionis mediae linea medii motus solis est
640 eadem cum linea medii motus lunae, cuius pars est diameter epicycli
ad augem vadens, sequitur quod diameter haec epicycli ad orbem
ducta terminet motum medium utriusque; et ob hoc circa eandem
lineam, quae est media cursoris (*7*), ordinavi deferentem solis et epi-
cyclum lunae (*9,10*). (88) Et quia aequationes solis, sicut et lunae, ab
645 auge incipiunt, lineam eandem mediam posui communem etiam dia-
metro deferentis solis ab auge ad oppositum descendenti. (89) Item,
quia maxima remotio solis corporaliter a linea medii motus sui est ad

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627 immo simpliciter: nec non et F
630-3 14 gradus...non quia--ultra: 12 gradus...non quia extra hanc metam
luna existens eclipsari non possit sed quia, centro epicycli lunae in oppositione vel
coniunctione media extra hanc metam existente, impossibile est eclipsim fieri sive
solis sive lunae F   **638** addendo--loca: suo modo F   **640** epicycli ad: orbem
ducta *ex inferioribus add. & del.* N

unum gradum orbis et 59 minuta, quae dicuntur maxima solis
aequatio, ideo pro deferente solis tantundem accepi de argumento
650 latitudinis, quod partium est zodiaci, et signavi in cursore. **(90)**
Consimiliter, quia maxima remotio lunae corporaliter a linea medii
motus sui est ad 5 gradus et unum minutum, quae dicuntur maxima
lunae aequatio, ideo etiam pro epicyclo lunae tantundem accepi de
argumento latitudinis in cursore. **(91)** Ex quo videbatur consequens
655 ponere arcum communem, infra quem omnes aequationes solis et
lunae cadunt, et hunc supra deferentem solis posui, vocans eum
propter dicta arcum aequationum (*8*). Epicyclumque lunae sub
deferente solis statui secundum ordinem universi. **(92)** Deinde epi-
cyclum (*10*) et zodiacum (*9*) divisi in suas partes secundum aequa-
660 tiones singularum, ut, accepto medio motu solis et argumento lunae,
statim habeatur utriusque aequatio et verus locus.

– **(93)** Adhuc, quia sol et luna per medios motus coniuncti possunt
per dicta ad 7 gradus distare corporaliter abinvicem, ideo propter
motum solis 35 minuta, quae sunt totalis longitudinis duodecima,
665 ordinavi (*16*) hinc inde a rostro novellae solis, ad quantitatem gradus
limbi 5 minutis sumptis. **(94)** Et quia, tempore motus solis per haec
35 minuta, movetur luna per 7 gradus et eadem 35 minuta, conse-
quens est quod locus lunae in hora mediae coniunctionis vel
oppositionis distare potuerit a loco suae verae coniunctionis vel
670 oppositionis 7 gradibus et 35 minutis, quae dicuntur maxima
longitudo cum sua duodecima; **(95)** quam per 30 minuta et 12
secunda, quae sunt motus lunae aequalis et aequatus in una hora ad
augem epicycli, divisi, et 15 horas cum quintadecima unius, quae
provenerunt, ordinavi (*14*) in eadem novella solis hinc inde a rostro
675 sub 7 gradibus et 35 minutis limbi. **(96)** Deinde eandem longitudi-
nem divisi per motum lunae aequalem et aequatum in una hora ad
oppositum augis, scilicet per 36 minuta et 10 secunda, et 12 horas
cum 35 minutis, quae provenerunt, subtraxi de horis et minutis
primis; et 2 horas cum 29 minutis, quae remanserunt, ordinavi (*15*)
680 sub prioribus et sub dictis 7 gradibus et 35 minutis limbi. –

(97) Ex his patet, quare media linea cursoris ordinari debeat sub
ultimo minuto argumenti latitudinis in principio eclipsis examinan-

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670-80 quae--limbi: *post alia pauca* tempus enim huius longitudinis commodius in
dorso ordinavi F

dae (*45*), cum argumentum illud est distantia epicycli lunae a capite
draconis. **(98)** Ex hoc etiam sequitur quod, posita novella solis supra
685 medium motum solis in cursore (*46*), quod de arcu aequationum
fuerit inter eandem novellam solis et lineam mediam cursoris, erit
aequatio solis (*47*); et similiter quod, posita novella lunae super argu-
mentum suum, quod de eodem arcu aequationum fuerit inter
eandem novellam et lineam mediam cursoris, erit aequatio lunae; et
690 quod de eodem arcu aequationum fuerit inter ambas novellas sic
stantes, erit corporalis distantia inter solem et lunam, quae longitudo
dicitur; et quod inferius de arcu duodecimae longitudinis fuerit inter
easdem novellas, erit duodecima acceptae longitudinis. **(99)** Et quia
sol hanc perambulat, ideo ad quantitatem huius duodecimae movere
695 oportet novellam solis in arcu aequationum, recedendo semper a
novella lunae (*48*), ut habeatur locus verae coniunctionis vel oppo-
sitionis. **(100)** Et quod de tempore longitudinis fuerit nunc inter am-
bas novellas (*49*), erit tempus quod fluit inter ambas coniunctiones
vel oppositiones, supposito quod luna sit in auge; et quod sub illo
700 fuerit, erit differentia duarum longitudium, quam cum minutis pro-
portionalibus aequare oportebit.

    (101) Aequatur autem argumentum lunae per medietatem longitu-
dinis et duodecimae (*54*) propter motum lunae in epicyclo, qui fere
tantus est sicut motus epicycli, ut habeatur argumentum lunae ad
705 instans medium inter ambas coniunctiones vel ambas oppositiones;
sed non additur vel subtrahitur hic tota longitudo cum duodecima,
quia sic haberetur argumentum lunae ad veram coniunctionem vel
oppositionem, ubi notabiliter fingeretur vel plus vel minus debito
moveri in toto tempore longitudinis et duodecimae. Aequando autem
710 ad instans medium, licet in prima medietate erretur in aliquo, in
secunda ad aequalitatem reducitur.

    (102) Et quia non est aliud argumentum latitudinis primo aequa-
tum (*50*) nisi distantia lunae corporaliter a capite draconis in hora
mediae coniunctionis vel oppositionis, ideo hoc argumentum accipi-
715 tur per novellam lunae. Similiter, quia non est aliud argumentum
latitudinis secundo aequatum (*51*) nisi distantia lunae corporaliter ab
eodem capite draconis in hora coniunctionis vel oppositionis verae,
scilicet quando luna est cum sole, ideo argumentum latitudinis

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710 licet: et N

secundo aequatum accipitur cum novella solis. **(103)** Item quia, ubi
720 est luna in oppositione vera, ibi est diameter umbrae terrae, ideo,
cum per locum lunae in hora oppositionis verae habetur argumen-
tum latitudinis secundo aequatum, habentur et puncta et minuta
eclipsis lunae ex consequenti (59). Et quia tanta eclipsis fit in tanto
tempore, cuius dimidium est positum in alio latere, ideo cum argu-
725 mentis latitudinis consimilibus accipitur quantitas eclipsis, de qua
nunc dixi, et dimidium durationis eiusdem. – **(104)** Sed quia multi-
tudo inscriptionum deformitatem instrumento et errorem forsitan
operanti induceret, placuit per distantiam novellarum a nodo accipi-
endum esse dimidium morae (64) in tabulis ad hoc factis.
730   **(105)** In coniunctione autem vera, quia luna non videtur sub illa
parte orbis, sub qua est, sed ante meridiem orientalior et post occi-
dentalior fit visibiliter plurimum, et semper cum hoc australior
quam est in veritate, erit arcus orbis inter locum, sub quo vere est, et
locum, sub quo est visibiliter, partim versus orientem vel occidentem
735 et partim ad austrum numerandus. **(106)** Sumptus autem ad orien-
tem vel occidentem dicitur diversitas aspectus in longitudine; sump-
tus vero versus austrum dicitur diversitas aspectus in latitudine.
Dicitur autem uterque diversitas aspectus, quia ad diversitatem
aspicientium fit et diversificatur. Primus etiam dicitur in longitudine,
740 quia mensuratur secundum partes orbis sive zodiaci in longitudine;
secundus vero dicitur in latitudine, quia ad partem orbis vel zodiaci
secundum latitudinem mensuratur. **(107)** Cum igitur motus lunae sit
ad orientem, prius erit soli coniuncta visibiliter quam vere ante
meridiem, et post e converso; et ideo tempus diversitatis aspectus, et
745 suae duodecimae propter motum solis, additur (75) ad tempus a
meridie praesenti in utramque partem, ut habeatur tempus con-
iunctionis visibilis; et iam statim haberetur, si eadem esset diversitas
aspectus lunae in loco, ad quem tracta est, cum ista quam invenisti
ad locum coniunctionis verae. **(108)** Sed erit utrarumque diversita-
750 tum diversitas aliqualis; et ideo, supposito lunam esse in hoc secundo
loco, cum tempore arcus inter hunc locum lunae secundum et meri-
dianum accipitur diversitas aspectus in longitudine secundo (76); et
erit semper maior primo; et huius et suae duodecimae tempus addi-

tur eidem tempori, cui primo addebatur. Sed nec erit luna adhuc
755 necessario inter nos et solem, sed erit aliquando et huius loci diver-
sitas diversa secundum aliquid a secunda; et ideo tertio cum tempore
arcus inter hunc locum et meridianum accipitur diversitas sicut prius
(77), et eius tempus et suae duodecimae additur tempori, cui primo
addebatur. Sed si cum tempore, quod nunc excreverit, intres tabulam
760 ut prius, nullam invenies diversitatem sensibilem ab ea quae tertio
est inventa; et ob hoc intrando tertio tabulam accipitur diversitas et in
latitudine sicut in longitudine. (109) Aequatur autem ter qualibet
vice (71-73), quia compositor tabulae supposuit coniunctionem esse
in principio signi illius, in quo fit, et in complemento horae, et
765 lunam in longitudine media epicycli, et quia ad haec puncta sumpta
diversitas diversa erit ad quaecumque alia, tum propter esse lunae
superius vel inferius in epicyclo, tum propter accessum vel recessum
lunae ad zenith vel ab eodem, et tum etiam propter distantiam solis
maiorem vel minorem ab orbe lunae. (110) Ex dictis patet quare, ad
770 habendum locum lunae et argumentum latitudinis in hora coniunc-
tionis visibilis, diversitatem aspectus in longitudine cum sua duode-
cima loco lunae et argumento latitudinis in hora coniunctionis verae
addi oporteat post meridiem, et ante minuere ab eodem (79): quia
coniunctio visibilis veram praecedit ante meridiem, et post e con-
775 verso.

(111) Adhuc, quia diversitas aspectus in latitudine est arcus proiec-
tionis lunae ad austrum visibiliter, qui sic se habet ad arcum deferen-
tis lunae sicut unum ad XI cum dimidio – ad arcum, dico, deferentis
lunae, qui est inter locum lunae in hora coniunctionis visibilis et
780 punctum sui, quod tantum distat ab ecliptica quantum locus visibilis
lunae – et ob hoc, posita novella solis super argumentum latitudinis
tertio aequatum et novella lunae super diversitatem aspectus in latitu-
dine, habetur argumentum latitudinis quarto aequatum (80), quia
cuilibet minuto aspectus XI minuta cum dimidio de limbo cor-
785 respondent. Unde, cum diversitas aspectus in latitudine sit arcus
orthogonaliter a loco lunae visibili in deferente per partes latitudinis
zodiaci protensus, erunt partes sibi de limbo correspondentes arcus a
loco proiectionis lunae aequedistanter ductus eclipticae ad contac-

F; eo N   **764** fit: est F   **765** lunam: esse *add.* F   **768** lunae: epicycli l. F

tum deferentis. **(112)** Ex quo sequens est, quod locus contactus
790 huius arcus paralleli cum deferente lunae et locus proiectionis eius-
dem aequedistent; ex quo ulterius sequitur quod, quantum eclipsa-
ret luna de sole in dicto puncto contactus, tantum eclipsabit de eo in
loco suae proiectionis, et e converso; et ideo nulli mirum, si quando-
que luna extra metas eclipsis solaris existens corporaliter solem eclip-
795 set, vel infra existens eum non contingat. Meta autem eclipsis solaris
est 7 graduum et 11 minutorum ab alterutro nodorum.

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789 *post* §111 *add.* F supra argumentum autem latitudinis tertio aequatum dextrá
fiducia novellae solis posita circa caput draconis vel sinistra circa caudam, invenitur
ex hoc arcu argumentum latitudinis quarto aequatum, in partem fiduciae positá
novella lunae, sic enim faciendo intellegitur arcus iste ab argumento latitudinis
tertio aequato circa caput minui et circa caudam addi, itur enim primo modo
contra et secundo secundum signorum seu graduum successionem a novella solis
in novella lunae   **796** 7°11′: 7°10′ F   nodorum: explicit *add. & del.* N

(113) ⟨Tabula magistri Petri Philomenae de Dacia ad inveniendum portionem cuiuslibet numeri secundum proportionem cuiuslibet alterius ad 60. Et deservit prima columna utrisque minoribus 31; secunda alteri minori et alteri maiori; tertia vero utrisque maioribus.⟩

×	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
4	8	12	16	20	24	28	32	36	40	44	48	52	56	^{1}0
5	10	15	20	25	30	35	40	45	50	55	^{1}0	^{1}5	^{1}10	^{1}15
6	12	18	24	30	36	42	48	54	^{1}0	^{1}6	^{1}12	^{1}18	^{1}24	^{1}30
7	14	21	28	35	42	49	56	^{1}3	^{1}10	^{1}17	^{1}24	^{1}31	^{1}38	^{1}45
8	16	24	32	40	48	56	^{1}4	^{1}12	^{1}20	^{1}28	^{1}36	^{1}44	^{1}52	^{2}0
9	18	27	36	45	54	^{1}3	^{1}12	^{1}21	^{1}30	^{1}39	^{1}48	^{1}57	^{2}6	^{2}15
10	20	30	40	50	^{1}0	^{1}10	^{1}20	^{1}30	^{1}40	^{1}50	^{2}0	^{2}10	^{2}20	^{2}30
11	22	33	44	55	^{1}6	^{1}17	^{1}28	^{1}39	^{1}50	^{2}1	^{2}12	^{2}23	^{2}34	^{2}45
12	24	36	48	^{1}0	^{1}12	^{1}24	^{1}36	^{1}48	^{2}0	^{2}12	^{2}24	^{2}36	^{2}48	^{3}0
13	26	39	52	^{1}5	^{1}18	^{1}31	^{1}44	^{1}57	^{2}10	^{2}23	^{2}36	^{2}49	^{3}2	^{3}15
14	28	42	56	^{1}10	^{1}24	^{1}38	^{1}52	^{2}6	^{2}20	^{2}34	^{2}48	^{3}2	^{3}16	^{3}30
15	30	45	^{1}0	^{1}15	^{1}30	^{1}45	^{2}0	^{2}15	^{2}30	^{2}45	^{3}0	^{3}15	^{3}30	^{3}45

×	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	32	34	36	38	40	42	44	46	48	50	52	54	56	58	^{1}0
3	48	51	54	57	^{1}0	^{1}3	^{1}6	^{1}9	^{1}12	^{1}15	^{1}18	^{1}21	^{1}24	^{1}27	^{1}30
4	^{1}4	^{1}8	^{1}12	^{1}16	^{1}20	^{1}24	^{1}28	^{1}32	^{1}36	^{1}40	^{1}44	^{1}48	^{1}52	^{1}56	^{2}0
5	^{1}20	^{1}25	^{1}30	^{1}35	^{1}40	^{1}45	^{1}50	^{1}55	^{2}0	^{2}5	^{2}10	^{2}15	^{2}20	^{2}25	^{2}30
6	^{1}36	^{1}42	^{1}48	^{1}54	^{2}0	^{2}6	^{2}12	^{2}18	^{2}24	^{2}30	^{2}36	^{2}42	^{2}48	^{2}54	^{3}0
7	^{1}52	^{1}59	^{2}6	^{2}13	^{2}20	^{2}27	^{2}34	^{2}41	^{2}48	^{2}55	^{3}2	^{3}9	^{3}16	^{3}23	^{3}30
8	^{2}8	^{2}16	^{2}24	^{2}32	^{2}40	^{2}48	^{2}56	^{3}4	^{3}12	^{3}20	^{3}28	^{3}36	^{3}44	^{3}52	^{4}0
9	^{2}24	^{2}33	^{2}42	^{2}51	^{3}0	^{3}9	^{3}18	^{3}27	^{3}36	^{3}45	^{3}54	^{4}3	^{4}12	^{4}21	^{4}30
10	^{2}40	^{2}50	^{3}0	^{3}10	^{3}20	^{3}30	^{3}40	^{3}50	^{4}0	^{4}10	^{4}20	^{4}30	^{4}40	^{4}50	^{5}0
11	^{2}56	^{3}7	^{3}18	^{3}29	^{3}40	^{3}51	^{4}2	^{4}13	^{4}24	^{4}35	^{4}46	^{4}57	^{5}8	^{5}19	^{5}30
12	^{3}12	^{3}24	^{3}36	^{3}48	^{4}0	^{4}12	^{4}24	^{4}36	^{4}48	^{5}0	^{5}12	^{5}24	^{5}36	^{5}48	^{6}0
13	^{3}28	^{3}41	^{3}54	^{4}7	^{4}20	^{4}33	^{4}46	^{4}59	^{5}12	^{5}25	^{5}38	^{5}51	^{6}4	^{6}17	^{6}30
14	^{3}44	^{3}58	^{4}12	^{4}26	^{4}40	^{4}54	^{5}8	^{5}22	^{5}36	^{5}50	^{6}4	^{6}18	^{6}32	^{6}46	^{7}0
15	^{4}0	^{4}15	^{4}30	^{4}45	^{5}0	^{5}15	^{5}30	^{5}45	^{6}0	^{6}15	^{6}30	^{6}45	^{7}0	^{7}15	^{7}30

×	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	32	48	^{1}4	^{1}20	^{1}36	^{1}52	^{2}8	^{2}24	^{2}40	^{2}56	^{3}12	^{3}28	^{3}44	^{4}0
17	34	51	^{1}8	^{1}25	^{1}42	^{1}59	^{2}16	^{2}33	^{2}50	^{3}7	^{3}24	^{3}41	^{3}58	^{4}15
18	36	54	^{1}12	^{1}30	^{1}48	^{2}6	^{2}24	^{2}42	^{3}0	^{3}18	^{3}36	^{3}54	^{4}12	^{4}30
19	38	57	^{1}16	^{1}35	^{1}54	^{2}13	^{2}32	^{2}51	^{3}10	^{3}29	^{3}48	^{4}7	^{4}26	^{4}45
20	40	^{1}0	^{1}20	^{1}40	^{2}0	^{2}20	^{2}40	^{3}0	^{3}20	^{3}40	^{4}0	^{4}20	^{4}40	^{5}0
21	42	^{1}3	^{1}24	^{1}45	^{2}6	^{2}27	^{2}48	^{3}9	^{3}30	^{3}51	^{4}12	^{4}33	^{4}54	^{5}15
22	44	^{1}6	^{1}28	^{1}50	^{2}12	^{2}34	^{2}56	^{3}18	^{3}40	^{4}2	^{4}24	^{4}46	^{5}8	^{5}30
23	46	^{1}9	^{1}32	^{1}55	^{2}18	^{2}41	^{3}4	^{3}27	^{3}50	^{4}13	^{4}36	^{4}59	^{5}22	^{5}45
24	48	^{1}12	^{1}36	^{2}0	^{2}24	^{2}48	^{3}12	^{3}36	^{4}0	^{4}24	^{4}48	^{5}12	^{5}36	^{6}0
25	50	^{1}15	^{1}40	^{2}5	^{2}30	^{2}55	^{3}20	^{3}45	^{4}10	^{4}35	^{5}0	^{5}25	^{5}50	^{6}15
26	52	^{1}18	^{1}44	^{2}10	^{2}36	^{3}2	^{3}28	^{3}54	^{4}20	^{4}46	^{5}12	^{5}38	^{6}4	^{6}30
27	54	^{1}21	^{1}48	^{2}15	^{2}42	^{3}9	^{3}36	^{4}3	^{4}30	^{4}57	^{5}24	^{5}51	^{6}18	^{6}45
28	56	^{1}24	^{1}52	^{2}20	^{2}48	^{3}16	^{3}44	^{4}12	^{4}40	^{5}8	^{5}36	^{6}4	^{6}32	^{7}0
29	58	^{1}27	^{1}56	^{2}25	^{2}54	^{3}23	^{3}52	^{4}21	^{4}50	^{5}19	^{5}48	^{6}17	^{6}46	^{7}15
30	^{1}0	^{1}30	^{2}0	^{2}30	^{3}0	^{3}30	^{4}0	^{4}30	^{5}0	^{5}30	^{6}0	^{6}30	^{7}0	^{7}30

×	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
16	^{4}16	^{4}32	^{4}48	^{5}4	^{5}20	^{5}36	^{5}52	^{6}8	^{6}24	^{6}40	^{6}56	^{7}12	^{7}28	^{7}44	^{8}0
17	^{4}32	^{4}49	^{5}6	^{5}23	^{5}40	^{5}57	^{6}14	^{6}31	^{6}48	^{7}5	^{7}22	^{7}39	^{7}56	^{8}13	^{8}30
18	^{4}48	^{5}6	^{5}24	^{5}42	^{6}0	^{6}18	^{6}36	^{6}54	^{7}12	^{7}30	^{7}48	^{8}6	^{8}24	^{8}42	^{9}0
19	^{5}4	^{5}23	^{5}42	^{6}1	^{6}20	^{6}39	^{6}58	^{7}17	^{7}36	^{7}55	^{8}14	^{8}33	^{8}52	^{9}11	^{9}30
20	^{5}20	^{5}40	^{6}0	^{6}20	^{6}40	^{7}0	^{7}20	^{7}40	^{8}0	^{8}20	^{8}40	^{9}0	^{9}20	^{9}40	^{10}0
21	^{5}36	^{5}57	^{6}18	^{6}39	^{7}0	^{7}21	^{7}42	^{8}3	^{8}24	^{8}45	^{9}6	^{9}27	^{9}48	^{10}9	^{10}30
22	^{5}52	^{6}14	^{6}36	^{6}58	^{7}20	^{7}42	^{8}4	^{8}26	^{8}48	^{9}10	^{9}32	^{9}54	^{10}16	^{10}38	^{11}0
23	^{6}8	^{6}31	^{6}54	^{7}17	^{7}40	^{8}3	^{8}26	^{8}49	^{9}12	^{9}35	^{9}58	^{10}21	^{10}44	^{11}7	^{11}30
24	^{6}24	^{6}48	^{7}12	^{7}36	^{8}0	^{8}24	^{8}48	^{9}12	^{9}36	^{10}0	^{10}24	^{10}48	^{11}12	^{11}36	^{12}0
25	^{6}40	^{7}5	^{7}30	^{7}55	^{8}20	^{8}45	^{9}10	^{9}35	^{10}0	^{10}25	^{10}50	^{11}15	^{11}40	^{12}5	^{12}30
26	^{6}56	^{7}22	^{7}48	^{8}14	^{8}40	^{9}6	^{9}32	^{9}58	^{10}24	^{10}50	^{11}16	^{11}42	^{12}8	^{12}34	^{13}0
27	^{7}12	^{7}39	^{8}6	^{8}33	^{9}0	^{9}27	^{9}54	^{10}21	^{10}48	^{11}15	^{11}42	^{12}9	^{12}36	^{13}3	^{13}30
28	^{7}28	^{7}56	^{8}24	^{8}52	^{9}20	^{9}48	^{10}16	^{10}44	^{11}12	^{11}40	^{12}8	^{12}36	^{13}4	^{13}32	^{14}0
29	^{7}44	^{8}13	^{8}42	^{9}11	^{9}40	^{10}9	^{10}38	^{11}7	^{11}36	^{12}5	^{12}34	^{13}3	^{13}32	^{14}1	^{14}30
30	^{8}0	^{8}30	^{9}0	^{9}30	^{10}0	^{10}30	^{11}0	^{11}30	^{12}0	^{12}30	^{13}0	^{13}30	^{14}0	^{14}30	^{15}0

§113 tabula--maioribus: F; *om.* N

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2 33 4 35 6 37 8 39 10 41 12 43 14 45 | | 16 47 18 49 20 51 22 53 24 55 26 57 28 59 30

32
1 1 2 2 3 3 4 4 5 5 6 6 7 8 | 32 | 8 9 9 10 10 11 11 12 12 13 13 14 14 15 16
4 36 8 40 12 44 16 48 20 52 24 56 28 0 | | 32 4 36 8 40 12 44 16 48 20 52 24 56 28 0

33
1 1 2 2 3 3 4 4 5 6 6 7 7 8 | 33 | 8 9 9 10 10 11 11 12 12 13 13 14 14 15 16
6 39 12 45 18 51 24 57 30 3 36 9 42 15 | | 48 21 54 27 0 33 6 39 12 45 18 51 24 57 30

34
1 1 2 2 3 3 4 5 5 6 6 7 7 8 | 34 | 9 9 10 10 11 11 12 13 13 14 14 15 15 16 17
8 42 16 50 24 58 32 6 40 14 48 22 56 30 | | 4 38 12 46 20 54 28 2 36 10 44 18 52 26 0

35
1 1 2 2 3 4 4 5 5 6 7 7 8 8 | 35 | 9 9 10 11 11 12 12 13 14 14 15 15 16 16 17
10 45 20 55 30 5 40 15 50 25 0 35 10 45 | | 20 55 30 5 40 15 50 25 0 35 10 45 20 55 30

36
1 1 2 3 3 4 4 5 6 6 7 7 8 9 | 36 | 9 10 10 11 12 12 13 13 14 15 15 16 16 17 18
12 48 24 0 36 12 48 24 0 36 12 48 24 0 | | 36 12 48 24 0 36 12 48 24 0 36 12 48 24 0

37
1 1 2 3 3 4 4 5 6 6 7 8 8 9 | 37 | 9 10 11 11 12 12 13 14 14 15 16 16 17 17 18
14 51 28 5 42 19 56 33 10 47 24 1 38 15 | | 52 29 6 43 20 57 34 11 48 25 2 39 16 53 30

38
1 1 2 3 3 4 5 5 6 6 7 8 8 9 | 38 | 10 10 11 12 12 13 13 14 15 15 16 17 17 18 19
16 54 32 10 48 26 4 42 20 58 36 14 52 30 | | 8 46 24 2 40 18 56 34 12 50 28 6 44 22 0

39
1 1 2 3 3 4 5 5 6 7 7 8 9 9 | 39 | 10 11 11 12 13 13 14 14 15 16 16 17 18 18 19
18 57 36 15 54 33 12 51 30 9 48 27 6 45 | | 24 3 42 21 0 39 18 57 36 15 54 33 12 51 30

40
1 2 2 3 4 4 5 6 6 7 8 8 9 10 | 40 | 10 11 12 12 13 14 14 15 16 16 17 18 18 19 20
20 0 40 20 0 40 20 0 40 20 0 40 20 0 | | 40 20 0 40 20 0 40 20 0 40 20 0 40 20 0

41
1 2 2 3 4 4 5 6 6 7 8 8 9 10 | 41 | 10 11 12 12 13 14 15 15 16 17 17 18 19 19 20
22 3 44 25 6 47 28 9 50 31 12 53 34 15 | | 56 37 18 59 40 21 2 43 24 5 46 27 8 49 30

42
1 2 2 3 4 4 5 6 7 7 8 9 9 10 | 42 | 11 11 12 13 14 14 15 16 16 17 18 18 19 20 21
24 6 48 30 12 54 36 18 0 42 24 6 48 30 | | 12 54 36 18 0 42 24 6 48 30 12 54 36 18 0

43
1 2 2 3 4 5 5 6 7 7 8 9 10 10 | 43 | 11 12 12 13 14 15 15 16 17 17 18 19 20 20 21
26 9 52 35 18 1 44 27 10 53 36 19 2 45 | | 28 11 54 37 20 3 46 29 12 55 38 21 4 47 30

44
1 2 2 3 4 5 5 6 7 8 8 9 10 11 | 44 | 11 12 13 13 14 15 16 16 17 18 19 19 20 21 22
28 12 56 40 24 8 52 36 20 4 48 32 16 0 | | 44 28 12 56 40 24 8 52 36 20 4 48 32 16 0

0	2	3	4	5	6	7	8	9	10	11	12	13	14	15	0	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

45
1 2 3 3 4 5 6 6 7 8 9 9 10 11 | 45 | 12 12 13 14 15 15 16 17 18 18 19 20 21 21 22
30 15 0 45 30 15 0 45 30 15 0 45 30 15 | | 0 45 30 15 0 45 30 15 0 45 30 15 0 45 30

46
1 2 3 3 4 5 6 6 7 8 9 9 10 11 | 46 | 12 13 13 14 15 16 16 17 18 19 19 20 21 22 23
32 18 4 50 36 22 8 54 40 26 12 58 44 30 | | 16 2 48 34 20 6 52 38 24 10 56 42 28 14 0

47
1 2 3 3 4 5 6 7 7 8 9 10 10 11 | 47 | 12 13 14 14 15 16 17 18 18 19 20 21 21 22 23
34 21 8 55 42 29 16 3 50 37 24 11 58 45 | | 32 19 6 53 40 27 14 1 48 35 22 9 56 43 30

48
1 2 3 4 4 5 6 7 8 8 9 10 11 12 | 48 | 12 13 14 15 16 16 17 18 19 20 20 21 22 23 24
36 24 12 0 48 36 24 12 0 48 36 24 12 0 | | 48 36 24 12 0 48 36 24 12 0 48 36 24 12 0

49
1 2 3 4 4 5 6 7 8 8 9 10 11 12 | 49 | 13 13 14 15 16 17 17 18 19 20 21 22 22 23 24
38 27 16 5 54 43 32 21 10 59 48 37 26 15 | | 4 53 42 31 20 9 58 47 36 25 14 3 52 41 30

50
1 2 3 4 5 5 6 7 8 9 10 10 11 12 | 50 | 13 14 15 15 16 17 18 19 20 20 21 22 23 24 25
40 30 20 10 0 50 40 30 20 10 0 50 40 30 | | 20 10 0 50 40 30 20 10 0 50 40 30 20 10 0

51
1 2 3 4 5 5 6 7 8 9 10 11 11 12 | 51 | 13 14 15 16 17 17 18 19 20 21 22 22 23 24 25
42 33 24 15 6 57 48 39 30 21 12 3 54 45 | | 36 27 18 9 0 51 42 33 24 15 6 57 48 39 30

52
1 2 3 4 5 6 6 7 8 9 10 11 12 13 | 52 | 13 14 15 16 17 18 19 19 20 21 22 23 24 25 26
44 36 28 20 12 4 56 48 40 32 24 16 8 0 | | 52 44 36 28 20 12 4 56 48 40 32 24 16 8 0

53
1 2 3 4 5 6 7 7 8 9 10 11 12 13 | 53 | 14 15 15 16 17 18 19 20 21 22 22 23 24 25 26
46 39 32 25 18 11 4 57 50 43 36 29 22 15 | | 8 1 54 47 40 33 26 19 12 5 58 51 44 37 30

54
1 2 3 4 5 6 7 8 9 9 10 11 12 13 | 54 | 14 15 16 17 18 18 19 20 21 22 23 24 25 26 27
48 42 36 30 24 18 12 6 0 54 48 42 36 30 | | 24 18 12 6 0 54 48 42 36 30 24 18 12 6 0

55
1 2 3 4 5 6 7 8 9 10 11 11 12 13 | 55 | 14 15 16 17 18 19 20 21 22 22 23 24 25 26 27
50 45 40 35 30 25 20 15 10 5 0 55 50 45 | | 40 35 30 25 20 15 10 5 0 55 50 45 40 35 30

56
1 2 3 4 5 6 7 8 9 10 11 12 13 14 | 56 | 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
52 48 44 40 36 32 28 24 20 16 12 8 4 0 | | 56 52 48 44 40 36 32 28 24 20 16 12 8 4 0

57
1 2 3 4 5 6 7 8 9 10 11 12 13 14 | 57 | 15 16 17 18 19 19 20 21 22 23 24 25 26 27 28
54 51 48 45 42 39 36 33 30 27 24 21 18 15 | | 12 9 6 3 0 57 54 51 48 45 42 39 36 33 30

58
1 2 3 4 5 6 7 8 9 10 11 12 13 14 | 58 | 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
56 54 52 50 48 46 44 42 40 38 36 34 32 30 | | 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0

59
1 2 3 4 5 6 7 8 9 10 11 12 13 14 | 59 | 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
58 57 56 55 54 53 52 51 50 49 48 47 46 45 | | 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30

```
0    31 32 33 34 35 36 37 38 39 40 41 42 43 44 45      0    46 47 48 49 50 51 52 53 54 55 56 57 58 59

31   16 16 17 17 18 18 19 19 20 20 21 21 22 22 23     31   23 24 24 25 25 26 26 27 27 28 28 29 29 30
      1 32  3 34  5 36  7 38  9 40 11 42 13 44 15          46 17 48 19 50 21 52 23 54 25 56 27 58 29

32   16 17 17 18 18 19 19 20 20 21 21 22 22 23 24     32   24 25 25 26 26 27 27 28 28 29 29 30 30 31
     32  4 36  8 40 12 44 16 48 20 52 24 56 28  0          32  4 36  8 40 12 44 16 48 20 52 24 56 28

33   17 17 18 18 19 19 20 20 21 21 22 22 23 23 24     33   25 25 26 26 27 28 28 29 29 30 30 31 31 32
      3 36  9 42 15 48 21 54 27  0 33  6 39 12 45          18 51 24 57 30  3 36  9 42 15 48 21 54 27

34   17 18 18 19 19 20 20 21 21 22 22 23 23 24 25     34   26 26 27 27 28 28 29 30 30 31 31 32 32 33
     34  8 42 16 50 24 58 32  6 40 14 48 22 56 30           4 38 12 46 20 54 28  2 36 10 44 18 52 26

35   18 18 19 19 20 21 21 22 22 23 23 24 25 25 26     35   26 27 28 28 29 29 30 30 31 32 32 33 33 34
      5 40 15 50 25  0 35 10 45 20 55 30  5 40 15          50 25  0 35 10 45 20 55 30  5 40 15 50 25

36   18 19 19 20 21 21 22 22 23 24 24 25 25 26 27     36   27 28 28 29 30 30 31 31 32 33 33 34 34 35
     36 12 48 24  0 36 12 48 24  0 36 12 48 24  0          36 12 48 24  0 36 12 48 24  0 36 12 48 24

37   19 19 20 20 21 22 22 23 24 24 25 25 26 27 27     37   28 28 29 30 30 31 32 32 33 33 34 35 35 36
      7 44 21 58 35 12 49 26  3 40 17 54 31  8 45          22 59 36 13 50 27  4 41 18 55 32  9 46 23

38   19 20 20 21 22 22 23 24 24 25 25 26 27 27 28     38   29 29 30 31 31 32 32 33 34 34 35 35 36 37
     38 16 54 32 10 48 26  4 42 20 58 36 14 52 30           8 46 24  2 40 18 56 34 12 50 28  6 44 22

39   20 20 21 22 22 23 24 24 25 26 26 27 27 28 29     39   29 30 31 31 32 33 33 34 35 35 36 37 37 38
      9 48 27  6 45 24  3 42 21  0 39 18 57 36 15          54 33 12 51 30  9 48 27  6 45 24  3 42 21

40   20 21 22 22 23 24 24 25 26 26 27 28 28 29 30     40   30 31 32 32 33 34 34 35 36 36 37 38 38 39
     40 20  0 40 20  0 40 20  0 40 20  0 40 20  0          40 20  0 40 20  0 40 20  0 40 20  0 40 20

41   21 21 22 23 23 24 25 25 26 27 28 28 29 30 30     41   31 32 32 33 34 34 35 36 36 37 38 38 39 40
     11 52 33 14 55 36 17 58 39 20  1 42 23  4 45          26  7 48 29 10 51 32 13 54 35 16 57 38 19

42   21 22 23 23 24 25 25 26 27 28 28 29 30 30 31     42   32 32 33 34 35 35 36 37 37 38 39 39 40 41
     42 24  6 48 30 12 54 36 18  0 42 24  6 48 30          12 54 36 18  0 42 24  6 48 30 12 54 36 18

43   22 22 23 24 25 25 26 27 27 28 29 30 30 31 32     43   32 33 34 35 35 36 37 37 38 39 39 40 41 42
     13 56 39 22  5 48 31 14 57 40 23  6 49 32 15          58 41 24  7 50 33 16 59 42 25  8 51 34 17

44   22 23 24 24 25 26 27 27 28 29 30 30 31 32 33     44   33 34 35 35 36 37 38 38 39 40 41 41 42 43
     44 28 12 56 40 24  8 52 36 20  4 48 32 16  0          44 28 12 56 40 24  8 52 36 20  4 48 32 16

45   23 24 24 25 26 27 27 28 29 30 30 31 32 33 33     45   34 35 36 36 37 38 39 39 40 41 42 42 43 44
     15  0 45 30 15  0 45 30 15  0 45 30 15  0 45          30 15  0 45 30 15  0 45 30 15  0 45 30 15


0    31 32 33 34 35 36 37 38 39 40 41 42 43 44 45      0    46 47 48 49 50 51 52 53 54 55 56 57 58 59

46   23 24 25 26 26 27 28 29 29 30 31 32 32 33 34     46   35 36 36 37 38 39 39 40 41 42 42 43 44 45
     46 32 18  4 50 36 22  8 54 40 26 12 58 44 30          16  2 48 34 20  6 52 38 24 10 56 42 28 14

47   24 25 25 26 27 28 28 29 30 31 32 32 33 34 35     47   36 36 37 38 38 39 40 41 42 43 43 44 45 46
     17  4 51 38 25 12 59 46 33 20  7 54 41 28 15           2 49 36 23 10 57 44 31 18  5 52 39 26 13

48   24 25 26 27 28 28 29 30 31 32 32 33 34 34 35     48   36 37 38 39 40 40 41 42 43 44 44 45 46 47
     48 36 24 12  0 48 36 24 12  0 48 36 24 12  0          48 36 24 12  0 48 36 24 12  0 48 36 24 12

49   25 26 26 27 28 29 30 31 31 32 33 34 34 35 36     49   37 38 39 40 40 41 42 43 44 44 45 46 47 48
     19  8 57 46 35 24 13  2 51 40 29 18  7 56 45          34 23 12  1 50 39 28 17  6 55 44 33 22 11

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     50 40 30 20 10  0 50 40 30 20 10  0 50 40 30          20 10  0 50 40 30 20 10  0 50 40 30 20 10

51   26 27 28 28 29 30 31 32 33 34 34 35 36 37 38     51   39 39 40 41 42 43 44 45 45 46 47 48 49 50
     21 12  3 54 45 36 27 18  9  0 51 42 33 24 15           6 57 48 39 30 21 12  3 54 45 36 27 18  9

52   26 27 28 29 30 31 32 33 33 34 35 36 37 38 39     52   39 40 41 42 43 44 45 45 46 47 48 49 50 51
     52 44 36 28 20 12  4 56 48 40 32 24 16  8  0          52 44 36 28 20 12  4 56 48 40 32 24 16  8

53   27 28 29 30 30 31 32 33 34 35 36 37 37 38 39     53   40 41 42 43 44 45 46 47 48 49 50 51 51 52
     23 16  9  2 55 48 41 34 27 20 13  6 59 52 45          38 31 24 17 10  3 56 49 42 35 28 21 14  7

54   27 28 29 30 31 32 33 34 35 36 36 37 38 39 40     54   41 42 43 44 45 45 46 47 48 49 50 51 52 53
     54 48 42 36 30 24 18 12  6  0 54 48 42 36 30          24 18 12  6  0 54 48 42 36 30 24 18 12  6

55   28 29 30 31 32 33 33 34 35 36 37 38 39 40 41     55   42 43 44 44 45 46 47 48 49 50 51 52 53 54
     25 20 15 10  5  0 55 50 45 40 35 30 25 20 15          10  5  0 55 50 45 40 35 30 25 20 15 10  5

56   28 29 30 31 32 33 34 35 36 37 38 39 40 41 42     56   42 43 44 45 46 47 48 49 50 51 52 53 54 55
     56 52 48 44 40 36 32 28 24 20 16 12  8  4  0          56 52 48 44 40 36 32 28 24 20 16 12  8  4

57   29 30 31 32 33 34 35 36 37 38 39 40 41 42 43     57   43 44 45 46 47 48 49 50 51 52 53 54 55 56
     27 24 21 18 15 12  9  6  3  0 57 54 51 48 45          42 39 36 33 30 27 24 21 18 15 12  9  6  3

58   29 30 31 32 33 34 35 36 37 38 39 40 41 42 43     58   44 45 46 47 48 49 50 51 52 53 54 55 56 57
     58 56 54 52 50 48 46 44 42 40 38 36 34 32 30          28 26 24 22 20 18 16 14 12 10  8  6  4  2

59   30 31 32 33 34 35 36 37 38 39 40 41 42 43 44     59   45 46 47 48 49 50 51 52 53 54 55 56 57 58
     29 28 27 26 25 24 23 22 21 20 19 18 17 16 15          14 13 12 11 10  9  8  7  6  5  4  3  2  1
```

(114) Tabula minutorum proportionalium

Argumentum lunæ æquatum		Min. prop.	Argumentum lunæ æquatum		Min. prop.
Si Gr	Si Gr		Si Gr	Si Gr	
0 11	11 19	1	3 4	8 26	31
0 18	11 12	2	3 6	8 24	32
0 24	11 6	3	3 8	8 22	33
0 29	11 1	4	3 10	8 20	34
1 3	10 27	5	3 12	8 18	35
1 7	10 23	6	3 14	8 16	36
1 10	10 20	7	3 16	8 14	37
1 13	10 17	8	3 18	8 12	38
1 16	10 14	9	3 20	8 10	39
1 19	10 11	10	3 22	8 8	40
1 22	10 8	11	3 24	8 6	41
1 24	10 6	12	3 26	8 4	42
1 27	10 3	13	3 28	8 2	43
1 29	10 1	14	4 0	8 0	44
2 2	9 28	15	4 2	7 28	45
2 4	9 26	16	4 4	7 26	46
2 6	9 24	17	4 6	7 24	47
2 8	9 22	18	4 8	7 22	48
2 10	9 20	19	4 10	7 20	49
2 12	9 18	20	4 13	7 17	50
2 14	9 16	21	4 15	7 15	51
2 16	9 14	22	4 18	7 12	52
2 18	9 12	23	4 20	7 10	53
2 20	9 10	24	4 24	7 6	54
2 22	9 8	25	4 27	7 3	55
2 24	9 6	26	5 0	7 0	56
2 26	9 4	27	5 4	6 26	57
2 28	9 2	28	5 8	6 22	58
3 0	9 0	29	5 12	6 18	59
3 2	8 28	30	5 20	6 10	60

(115) Tabula aequationis dierum

Partes zodiaci	Æquatio	Partes zodi.	Æquatio	Partes zodi.	Æquatio
Si Gr		Si Gr		Si Gr	
0 0	9	5 7	17	8 22	19
0 3	10	5 10	18	8 24	18
0 6	11	5 13	19	8 26	17
0 9	12	5 16	20	8 28	16
0 11	13	5 19	21	9 0	15
0 13	14	5 22	22	9 2	14
0 16	15	5 25	23	9 4	13
0 19	16	5 28	24	9 6	12
0 23	17	6 1	25	9 8	11
0 26	18	6 5	26	9 10	10
1 1	19	6 8	27	9 13	9
1 5	20	6 11	28	9 15	8
1 9	21	6 15	29	9 17	7
1 16	22	6 18	30	9 19	6
2 10	21	6 23	31	9 22	5
2 16	20	7 6	32	9 25	4
2 21	19	7 11	31	9 28	3
2 25	18	7 20	30	10 1	2
3 0	17	7 25	29	10 6	1
3 4	16	7 29	28	10 12	0
3 9	15	8 3	27	10 29	1
3 14	14	8 6	26	11 6	2
3 20	13	8 8	25	11 10	3
3 28	12	8 10	24	11 14	4
4 13	13	8 13	23	11 18	5
4 23	14	8 16	22	11 21	6
4 28	15	8 18	21	11 24	7
5 3	16	8 20	20	11 27	8

(116) Tabula differentiae duarum longi-
tudinum in dimidio morae

Argum. latit.	Min. diff.	Diff. introituum
Gr Mi		Mi
6 0	0	0
5 30	16	16
5 0	25	9
4 30	31	6
4 0	14	17
3 30	12	2
3 0	9	3
2 30	7	2
2 0	5	2
1 30	4	1
1 0	4	0
0 30	4	0
0 0	4	0

(120) Tabula dimidii morae
eclipsis lunaris

Arg. lat.	Dim. moræ	Diff. introituum
Gr Mi		Mi
4 36	0	0
4 0	22	22
3 30	27	5
3 0	34	7
2 30	38	4
2 0	41	3
1 30	43	2
1 0	45	2
0 30	46	1
0 0	46	0

(117) Tabula erroris
tollendi

Min. propor.	Min. erroris	Min. propor.	Min. erroris
1	0	31	12
2	0	32	12
3	0	33	12
4	0	34	12
5	0	35	12
6	20	36	12
7	20	37	12
8	18	38	12
9	18	39	12
10	16	40	12
11	16	41	14
12	16	42	14
13	16	43	14
14	16	44	16
15	14	45	16
16	14	46	16
17	14	47	16
18	12	48	16
19	12	49	16
20	12	50	18
21	12	51	18
22	12	52	18
23	12	53	20
24	12	54	20
25	12	55	20
26	12	56	20
27	12	57	22
28	12	58	22
29	12	59	23
30	12	60	0

(118) Tabula differentiae duarum longitudinum in punctis			(119) Tabula differentiae duarum longitudinum in dimidio durationis		
Arg. lat.		Diff. intro- ituum	Arg. lat.		Diff. intro- ituum
Gr Mi	Pc Mi	Mi	Gr Mi	Ho Mi	Mi
13 0	0 26	0	13 0	0 22	
12 30	1 13	47	12 30	0 38	16
12 0	2 2	49	12 0	0 47	9
11 30	2 50	48	11 30	0 55	8
11 0	3 36	46	11 0	1 2	7
10 30	3 54	18	10 30	0 41	21
10 0	3 49	5	10 0	0 33	8
9 30	3 30	19	9 30	0 26	7
9 0	3 19	11	9 0	0 21	5
8 30	3 9	10	8 30	0 18	3
8 0	3 1	8	8 0	0 16	2
7 30	3 1	0	7 30	0 14	2
7 0	2 48	13	7 0	0 12	2
6 30	2 33	15	6 30	0 11	1
6 0	2 23	10	6 0	0 9	2
5 30	2 18	5	5 30	0 8	1
5 0	2 13	5	5 0	0 8	0
4 30	2 14	1	4 30	0 8	0
4 0	1 51	23	4 0	0 6	2
3 30	1 43	8	3 30	0 7	1
3 0	1 34	9	3 0	0 5	2
2 30	1 23	11	2 30	0 4	1
2 0	1 15	8	2 0	0 4	0
1 30	1 8	7	1 30	0 3	1
1 0	1 1	7	1 0	0 3	0
0 30	0 53	8	0 30	0 3	0
0 0	0 45	8	0 0	0 3	0

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§116 gr.mi.: F; signa gr. N
§118 (*4°;0*) 1P,51: *ex tab. Tol. et* §118a; 1,15 N; 2,15 F   §119 ho.mi.: F; pc.mi.
N   (*3°;0, Diff.*) 2: 1 NF   §120 gr.mi.: F; si.gr. N

(121) Tabula temporis diurni ad medium septimi climatis.

Aries / Virgo	Temp. diur.	Taurus / Leo	Temp. diur.	Gemini / Cancer	Temp. diur.	Libra / Pisces	Temp. diur.	Scorp. / Aquar.	Temp. diur.	Sagit. / Caprc.	Temp. diur.
Gr Gr	Ho Mi	Gr Gr	Ho Mi	Gr Gr	Ho Mi	Gr Gr	Ho Mi	Gr Gr	Ho Mi	Gr Gr	Ho Mi
0 30	12 0	0 30	13 46	0 30	15 16	0 30	12 0	0 30	10 14	0 30	8 44
1 29	12 4	1 29	13 50	1 29	15 18	1 29	11 56	1 29	10 10	1 29	8 42
2 28	12 7	2 28	13 53	2 28	15 21	2 28	11 53	2 28	10 7	2 28	8 39
3 27	12 11	3 27	13 56	3 27	15 23	3 27	11 49	3 27	10 4	3 27	8 37
4 26	12 14	4 26	14 0	4 26	15 25	4 26	11 46	4 26	10 0	4 26	8 35
5 25	12 18	5 25	14 3	5 25	15 27	5 25	11 42	5 25	9 57	5 25	8 33
6 24	12 21	6 24	14 6	6 24	15 29	6 24	11 39	6 24	9 54	6 24	8 31
7 23	12 25	7 23	14 9	7 23	15 31	7 23	11 35	7 23	9 51	7 23	8 29
8 22	12 29	8 22	14 12	8 22	15 33	8 22	11 31	8 22	9 48	8 22	8 27
9 21	12 32	9 21	14 15	9 21	15 35	9 21	11 28	9 21	9 45	9 21	8 25
10 20	12 36	10 20	14 19	10 20	15 37	10 20	11 24	10 20	9 41	10 20	8 23
11 19	12 40	11 19	14 22	11 19	15 39	11 19	11 20	11 19	9 38	11 19	8 21
12 18	12 43	12 18	14 25	12 18	15 40	12 18	11 17	12 18	9 35	12 18	8 20
13 17	12 47	13 17	14 28	13 17	15 42	13 17	11 13	13 17	9 32	13 17	8 18
14 16	12 50	14 16	14 31	14 16	15 43	14 16	11 10	14 16	9 29	14 16	8 17
15 15	12 54	15 15	14 35	15 15	15 44	15 15	11 6	15 15	9 25	15 15	8 16
16 14	12 57	16 14	14 38	16 14	15 46	16 14	11 3	16 14	9 22	16 14	8 14
17 13	13 1	17 13	14 40	17 13	15 47	17 13	10 59	17 13	9 20	17 13	8 13
18 12	13 4	18 12	14 44	18 12	15 48	18 12	10 56	18 12	9 16	18 12	8 12
19 11	13 8	19 11	14 47	19 11	15 49	19 11	10 52	19 11	9 13	19 11	8 11
20 10	13 12	20 10	14 49	20 10	15 50	20 10	10 48	20 10	9 11	20 10	8 10
21 9	13 15	21 9	14 52	21 9	15 51	21 9	10 45	21 9	9 8	21 9	8 9
22 8	13 18	22 8	14 55	22 8	15 52	22 8	10 42	22 8	9 5	22 8	8 8
23 7	13 22	23 7	14 58	23 7	15 53	23 7	10 38	23 7	9 2	23 7	8 7
24 6	13 25	24 6	15 1	24 6	15 53	24 6	10 35	24 6	8 59	24 6	8 7
25 5	13 29	25 5	15 3	25 5	15 54	25 5	10 31	25 5	8 57	25 5	8 6
26 4	13 32	26 4	15 6	26 4	15 54	26 4	10 28	26 4	8 54	26 4	8 6
27 3	13 36	27 3	15 9	27 3	15 55	27 3	10 24	27 3	8 51	27 3	8 5
28 2	13 39	28 2	15 11	28 2	15 55	28 2	10 21	28 2	8 49	28 2	8 5
29 1	13 43	29 1	15 13	29 1	15 55	29 1	10 17	29 1	8 47	29 1	8 5
30 0	13 46	30 0	15 16	30 0	15 56	30 0	10 14	30 0	8 44	30 0	8 4

§122 (+2ʰ, *Vir.*) 5,36: F; 5,32 N   (+6ʰ, *Vir.*) 18,47: F; 18,46 N   (−4ʰ, *Cap.*)
30,42: F; 30,24 N   (*Aqu.*) 4ʰ,20: F (*bis*); 4,40 N (*bis*)

(122) Tabula diversitatis aspectus lunae in 7° climate,
quae supponit lunam esse in longitudine media epicycli.

Horae Can. H.M.	Lo La M. M.	Horae Leo. H.M.	Lo La M. M.	Horae Vir. H.M.	Lo La M. M.	Horae Lib. H.M.	Lo La M. M.	Horae Sco. H.M.	Lo La M. M.	Horae Sag. H.M.	Lo La M. M.
8 0	30 42	7 40	39 33	6 54	45 24	6 0	46 21	5 6	45 24	4 20	·39 33
7	38 38	7	40 32	6	45 23	5	45 22	5	45 25	4	37 34
6	34 35	6	40 28	5	43 22	4	42 23	4	42 27	3	33 38
5	32 31	5	39 25	4	40 21	3	37 25	3	37 31	2	26 41
4	29 28	4	35 23	3	35 20	2	31 26	2	31 34	1	19 44
3	24 25	3	30 23	2	27 24	1	23 28	1	24 38	0	0 0
2	17 24	2	22 22	1	19 26	0	0 0	0	0 0	0	0 0
1	9 22	1	14 22	0	0 0	0	0 0	0	0 0	0	0 0
Reces.	0 21	Reces.	5 23	Reces.	11 29	Reces.	15 31	Reces.	17 41	Reces.	10 47
1	9 22	1	3 26	0	0 0	0	0 0	0	0 0	0	0 0
2	17 24	2	11 29	1	3 32	0	0 0	0	0 0	0	0 0
3	24 25	3	18 32	2	5 36	1	7 35	1	8 44	0	0 0
4	29 28	4	22 36	3	11 40	2	0 38	2	0 46	1	2 48
5	32 31	5	25 39	4	15 43	3	6 42	3	7 47	2	6 49
6	34 35	6	25 42	5	18 45	4	11 45	4	13 48	3	14 48
7	38 38	7	23 45	6	18 47	5	14 48	5	17 48	4	20 47
8 0	30 42	7 40	21 46	6 54	17 48	6 0	16 48	5 6	17 48	4 20	21 46

Horae Cap. H.M.	Lo La M. M.	Horae Aqu. H.M.	Lo La M. M.	Horae Pis. H.M.	Lo La M. M.	Horae Ari. H.M.	Lo La M. M.	Horae Tau. H.M.	Lo La M. M.	Horae Gem. H.M.	Lo La M. M.
4 0	30 42	4 20	21 46	5 6	17 48	6 0	16 48	6 54	17 48	7 40	21 46
3	24 45	4	20 47	5	17 48	5	14 48	6	18 47	7	23 45
2	17 47	3	14 48	4	13 48	4	11 45	5	18 45	6	25 42
1	9 48	2	6 49	3	7 47	3	6 42	4	15 43	5	25 39
0	0 0	1	2 48	2	0 46	2	0 38	3	11 40	4	22 36
0	0 0	0	0 0	1	8 44	1	7 35	2	5 36	3	18 32
0	0 0	0	0 0	0	0 0	0	0 0	1	3 32	2	11 29
0	0 0	0	0 0	0	0 0	0	0 0	0	0 0	1	3 26
Reces.	0 49	Reces.	10 47	Reces.	17 41	Reces.	15 31	Reces.	11 29	Reces.	5 23
0	0 0	0	0 0	0	0 0	0	0 0	0	0 0	1	14 22
0	0 0	0	0 0	0	0 0	0	0 0	1	19 26	2	22 22
0	0 0	0	0 0	1	24 38	1	23 28	2	27 24	3	30 23
0	0 0	1	19 44	2	31 34	2	31 26	3	35 20	4	35 23
1	9 48	2	26 41	3	37 31	3	37 25	4	40 21	5	39 25
2	17 47	3	33 38	4	42 27	4	42 23	5	43 22	6	40 28
3	24 45	4	37 34	5	45 25	5	45 22	6	45 23	7	40 32
4 0	30 42	4 20	39 33	5 6	45 24	6 0	46 21	6 54	45 24	7 40	39 33

(123) Tabula temporis aspectus et duodecimæ

Aspe-ctus	Tem-pus aspec.		Diff.	Aspe-ctus	Tem-pus aspec.		Diff.
Mi	Ho	Mi	Mi	Mi	Ho	Mi	Mi
1	0	2	0	31	1	7	11
2	0	4	1	32	1	9	11
3	0	6	1	33	1	11	11
4	0	9	1	34	1	13	12
5	0	11	2	35	1	15	12
6	0	13	2	36	1	17	12
7	0	15	2	37	1	19	13
8	0	17	3	38	1	22	13
9	0	19	3	39	1	24	13
10	0	21	3	40	1	26	14
11	0	24	4	41	1	28	14
12	0	26	4	42	1	30	14
13	0	28	4	43	1	32	15
14	0	30	5	44	1	34	15
15	0	32	5	45	1	37	15
16	0	34	5	46	1	39	16
17	0	36	6	47	1	41	16
18	0	39	6	48	1	43	16
19	0	41	7	49	1	45	17
20	0	43	7	50	1	47	17
21	0	45	7	51	1	49	17
22	0	47	8	52	1	52	18
23	0	49	8	53	1	54	18
24	0	51	8	54	1	56	19
25	0	54	9	55	1	58	19
26	0	56	9	56	2	0	19
27	0	58	9	57	2	2	20
28	1	0	10	58	2	4	20
29	1	2	10	59	2	7	20
30	1	4	10	60	2	9	21

(124) Tabula duodecimæ cuius-
libet numeri

Numerus omnis generis	Duodecima omnis generis	Numerus omnis generis	Duodecima omnis generis
1	0 5	31	2 35
2	0 10	32	2 40
3	0 15	33	2 45
4	0 20	34	2 50
5	0 25	35	2 55
6	0 30	36	3 0
7	0 35	37	3 5
8	0 40	38	3 10
9	0 45	39	3 15
10	0 50	40	3 20
11	0 55	41	3 25
12	1 0	42	3 30
13	1 5	43	3 35
14	1 10	44	3 40
15	1 15	45	3 45
16	1 20	46	3 50
17	1 25	47	3 55
18	1 30	48	4 0
19	1 35	49	4 5
20	1 40	50	4 10
21	1 45	51	4 15
22	1 50	52	4 20
23	1 55	53	4 25
24	2 0	54	4 30
25	2 5	55	4 35
26	2 10	56	4 40
27	2 15	57	4 45
28	2 20	58	4 50
29	2 25	59	4 55
30	2 30	60	5 0

(125) Tabula temporis inter duas
oppositiones vel coniunctiones

Longitudo	Tempus longitudinis	Differentia
Gr.	Ho Mi	Ho Mi
1	1 59	0 0
2	3 58	1 59
3	5 58	2 0
4	7 57	1 59
5	9 56	1 59
6	11 55	1 59
7	13 54	1 59
8	15 54	2 0

§**118a** 7º,0: N; 7º,28 *ex* §118   10º,3: N; 10º,6 *ex* §118   §**28a** 11ᴾ,45:
10ᴾ,45 F *recte*   (*11ᴾ0*) *linea delenda, cf. ad* §28   §**120a** 3º28′: 3º18′ Na.*c.*

(118a) Tabula differentiae duarum longitudinum in punctis eclipsis lunae

Arg. lat.

Gr	Mi	Pc	Mi
0	0	0	45
0	19	0	50
0	56	1	0
1	39	1	10
2	19	1	20
2	49	1	30
3	20	1	40
3	56	1	50
4	12	2	0
4	25	2	10
5	42	2	20
6	21	2	30
6	44	2	40
7	5	2	50
7	0	3	0
8	33	3	10
9	3	3	20
9	30	3	30
9	46	3	40
10	3	3	50
10	30	3	54
11	4	3	30
11	23	3	0
11	43	2	30
12	1	2	0
12	20	1	30
12	38	1	0
12	57	0	30
13	12	0	20
13	31	0	10
13	50	0	0

(119a) Tabula differentiae 2 longitudinum in dimidio durationis ecl. lunæ

Arg. lat.

Gr	Mi	Mi
0	0	3
2	0	4
3	0	5
6	15	10
7	45	15
8	50	20
9	24	25
9	47	30
10	26	40
10	43	50
11	0	62
11	49	50
12	23	40
12	45	30
13	5	20
13	27	10
13	50	0

(28a) Tabula punctorum eclipsis solaris

Arg. lat.

Gr	Mi	Pc	Mi
0	0	11	45
[0	13	11	0]
0	48	10	0
1	23	9	0
1	58	8	0
2	33	7	0
3	7	6	0
3	42	5	0
4	17	4	0
4	51	3	0
5	27	2	0
6	3	1	0
6	37	0	0

(30a) Tabula dimidii durationis eclipsis solaris

Arg. lat.

Gr	Mi	Mi
0	1	0 66
1	18	0 65
1	43	0 64
2	4	0 63
2	21	0 62
2	35	0 61
2	46	0 60
4	21	0 50
5	15	0 40
5	53	0 30
6	15	0 20
6	31	0 10
6	37	0 0

(29a) Tabula differentiae duarum longitudinum in punctis eclipsis solis

Arg. lat.

Gr	Mi	Mi
0	0	59
5	30	58
6	36	50
6	43	40
6	58	20
7	11	0

(31a) Tabula differentiae duarum longitudinum in dimidio durationis eclipsis solaris

Arg. lat.

Gr	Mi	Mi
0	0	6
2	7	5
3	2	4
3	50	3
4	17	2
4	40	1
5	0	0
5	55	5
6	14	10
6	41	15
7	0	17
7	11	0

(20a) Tabula dimidiæ moræ

Arg. lat.

Gr	Mi	Mi
0	0	46
0	57	45
2	12	40
2	52	35
3	28	30
4	2	20
4	9	10
4	16	0

(116a) Tabula differentiae duarum longitudinum in dimidio moræ

Arg. lat.

Gr	Mi	Mi
0	0	3
1	19	4
2	1	5
3	32	10
4	2	15
4	11	20
4	19	25
4	30	31
5	1	25
5	18	20
5	34	10
5	42	0

Declaratio super
computum metricum manualem

§1. The text commented upon, the *Compotus metricus manualis* commonly ascribed to one Anianus (Walther no.3077; T&K 243) and datable by testimonies to the second half of the 13th century (Smith, below, p.22), has been often printed during the 15th and 16th centuries, and in modern times by Wordsworth (1904, 159 ff.) and Smith 1928, both with comments and lists of previous editions.

The *Declar(atio)* here reproduced apparently does not occur among those commentaries frequently accompanying the Compotus in the early prints. It was recorded from ms.V (below) by Berardelli (1782,70-1), then by Schück (1896,123) followed by Jørgensen (1910,260); extracts, with some readings used here, are given by these and by O.Pedersen 1976; and a transcription of ms.V was pre-published by myself (1979a), with a short introduction, used in the following. Since then, one or possibly two further manuscripts have come to notice, one of which (ms.N) has been used for the present text as auxiliary to ms.V.

§2. *Manuscripts.*

V Venezia, Bibl. Nazionale Marciana, 8,18 (=3573). Paper,4°, ff.459; earlier at Dominican monastery of St.John and Paul at Venice. The relevant part consists of the 12 un-numbered leaves at the beginning of the manuscript, labelled I-XII below. According to the subscription at XIr, at least IIr-XIr were written in A.D.1494 by "magistrum Nicolaum de Ripis Venetum (*or* Venetiis)". He is also known from the logical ms. København, K.B., Thott 581,4°, part of which was written by "frater Nicolaus de Ripis ordinis praedicatorum 1473 decima mensis Augusti", in some Dominican house in Italy (Jørgensen 1923,362-4; *Colophons* IV, Fribourg 1976, no.14537; contents of ms., see Ebbesen and Pinborg *in* English Logic in Italy). The rest of ms.V, on numbered leaves, contains sermons, some of them certainly Dominican.

References: Kristeller II,1967,237b, and those mentioned in §1.

Ir-v (index to the numbered leaves: at the beginning is added:) Primo de computo vide in primo quinterno.   **IIr-XIr** (*Declar. super Comp.*: headings, text, and subscription as printed below.)   **XIv** (Notes, printed below:) Ad habendam veram revolutionem. . . Incipit abacus. . .

The textual order of V is here followed, except that the texts of §4 and §5 occur in reverse order in V. The text of V has been partly revised to suit the Dominican Cisiojanus introduced as §35-46: this has happened in §58 (line 585 ff., cf.apparatus) and §69-70, but not in the short references in §53-55 and 58(line 583).

N Napoli, Bibl. Nazionale, V.H.16. Paper, 22 ×14½, ff.1+191, 15th c.; earlier at "locum S.Nicolai prope Sulmonam". The contents are mainly theological and liturgical. The section described below shows at least two hands, a cursive (=hand 1) and a book-hand (=hand 2), possibly by one and the same scribe.

Cenci, Manoscritti francescani della B.N. di Napoli I,1971,221-2 (reference from Hill Monastic Manuscript Library), with further refs. Kristeller I, 1965, 402a, these items not mentioned.

139v(=149v Cenci; blank.)   **140r-v** (hand 1, Cisiojanus, with expansions.) **141r-v** (blank.)   **142r-143r** (hand 2, list of Easter limits, like *Calendar,* App.5(e1), hdg.:) Ad inveniendum pasca per istam tabulam aurei numeri. Haec tabula numquam fallit neque cum bissexto neque sine bissexto, et ista approbata est.   **143v** (hand 1, possibly beginning of Bonus de Lucca's Computus, T&K 242:) Compotus est scientia certificandi tempus secundum solis et lunae progressum. . .secundum ascensum vel descensum crescit pariter et decrescit.

144r-151r (hand 2, Anianus' Computus, with some marginal glosses not strikingly coincident with the *Declar.* Txt:) Compotus est talis. . .tribus illi praelata diebus(§81).   **151v** (blank.)

152r(=163r Cenci)**-163v** (hand 1, *Declar. super Comp.* No rubrics. Txt:) Ut habetur. . .post argentum indixit aurum(§82).   **164r-167v** (other hands: notes devotional and moral.)   **168r-170v** (treatise on confession.)

In N the Anianus-verses are kept apart from the *Declar.* and are represented there by lemmas or not at all. The text of the *Declar.* lacks §18 and the last half of §26. From §66 on, the following passages occur: §87, placed after §33; §(69)-70; §(77)-78; §(66)-68; §(81)-82, last half of §82 omitted. As concerns the passages of the *Declar.* common to N and V, neither witness shows extensive revisions relatively to the other; a lesser one was mentioned under V above.

I have not seen the manuscript Parma, Bibl. Palatina 178, from the 15th century (Catalogo di manoscritti filosofici nelle biblioteche Italiane 2,1981,p.152-3), no doubt Italian. It contains Bonus de

Luca's Compotus, then at 18r-36r the verses of Anianus, followed by the text "Ut habetur circa primum de anima, scientia est de bono et de difficili quod sic probatur...quotiens possumus et addere tres quia tot precesserat de indictione", with some of the last leaf and one further leaf missing. The end of the text just cited is not in N or V. The rest of the manuscript, until 41v, shows some common computistical tables with canons.

§3. *Evidence for authorship, etc.*

The ascription to one "magister Petrus de Dacia" is textually secure from §2 of the *Declar.* The remaining statements bearing on the external circumstances of the text are found in V only, either in rubrics or in other passages which are omitted by N, as follows.

§3 and §87 show the names *expositio* and *declaratio* for our work: the latter has been chosen arbitrarily. §18 and the addition in V, f.XIv, mention the years 1320 and 1300 in examples, both of which are suspect: indeed, in the first instance the sum obtained is 100 years too great; as for the second one, the week-days do not fit the dates for the year 1300; and when discounting the week-days and looking for another year where the conjunction times are compatible with those in ms. Bs of the *Calendar*, f.6v+ and 14v, no such year is found between the years 1100 and 1500. Lastly, the example in §82 uses the year 1482, valid for the time when ms.V was written.

Thus the text seems to furnish no reliable evidence for its own title, place or date, nor anything to confirm that the "magister Petrus de Dacia" is indeed Peter Philomena. The external evidence is no more encouraging: as was seen, the three known manuscripts are all from the 15th century and probably all Italian. It may thus be permitted to reserve judgment until more witnesses become available.

§4. *The text edited.*

As concerns the passages of the *Declar.* which are in both V and N, a glance at the apparatus will show that these witnesses have some errors in common, and that each of them has errors against the other one. Generally, then, choice is free between readings of V and N. In practice, since N appears to be the more faulty one in detail, the

readings of V have been retained except where N furnishes a marked improvement on grammar, style, or sense.

The entries in the apparatus are positive, except such entries as "fit: sit N", meaning "fit: V; sit N", and "fit: sit V", meaning:"fit: *ego*; sit V; *def.*N". The apparatus is meant to record all departures from V except for the notation of numbers, and for the places where banal dittographies have been eliminated, or self-corrections adopted. Where V has been followed, I have tried to cite those readings from N which concern larger omissions or additions, or lexical variants in nouns, verbs except the copula, adjectives, and adverbs derived from adjectives. Other variants, including those concerning word-order, declension, and mechanical continuation of verses quoted in full elsewhere, have been cited in selection.

The rubrics of V are printed in italics. The verses of Anianus have been printed according to V, with occasional corrections from those occurring separately in N and from a set found in Par.lat.7420A,26r-28r. All these corrections have been noted in the apparatus or by means of parentheses in the text; since they are virtually arbitrary, their sources have not been cited. The Cisiojanus (§35-46) is printed entirely from V, disregarding its two counterparts in N; the expansions given by V are in italics, and the feast-dates, in parentheses, are my additions.

§5. *Note on sources.*

I have not found any general source for the *Declar.* As could be expected, resemblances to the commoner computi are numerous; I here confine myself to repeating the observations from my earlier preface (1979a, p.II). The only computists cited are Gerlandus and Dionysius, in §16-17, concerning the solar cycles attributed to them. This passage is probably the cause of V's mention of Gerlandus in connexion with the Anianus-verses (§1,§87).

Parallels to our text may be found in Alexander de Villadei's *Massa Compoti* ("MC", pages or verses from edition by Steele, 1926), in Sacrobosco's *Compotus* ("S"), in Guil. Durandus' *Rationale,* book 8 ("D", chapters from the Venice edition of 1568), and elsewhere, as follows: §*1*: MC p.268,14 ff., D 1,§3. §*1*, "Augustinus": current in some form, cf. *Patr.Lat.*90,647, and the parallels in Wordsworth 1904,152. §*2,* etymology: common, cf. MC and D to §1 above. §*13,*

calculation: D 3,§17, cf.MC, v.270 ff.; verses, MC 247-8. *§25:* S. *§28,* verses "Sol erat": cf. MC 234-5, numbers different. *§30-33:* S. *§48-49,* golden number, etymology and story of Julius Caesar: common, e.g. D 11 ,§1, MC p.268,24 ff. *§57,61,63,67-8:* S. *§82,* verses: MC 146-7. *§86:* S; D 4,20-1, both of them with the "Augustine"-citation from *Decr. Grat.* 2,26,7,16. There does not seem to be any particular affinity to Balduinus de Mardochio's *Compotus manualis* (manuscript, e.g., *Calendar, Pref.* §2b, ms.H,2v-10r; cf. O.Pedersen 1976 p.15).

Sigla testium.

V Venezia, B.Naz.Marc. 8,18 (=3573), IIr-XIv, A.D.1494
N Napoli, B. Naz. V.H.16, s.xv, 152r-163v

(1) *Incipit prooemium in computum metricum manualem secundum magistrum Gerlandum.*

Ut habetur circa primum De Anima, scientia est de bonis et de dif-
ficillimis, quod sic probatur. Cuius finis est bonus, ipsum quoque
5 bonum est; finis scientiae est bonus; ergo scientia bona est. Quod
finis scientiae sit bonus, probatur, quia per scientias ad virtutes, per
virtutes ad beatitudinem pervenitur, beatitudo siquidem est status ex
aggregatione perfectus omnium bonorum. Iterum probatur quod
finis scientiae sit bonus, quia scientia ad deum finaliter ordinatur,
10 qui est bonus; ergo scientia est bona. Quod deus sit bonus, dicit
Algazel: "Deus est sine qualitate bonus, sine quantitate magnus,
ubique praesens per essentiam, nusquam per singularem cohabitatio-
nem vel circumscriptionem." Apparet igitur ex praemissis quod
scientia sit bona, cum ad deum, ut dictum est, finaliter ordinetur.
15   Quattuor igitur, attestante beato Augustino, sunt necessaria in
domo domini, scilicet grammatica, musica, canones, et computus:
grammatica pro vocabulis exponendis, musica pro dei canticis
modulandis, canones pro sacramentis fidei ordinandis, computus
vero pro temporibus discernendis. Sed omissis aliis tribus ad compu-
20 tum accedamus.

Sciendum est igitur quod duplex est computus, scilicet philoso-
phicus et ecclesiasticus. Computus philosophicus est scientia infalli-
bilis, secundum motum corporum superiorum tempora manifestans,
et de isto nihil ad praesens. Computus ecclesiasticus est scientia

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1 incipit--Gerlandum: *om.* N   **3** bonis. . .diff.: bono. . .difficili N   **10** qui est:
et deus N   dicit: *om.* N   **11** Algazel: Algadel N   **12** cohab. vel circ.:
coartantiam(?) vel circumspectionem N   **15** quattuor--domini: unde quanto
magis et principalius aliqua scientia ad deum finaliter ordinatur tanto est de
numero aliorum. ista vero scientia de qua praesens est intentio ut dicit venerabilis
doctor augustinus ad deum principaliter ordinatur nam eodem attestante quattuor
scientiae sunt in domo domini necessariae N   **19** discern.: N; disponendis vel d.
V   **23** superiorum: N; *om.* V   **25** praesens: ad p. N   **26** quare: quia VN

25 secundum usum ecclesiae temporis discretiva, et de isto praesens est
    intentio; quare iste libellus vocatur computus ecclesiasticus metricus
    et manualis.

    (2) Istis ita praelibatis, quia causa est ad cuius esse sequitur aliud,
    scilicet effectus, ideo causam quadruplicem istius effectus vel operis
30 inquiramus, scilicet quae sit causa materialis, finalis, efficiens et
    formalis. Causa materialis est tempus, quia de tempore in toto hoc
    opusculo pertractatur. Causa formalis est modus agendi et forma
    tractatus. Causa efficiens sive compilator huius opusculi fuit magister
    Petrus de Dacia. Et licet plures fuerint qui de illa materia tractave-
35 runt, tamen ille, quae ab aliis computistis diffusius tractabantur,
    artificialius et brevius compilavit, regulas computales ad quendam
    manualem modum applicando. Gerit enim practica vim formae
    scientiae declarativam, et ob hoc arti subiuncta est practica: nam
    ipsius artis necessitatem corroborat et discentis praecordia in tradita
40 scientia certiorat. Causa finalis sive utilitas est, ut habito praedicto
    opusculo auditio memoriae commendetur et habeamus notitiam
    eorum, quae in ipsa scientia continentur, et per consequens facilio-
    rem aditum ad ipsam astrologiam, cui supponitur liber iste. Dicitur
    enim computus a 'computo, -tas', non quia doceat computare, sed
45 quia computando docetur. His habitis ad litteram accedamus.

    (3) *Incipit libellus eius cuius supra cum expositione Petri de Dacia.*
        Computus est talis proprie dictus manualis:
        Laeva manus totum nobis facit hunc fore notum.
        Quattuor in partes opus hoc distinguere debes:
50   Dat cyclum prima solis, lunaeque secunda,
        Tertia dat festa, distinguit tempora quarta.

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29 effectus vel: *om.* N   **33** compilator: N; -tio V   **34** dacia: datia VN
35 ille: illa V; iste ea N   **36** artificialius: -iosius N   quendam ma. modum:
quandam ma. practicam N   **38** scientiae: e(ss)e *add.* V; o( )e *add.* N   declar.:
informati(v)a(m)(?) *add.* N   subiuncta: -iecta N   nam ipsius--praec. in: *om.* N
40 certiorat: *vacat* N   ut habito p.o. auditio m. c-detur: ut p.o. audito et m.
c-dato N   **41** et: *om.* VN   **43** aditum: N; *om.* V   **44** computare: N; *om.* V
45 computando: N; componendo V   **46-51** (§ 3): *om.* N   **46** petri de dacia:
Berardellli; *n.l.* V   **48** facit hunc: h.f. V

(4) Dividitur autem libellus iste in prooemium et tractatum. Secunda
(5) incipit 'cyclus solaris', quae dividitur in quattuor partes, secun-
dum quod sunt quattuor capitula huius libri. Partes autem partium et
55 partium particulae satis per rubricas apparebunt. In prooemio *(3)*
breviter tria facit: primo ponit titulum sui libelli metrici, prout patet,
secundo ostendit, in qua manu debeat ordinari, et tertio dividit opus
suum in generali. Secunda ibi 'Laeva manus'; tertia ibi 'Quattuor in
partes'. Sed ponamus alios versus, antequam ulterius procedatur,
60 usque ad illam partem 'Tu concurrentes domini' *(23)*, quae alias
dividetur.

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(5) *Primum capitulum istius libri de cyclo solari et littera dominicali.*

    Cyclus solaris septem quater occupat annos,
    Ac in iuncturis totidem poni decet illos.
65   Hic expandatur iuncturis postea versus:
    Filius Esto Dei Caelum Bonum Accipe Gratis.

(6) 'Filius' F signat, annum primum manifestat
    Solis; et indicis hanc radix tenet; 'esto' dat E, quam
    Vult medii radix, anni iunctura secundi;
70   Et sic de reliquis facias, velut ordo requirit.
    Primo ponuntur radices, inde sequuntur
    Iuncturae mediae, postea sunt reliquae.
    Versu finito, tu sumas hunc iterato,
    Donec in extrema parvi sistatur habena.
75   Solaque iuncturam deposcit dictio solam;
    Omni iunctura parvi sit dictio bina
    Propter bissextum, nam parvus denotat illum.

    Fructus Alit Canos Et Gallica Bellica Danos
    CamBit EDens GriFo BoAl DiCens FluEt AnGnus.

80 **(7)** Primo agit de cyclo solari in generali, secundo *(15)* in speciali.
Secunda ibi 'si forsan nescis'. Iterum prima in duas: primo agit de

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52 libellus: liber N   **55** rubricas: lubr. N   **59** sed--procedatur: *om.* N
60 usque: usus(!) N   tu concur.: N; tuus(!) cur. V   **61** dividetur: V; d. *vel*
d-duntur N   **62-79** (§ 5-6): *om.* N   **73** hunc: hanc V   **75** iuncturam: -ura V
76 omni: anni V   **77** denotat: donat V   **81** secunda--nescis (?nesci V): 3⁰

cyclo solari in generali, secundo (*12*) ponit quaedam notabilia de bissexto, ibi 'tunc bissextus erit'.

(**8**) Ad primam (*5-6*) sic proceditur: Cyclus solaris est spatium 28
85 annorum, a seipso incipiens et in seipsum finiens et revertens, et dicitur cyclus quasi circulus; nam quemadmodum, si vellemus circuire aliquod corpus sphaericum circumpunctatum 28 punctis, incipiendo ab uno puncto reverteremur ad idem, sic est in proposito. Nam incipiendo a primo anno cycli solaris et procedendo per 28
90 annos ad litteram dominicalem primi anni perveniam, et ita per 28 annos continue procedendo. Solaris etiam nominatur a sole, ut a causa digniori, quia nisi esset sol, non esset annus. Annus enim est spatium, in quo sol circuit et peragrat 12 signa zodiaci, et 28 anni huiusmodi complent et perficiunt istum cyclum. Vel dicitur solaris ad
95 differentiam cycli lunaris, de quo inferius est dicendum. Si quaeratur, quare non sunt plures anni nec pauciores quam 28 in hoc cyclo, dicendum quod sunt 7 litterae feriales, scilicet A B C D E F G, quarum quaelibet potest esse, antequam totaliter compleatur cyclus, littera dominicalis 4 modis et 4 annis, scilicet primo anno post
100 bissextum, in secundo et tertio et in anno bissextili; ad hoc quod quaelibet istarum litterarum septem possit esse littera dominicalis in 4 annis, requiruntur 28 anni, quibus cyclus iste perficitur et completur, quare et cetera.   (**9**) Isti igitur 28 anni significantur per 28 iuncturas quattuor digitorum sinistrae manus, ita quod prima servit primo
105 anno, secunda secundo, et sic deinceps est dicendum. Ad habendam igitur litteram dominicalem in quolibet anno cycli solaris sumatur iste versus, scilicet 'Filius Esto Dei', qui per primas litteras singularum dictionum nobis ostendit litteras dominicales, secundum quod in cyclo solari ordinantur; ita quod prima dictio, scilicet 'Filius', ordine-
110 tur in radice indicis ad significandum quod F est littera dominicalis in primo anno huius cycli; secunda, scilicet 'Esto', in radice medii; 'Dei' in radice medici; et sic de aliis dictionibus est dicendum secundum

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forsanne N   **82** secundo: 2⁰ N; 3⁰ V   **83** ibi: et illa VN   **84** proceditur:
om. N   **88** incipiendo: a primo anno cycli solaris procedendo per 28 annos
add. N *ex inferioribus*   **90** primi anni: N; *om.* V   perveniam: devenerimus N
93 circuit: N; currit V   **96** nec: etiam punctis *add.* N   **97** feriales: N; sodales
V   d: *om.* V   **99** littera: N; iste dicitur autem V
   101 septem: *om.* N   **103** significantur: N; -atur V   **109** ordinantur: -atur
VN   **111** dei i.r.m.: *om.* N   **114** addito: audito N   **116** circumcisione:

ordinem iuncturarum, donec veniamus ad ultimam iuncturam parvi
digiti, hoc addito, quod in qualibet iunctura parvi digiti duae
115 dictiones sunt ponendae propter duplicem litteram dominicalem in
anno bissextili existentem, quarum prima durat a circumcisione
usque ad festum beati Matthiae apostoli, alia vero per totum annum
residuum; sed in aliis annis non bissextilibus sufficit tantum una littera
dominicalis.   **(10)** Ratio autem, quare mutatur littera dominicalis in
120 quolibet anno in principio Ianuarii, haec est, quia in principio
kalendarii habemus A et in fine, ita quod de ultima die Decembris,
quae significatur per A, venimus ad primam diem Ianuarii, quae per
A similiter designatur; unde, si A in aliquo anno fuerit littera
dominicalis, ultima dies Decembris erit dominica, et statim venimus
125 ad primam diem Ianuarii, quae erit necessario dies lunae, modo ut,
quasi A commutavit feriam suam, aliae similiter mutant ferias suas,
ita quod G diem dominicam designabit. Et statim in alio anno iterum
venimus de ultima die Decembris, scilicet die lunae, ad primam diem
Ianuarii, scilicet diem Martis, ita quod ex consequenti F diem
130 dominicam designabit. Et sic de annis ceteris est dicendum per retro-
gradum ordinem litterarum, ut apparet in isto versiculo 'Filius Esto
Dei'. Et in anno bissextili iterum mutatur littera dominicalis in loco
bissexti vel paulo post, quia illa littera, scilicet F, in qua scribitur
festum sancti Matthiae, duplicem feriam repraesentat, et ita in
135 secunda acceptione mutat feriam, ad cuius mutationem mutatio
sequitur aliarum. Et hoc est quod dicitur in hac parte.

(11) Tunc sequitur illa pars 'Tunc bissextus erit': quando anni
domini possunt praecise per quattuor partes aequales per annos
integros dividi, ita quod nihil remaneat, tunc est annus bissextilis.
140 **(12)** *De bissexto et loco eiusdem.*

    Tunc bissextus erit, per partes quattuor aequas
    Annos partiri cum poteris domini.
    Bissextum sextae Martis tenuere Kalendae;

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domini *add.* N   **119** domin.: quare etc. *add.* N   **123** a$_2$: *om.* N   **124** domi-
nica: dies d. N   **125** quae: N; qui V   ut quasi: ut q (!) V; quod N   **128**
die$_1$: N; *om.* V   decembris: N; -bri V   **129** diem: die VN   ex: N; ea V
133 vel: N; ut V   **136** parte: compotus etc. *add.* N   **139** remaneat: ut est a
add. V   **140-5** (§*12*): *om.* N   **143** bissextum: -tus V   tenuere: tenere V

Posteriore die celebrantur festa Matthiae,
145   Sabbata si fuerint ibi, non alibi celebrantur.

(13) Nota quod bissextus est excrescentia unius diei in 4 annis, et colligitur sic: Sol peragrando 12 signa zodiaci moratur in quolibet signo per 30 dies, per 30 trientes horarum et per 30 bisse momentorum. Et nota quod triens est tertia pars cuiuscumque rei divisae 150 aequaliter in tres partes; remota vero tertia parte alicuius rei constantis ex tribus partibus, residuum dicitur bisse, unde bisse nihil aliud est nisi duo trientes. Nota etiam quod 40 momenta faciunt unam horam, et sic 30 bisse momentorum faciunt 20 momenta, quae 20 momenta faciunt horam dimidiam; et 30 trientes horarum consti-155 tuunt decem horas, ut ex praedictis apparet; ita quod sol moratur in quolibet signo per 30 dies et 10 horas cum dimidia. Et sic moratur in 12 signis per 365 dies et per 6 horas, quae 6 horae in 4 annis constituunt unam diem naturalem, et illa dies intercipitur sexta kalendas Martii, et talis dies vocatur bissextus, et huius ratione totus annus 160 dicitur bissextilis. Et quia illa dies provenit et causatur ex bisse momentorum, ut dictum est, ideo bissextus dicitur, vel quia una dies bis legitur in tali anno, ideo bissextus nominatur. Unde versus:

Est hic bissextus quia sit de bisse creatus
Vel quia bis legitur, ideo bissextus habetur.

165 (14) Februarius dum haberet pauciores dies quam alii menses, diem habere meruit bissextilem, quare intercipitur in festo sancti Matthiae, ut signa signatis respondeant. Nam quemadmodum beatus Matthias non fuit principalis apostolus, immo vocatus ab aliis in sortem post dominicam passionem, similiter iste dies: non enim principaliter nec 170 totaliter illo anno intercipitur, sed aliunde provenit et causatur, ut superius est expressum, quare et cetera. Et sciendum est, ut dicit

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148 per₁: N; *om.* V

153 momentorum f. 20 m. q. 20 m.: *om.* N   **155** ita quod: iam V; quod N   moratur: N; mutatur V   **156** et sic moratur: ergo N   **158** intercipitur: N; interpretatur V   sexta: sex N   **161** bissextus: N; -tilis V   vel: N; *om.* V   **162** anno: sexto kl. martii *add.* N   **163** hic: N; hinc V   bissextus: N; *om.* V   **166** quare: N; quia V   .**168** non: N; *om.* V   aliis: apostolis *add.* N **169** passionem: N; -nis V   enim pr.--illo anno: est pr.--de i.a. in quo N **173** duorum: dierum *add.* N   **175-82** (*§15*): si forsan nescis N(*lemma*)   **176** tu: *ante* quae V   **178** demas: divinas V   **184** sententia: N; sed causa V

textus, quod quando illa littera pro duobus diebus legitur, festum beati Matthiae in ipsorum duorum ultimo celebratur, quia a fine, tamquam a digniori, res denominatur.

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175 **(15)** *Ad habendum quotus sit annus cycli solaris secundum Gerlandum.*

Si forsan nescis quae littera tu domini sit
Et quotus est solis annus cognoscere quaeris,
Annos a domini demas annis prius octo,
Perque quater septem domini diviseris annos;
180 Dat quotus est solis annus quicquid remanebit,
Et, si nil restat, tunc supremum fore constat.
Octo bis ex centum remanent, ex mille viginti.

(16) Superius (5) dictum est de cyclo solari in generali, nunc autem agitur in speciali; ordo patet. Sententia huius partis talis est: Ad 185 habendum quotus sit annus cycli solaris secundum Gerlandum, videlicet utrum primus vel secundus vel tertius et sic deinceps, attendendus est numerus annorum domini, et primo removendi sunt octo anni semel ab annis domini; deinde dividantur omnes anni residui per 28, quotienscumque poterimus; facta autem divisione aut 190 aliquid remanebit aut nihil. Si aliquid remanserit, illud quod remanserit dabit nobis quotus sit annus cycli solaris; si vero nihil remanserit, erimus in ultimo anno, scilicet vicesimo octavo; computatione autem facta, de 28 nihil remanet. Ratio vero quare subtrahuntur 8 anni ab annis domini haec est, quia secundum Gerlandum transie- 195 rant 20 anni de isto cyclo, quando Christus natus fuit; unde ad perfectionem cycli, incipiendo a dicta nativitate, eiciendi 8 anni de annis domini.

(17) Nota etiam quod duo fuerunt computistae qui de isto cyclo tractaverunt diversimode, scilicet Gerlandus et Dionysius abbas. Et 200 licet idem sit realiter, tamen melior est opinio Gerlandina, quia Dionysius incipit cyclum solarem ab anno bissextili, in quo habemus

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186 et sic: N; sit V   **188** semel: simul vel s. N   **190** aut nihil--quod rem.: *om.* N   **192** erimus: N; e. aut V   anno: *om.* N   **192-3** comput.(commut. V)--remanet: *om.* N   **193** 28: 68 V   **195** 20: N; octo V   **196** incipiendo--eiciendi: iam incepti accipiendi sunt N   **200** sit: faciant N

G et F pro litteris dominicalibus, et talis annus est duodecimus
secundum Gerlandum; erravit siquidem Dionysius incipiendo cyclum
ab anno bissextili, cum ante annum bissextilem tres anni debeant
205 praecedere, ex quibus una cum quarto anno bissextus provenit et
causatur; et sic posuit effectum ante causam. Gerlandus vero sic
ordinavit cyclum, quod quartum annum posuit bissextilem. In hoc
differunt isti duo, quod Gerlandus, ut visum est, removet octo annos
in divisione annorum domini, Dionysius vero addit novem. Unde,
210 habito quotus sit annus cycli solaris secundum Gerlandum, addantur
anni XVII, et habebitur quotus sit secundum Dionysium; vel a cyclo
Gerlandino subtrahantur XI anni, quod idem est, et habebitur cyclus
Dionysii.

(18) Nota quod a creatione mundi usque ad adventum Christi
215 fuerunt anni quinque milia centum et nonaginta novem, 5199, et ab
origine usque ad annum Christi millesimum trecentesimum vicesi-
mum fuerunt anni 6619. Unde si nescieris numerum annorum
domini, subtrahe annos, qui fuerunt a creatione mundi usque ad
adventum Christi, de toto numero annorum mundi usque ad annum,
220 de quo quaeris, et residuum erit numerus annorum domini. Unde
versus de annis a creatione mundi usque ad adventum Christi:

> Quingentos decies et bis centum minus uno
> Annos dic ab Adam, donec verbum caro factum est.

(19) *Quomodo debemus semper transire iuncturam radicalem.*

225
> Iuncturas transis quotiens numerum superaddis,
> Sed pro praeteritis tu retrograde numerabis.
> Annum radicis excludit circulus omnis.

(20) Habito quotus sit annus cycli solaris pro anno praesenti, et per
consequens quae sit littera dominicalis et in qua iunctura sit pro ipso
230 anno praesenti et radicali, si volueris scire ad aliquod tempus
praeteritum vel futurum annum cycli solaris et litteram dominicalem,

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203 cyclum: solarem *add.* N   **205** anno: ut dictum est *add.* N   et: N; unde
V   **206** causatur: habetur VN   vero: N; non V   **207** cyclum: et [[m]]erito
add. N   in: N; et V   **211** xvii: 42 V; 28 N   **212** xi: v N   **214-23** (§ *18*):
om. N   **216** trecentesimum--6619: *sic* V   **219** annorum: *om.* V   **221** annis
a creatione: ante c-nem V   **223** donec: do V   **224-7** (§ *19*): iuncturas transis
N(*lemma*)   **226** praeteritis: ceteris V   **227** excludit: -tur V   **230** et: N;

transi ad tot iuncturas, ad quot annos venire volueris, ita quod pro
tempore praeterito ordine retrogrado, pro tempore vero futuro
ordine progressivo – ita tamen quod iuncturam radicalem, id est
235 iuncturam anni praesentis, teneas exclusive, illam non computando,
et hoc quidem observandum est in quolibet cyclo, tam in decem-
novennali quam in indictionali, iuxta illud 'annum radicis etc.' –, et
cum veneris ad iuncturam illius anni, de quo intendis, praeteriti vel
futuri, expande istum versiculum 'Filius Esto Dei', et invenies
240 litteram dominicalem, ut satis patet cuilibet subtiliter intuenti. Ve-
rumtamen si tu quaeras de maiori numero quam de 28, remove ab
illo numero 28 quotienscumque poteris, et residuum ordina ante
iuncturam in qua es, illa semper exclusa, ut superius dictum est.

(21) Vel aliter: si ille numerus, de quo quaeris, sit praecise divisi-
245 bilis in 4 partes per annos dividendo, tunc quartam partem illius
numeri ordina et computa in digito, in quo est iunctura, iunctura
tamen radicali exclusa semper, ita quod pro tempore praeterito
ordine retrogrado, pro tempore futuro ordine progressivo; et ubi per
talem computationem in eodem digito factam quarta pars illius
250 numeri terminabitur, in eadem iunctura per computationem 4 digi-
torum totalis numerus; et sic in quarta iunctura erit ad centum annos
et in quinta ad mille. Unde versus

Quartaque iunctura dat centum, milleque quinta.

Si vero numerus non fuerit praecise divisibilis in 4 partes ut dictum
255 est, sume maiorem numerum divisibilem in 4 partes contentum sub
ipso numero de quo quaeris, et quartam partem ordina et computa
in eodem digito, in quo es, ut dictum est, residuum autem ordina per
processum aliorum digitorum secundum cycli ordinem. Totaliter
procedendo usque ad iuncturam illius anni, de quo quaeris, habebis
260 semper litteram dominicalem istum versiculum expandendo 'Filius
Esto Dei'.   (22) Poteris etiam habere septem litteras dominicales in

om. V   **233** retrogrado: N; -de V   **235** exclusive: -vam N   **239** et: N;
quod V   **240** subtiliter: *om.* N   **242** poteris: N; volueris V   **243** iunc-
turam: vel post iuncturam *add.* N   dictum est: est expressum N   **245** annos:
integros *add.* N   **246** iunctura₂: *om.* VN
     251 numerus: terminatur *add.* N   et: N; *om.* V   **252** unde versus: *om.* N
254 ut dictum--partes: *om.* N   **255** contentum: conceptum VN   **257** es: est
V*p.c.*   autem: N; vel V   **259** usque: devento autem N   **260** expandendo:
exponendo N   **261** septem l.d.--iuncturis: et l-am d-em et iuncturas N

septem iuncturis indicis per istum versiculum 'Fructus Alit Canos
etc.'. Per eundem etiam versum habebis septem litteras dominicales
medii digiti, incipiendo tamen ipsum in radice ipsius medii et
265 dicendo per ordinem septem iuncturarum medii, incipiendo ab ista
dictione 'Et Gallica Bellica etc.'. Iterum in medico habebis litteras
dominicales per eundem versum, incipiendo ipsum ab ista dictione
'Danos', dicendo per ordinem iuncturarum medici. Duplicem vero
litteram dominicalem habebis in qualibet iunctura parvi digiti per
270 istum versum 'CamBit EDens etc.', ita quod duae primae litterae
duarum syllabarum in qualibet iunctura parvi digiti in anno bissextili
duplicem dominicalem litteram repraesentant.

(23) *De concurrentibus et regularibus ferialibus.*

Tu concurrentes domini per grammata nosces:
275 A sex, B quinque, C quattuor, E duo, D tres,
Primus concurrens F littera, septimus est G.
Mensis cognosces regulares sic feriales:
Quinque monos terni sex unus et inde quaterni
Septem post bini quini septem tria seni.
280 Dant feriam mensis concurrens et regularis.
Si plus quam septem, reliquum cape, reice septem.
Sunt in Marte novi concurrens et regularis.

(24) Ad sciendum quota feria quilibet mensis incipiat, duo numeri
sunt inventi, scilicet concurrens et regularis ferialis. Concurrens est
285 numerus variabilis datus anno, et dicitur concurrens quasi cum alio
currens, scilicet cum regulari feriali. Quotus sit concurrens in quoli-
bet anno, patet per hos versus 'A sex, B quinque etc.', quorum
sententia talis est quod, quando habemus A pro littera dominicali,
tunc habemus 6 pro concurrente, quando B, 5, et cetera, ut in littera
290 satis patet. Concurrens in Martio renovatur et durat a Martio usque ad
Martium.

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263 habebis: N; *om.* V   **264** medii$_2$: ab ista dictione *add.* N   **265** incip. a.i.d.:
om. N   **266** et: N; *om.* V   medico: N; medio V   **270** cambit: N; cohe-
re(n)s V   ita quod: N; itaque V   duae: die N   **272** dominicalem: N;
-cam V   repraesentant: N; -tat V ·   **273-82** (*§23*): *om.* N   **277** mensis:
menses V   **283** ad sc.--mensis: *om.* N   **286** feriali: f-arum N (*sic vel* f-ae
saepius)   **287** patet: apparet N   **288** sententia: N; summus V   **292**

(25) Regularis ferialis est numerus invariabilis datus mensi, et dicitur regularis a regula, eo quod est invariabilis sicut regula; tamen quilibet mensis habet suum regularem; et dicitur etiam ferialis, quia
295 facit ad feriam cognoscendam. Quotus autem sit regularis ferialis cuiusque mensis, habetur per hos versus 'Quinque monos etc.'. In istis siquidem versibus sunt 12 dictiones numerales 12 mensibus servientes, prima Martio, secunda Aprili, tertia Maio et cetera; et sic habemus quod Martius habet 5 pro regulari feriali, Aprilis 1, Maius
300 3, et cetera. Vel aliter: iunge regularem ferialem Martii cum diebus eiusdem, et a toto numero subtrahe 7 quotienscumque poteris; et residuum erit regularis Aprilis, et sic de aliis est dicendum. (26) Iunge ergo regularem ferialem mensis cum concurrente anni, et numerus inde proveniens dabit quota feria ille mensis incipiat, cuius regu-
305 larem iunxeris concurrenti; unde si maior numerus proveniat ex tali additione quam 7, remove 7, residuum assumendo.

Vel aliter: vide quota feria designatur per tertiam diem mensis Martii, et totus est concurrens huius anni, incipiendo a Martio, quia Martius quantum ad constitutionem mundi fuit primus mensis; et
310 dehinc habes hunc versum:

Concurrens totus F quota Martis erit.

(27) *De duodecim mensibus, et de diebus eorundem, quot quilibet habet.*

Annus solaris ex mensibus est duodenis:
Ia Fe Mar Ap Ma Iu Iul Au Sep Oc No Dece.
315 Iunius, Aprilis, September et ipse November
Dant triginta dies, reliquis superadditur unus.
De quorum numero Februarius excipiatur,
Nam septem quater fertur habere dies;
Sed cum bissextus fuerit, superadditur unus.

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invariabilis: var. N   **292-3** mensi--invar. sicut: *om.* N   **294** suum: N; suam V   **297** versibus: duobus v. N   **298** maio: N; maii V
    302 regularis (-are N *ut saepius*): r( )alis V (*sic saepius*)   **306** quam: N; quod V   remove 7: *om.* N   **307-11** vel aliter--martis erit: *om.* N   **311** f: facit V
312-29 (§*27-8*): *om.* N   **315** september: -bris V   **326** meabat: -bit V

320 **(28)** *De duodecim signis zodiaci.*

Zodiacum signa totum claudunt duodena.
Est Aries Taurus Gemini Cancer Leo Virgo
Libraque Scorpque Sagit Capricornus Aquarie Piscis.
Semper quindenis scribuntur signa kalendis;
325   Est Aries Marte, post ordine cetera pone.

Sol erat octavo, bis nono luna meabat,
Quando fuit Christus de sacra virgine natus.
Solstitium decimo Christum praeit atque Iohannem.
Aequa Crucis festum dant tempora Martis et Idus.

330 **(29)** *De divisione mensis cuiusque.*

Sex Maius Nonas October Iulius et Mars,
Quattuor et reliqui, tenet Idus quilibet octo.
Inde dies reliquos omnes dic esse Kalendas,
Nomen sortiri debent a mense sequenti.
335   Versibus his noscas mensis cuiusque Kalendas:
Tantum Tendebat Quod Regem Summa Regebat
Sanctus Rex Talis Sapienter Regna Subivit.
Cum bissextus erit, unam Marti-super addis.

(30) Diviso itaque anno solari in 12 menses et in dies mensibus
340 resolutis, unicuique diei dederunt computistae propriam denomina-
tionem, et hoc tripliciter. Prima dies mensis cuiusque dicitur Kalen-
dae quasi colendae, quia in prima die cuiusque mensis fiebat festum
Iunonis, quae secundum Ovidium uxor fuit Iovis, et interpretatur aer
inferior. Vel dicuntur Kalendae a 'calo', quod est clamare vel vocare;
345 nam praeco ascendebat pinnaculum templi et clamabat totiens 'kalo',
quot erant dies quibus licebat homines liberos et immunes venire ad
huiusmodi festum, in prima die mensis cuiuslibet celebrandum.

(31) Deinde post primum diem mensis sequuntur Nonae quasi
nundinae, quia in illis vendebatur et emebatur; sed ultima dies dice-

328 iohannem: -nes V   **330-8** (§*29*): sex maius etc. N(*lemma*)   **335** noscas:
nota V   **338** cum: qui V   erit unam marti: fuerit una martis V   **340**
propriam (-ia N): ipsam V   **343** iunonis: N; nonis V   **344** inferior: N; -ius
V   vel vocare: *om.*N   calo: N; colo V   **345** pinnac.: N; per pinnac.
V   totiens kalo q.e.d.: t.k. quotiens d. N; totius kale quod erat diebus V

350 batur principaliter Nonae, et alii dies inter Nonas et Kalendas deno-
minantur a 'Nonas' cum numero, ut dicendo 'quarto Nonas', 'tertio
Nonas', et cetera.

(32) Post Nonas vero sequuntur Idus, et dicuntur Idus ab 'iduo,
iduas', quod est 'divido', quia in illis diebus nundinae dividebantur
355 et unusquisque ad propria remeabat. Quot Nonas quilibet mensis
habeat, quot Idus, habetur per hos versus 'Sex Maius Nonas etc.'.
Post Idus omnes aliae dies dicuntur Kalendae mensis sequentis et
denominantur a prima die mensis sequentis cum numero, ut '19
Kalendas' et cetera, descendendo usque ad primam diem mensis.

360   (33) Nota etiam quod, licet bene dicamus 6. vel 5. Kalendas vel
Nonas vel Idus talis mensis, tamen non bene dicitur '2° Kalendas' et
cetera, quia 'secundus' dicitur a 'sequor, sequeris', et talis dies non
sequitur, sed praecedit; sed debemus dicere 'pridie Kalendas', id est
primam diem ante Kalendas vel Nonas vel Idus. Ipsos autem tres dies
365 principales in quolibet mense sine numero proferamus ablativo casu,
ut 'Kalendis, Nonis, Idibus' etc.

(34) *De kalendario manuali, qualiter ordinandum sit in sinistra manu.*
Postea de festis fixis sit regula talis:
A B C sunt extra, G supra, tres habent intra,
370   Radices dant D, dant E mediae, sed F trinae.
Mensis cuiusque coeptum versus dabit iste:
A-Dam De-Ge-Bat Er-Go Ci-Fox A-Dri-Fex.
Pro solo mense deservit syllaba quaeque.
Iuncturis istum sic debes ponere versum:

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349 v-tur et e-tur: res v-ntur et e-ntur N   dies dic.: dicitur N   **350** alii d.:
N; aliis diebus V   **350-2** denom.--tertio nonas: *om.* N   **350** denominantur:
-atur V

352 et cetera: quot nonas--sex maius (*l.* 355-6) *hic habet* N   **354** divido: 'dis
add. N   **355** remeabat (-bit N): quilibet mensis habet octo idus et denominan-
tur ab ultimo cum numero ut octavo idus septimo idus etc. *add.* N   **355-6** quot
nonas--nonas etc.: *om.* N, *cf. ad l.* 352   **356** quot idus: *om* N   **357-8** et denom.
--sequentis: *om.* N   **360** licet bene dic.: N; b. dicitur V   **361** dicitur: dicetur
N   et cetera: non( ) vel id( ) N   **363** praecedit: quare et cetera *add.*
N   debemus: N; *om.* V   kalendas (kl( ) N): non( ) vel idus *add.* N   **366** kal.
non. id. etc.: data kl( ) non( ) vel idus N   **367-474** (§ *34-47*): *om.* N   **372** ci: a
V   **374** istum--versum: tribus (*cf.* §60)--versus V   **376** fox: fex V   **377**

375   Index A, medius Dam De Ge Bat, medicans Er
       Go Ci, Fox A parvus, indice pone Dri Fex.
       Anni pro festis sunt versus bis duodeni,
       Nam quivis mensis binos versus retinebit.
       Versus ponantur ubi mensis cui famulantur,
380   Solaque iuncturam deposcit syllaba solam.
       Demonstrat festa sanctorum syllaba prima;
       Expandas digitis versus ut hic ordo requirit:

(35) *Ianuarius.*

[1]Ci *circumcisio*   [2]Octave *Stephani* Ia[nu]⟨nu⟩*arius mensis*   [6]Epipha-
385   nia *domini*   [10]Paulus *primus eremita* et   [13]Octave *epiphaniae*
       [14]Fel*icis*   [15]Mauri[cii]   [16]Marc*elli*   [17]Antonii
       [18]Prisca *virgo*   [20]Fab*iani et* Seba.   [21]Ang⟨n⟩*etis*   [22]Vin*centii*
       [23]Emer*entianae*   [25]Paulus *conversio Pauli*   [27]Juli*ani conf.*
       [28]trans*latio sti. Thomae conf.*   [29]Agn*etisque* se*cundo*

390   **(36)** *Februarius.*

[1]*Ignatii martyris*   [2]Pur*rificatio Mariae*   [3]Blas*ii martyris*   [4]Anniver-
       sarium   [5]Agathae   [6]Vedasti *et Amandi confes.* et   [10]Scol*asticae*
       virginis   [11]Vilgel*mi confessoris* que   [14]Valent*ini martyris*
       [16]Julia*nae virginis* coniunge tu   [22]Petrum *cathedra sti. Petri*   [24]Ma-
395   thiam *apostolum* inde

(37) *Martius.*

Martius *mensis*   [4]doctorum *ordinis praedicatorum*   [7]Thomae *ordinis*
       praedi*catorum* et   [12]Gregor*ii papae et confessoris* decoratur
simulque   [21]Bene*dicti abbatis* iuncta   [25]Maria *annuntiatio virginis*
400   genitrice

(38) *Aprilis.*

April *mensis* in   [4]Am*brosii epi. et conf.*   [5]Vincentii *ordinis praedi-*
       catorum que *festis ovat atque*   [14]Tiburti[i] *et Valentini et Maximi*
coniunguntur festa   [23]Georg*ii mart.*   [25]Marci *evangelistae* que
405   [28]Vi*talis mart.* [et]   [29]Petri *ordinis praedicatorum* ⟨*⟩

(39) *Maius.*

[1]Phil*ippi* et Iacobi   [2]Katerinae *virginis* or.pre.   [3]Crux *exaltatio*

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anni: amen V   duodeni: -nis V   **380** iuncturam--syllaba: i-a--s-am V
381 festa: *om.*V   **383-468** §35-46 *ex* V *exempli gratia reddo: v. praef.* §4 *ad fin.*

(4)sertum *coronae domini*   (6)Ioannis *ante portam La.*   (7)Translatio
Petri mart.   (8)Michaelis que   (10)Gordiani et   (12)Nerei *et Achillei*
410   (13)Serva*tii conf.* florem Mai⟨i⟩   (19)Potentianae *virginis* cum domini
(24)Translatio sti. *Dominici patris nostri*   (25)Urbani *papae* nec non
(30)Fe⟨licis⟩   (31)Petronillae *virginis*

(40) *Iunius.*
Cum   (2)Marcell⟨in⟩o *et Petro martyrum* iunge   (8)Medardi *martyris*
415   (9)Primum *et Felicianum*   (11)Barnabae *apostoli*   (12)Bassilidis
(13)An*tonii ordinis minorum* et   (15)Viti *et Modesti martyrum*
(16)Marti*alis conf.*   (18)Marci *et Marcelliani*   (19)Gervas*ii et Protasii mar-*
tyrum que   (22)Decem *milia martyrum*   (24)nativitas *Iohannis*
Baptist*ae*   (26)Iohan*nis et Pauli martyrum*   (28)Leonis *papae*   (29)Pe-
420   *tri* Pauli *apostolorum*

(41) ⟨*Iulius.*⟩
(1)Octave *Iohannis baptistae*   (2)Visitatio *virginis Mariae*   (3)Processi *et*
Marti⟨ni⟩ani   (6)Octave *apostolorum* simul   (9)Octave *visitatio.*
(10)Septem *fratrum*   (11)Proco*pii* socio quaerit   (17)Alex*ii confessoris*
425   que
(20)Margaritae *virginis et martyris*   (21)Praxedis   (22)Magdalenae   (23)Ap-
pollinaris martyris   (24)Cristinae *virginis*   (25)Iacobi   (26)An*nae*
(27)Marthae *virginis*   (28)Na[[za]]*arii* Cel⟨si⟩   (29)Fel*licis*   (30)Abdon
(31)Germani *confessoris*

430   **(42)** ⟨*Augustus.*⟩
(1)Petri   (2)Steph*fani papae*   (3)Steph*fani protomar. inventio* et   (5)Do-
minici   (6)Transfiguratio *domini*   (7)Donati   (8)Ciriaci que
(10)Laurentii   (11)Tib[[i]]urtii   (12)Octave ⟨Dom.⟩   (13)Ipo*lyti*
(14)Euse*bii*
435   (15)Assum*tio virginis*   (17)Octave   (18)Aga*piti* que   (20)Bernardi *abbatis*
(22)Octave *assumptionis* et   (24)Bartolomaei   (25)Ludovici   (27)Ruf-
fi[*ni*] *mar.*   (28)Augustini *epi. et conf.*   (30!)Felicis   (29!)Iohannis *de-*
collatio que

(43) ⟨*September.*⟩
440   (1)Aegid*ii, -dii abbatis* September *mensis*   (4)Octave *Augustini*   (5)Anni-
⟨ver⟩[ver]sarium *ordinis*   (8)Nattivitas *Mariae virginis*   (9)Gorgonii et

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412 fe: se V   **415** basilidis: bass*ilius* V

[11]Prot*ti et Iacinti* iunctis   [14]Crux *-cis exaltatio* ⟨*⟩
[16]Eu*femiae virginis et mar.*   [17]Lambertum *epi. et martyris* vult
[21]Mathaeum *apostolum* simul et   [27]Cosmae *et Damiani*

445   [28]Vinc[es]⟨*es*⟩*lai martyris*   [29]Mich*aelis archangeli*   [30]Jeronymi
confessoris

(44) ⟨*October.*⟩

[1]Rem*igii epi. et conf.*   [2]Leodegarii   [4]Francc*isci or. minorum* iungit
[7]Marcum *papam et confessorem*   [9]Dionis*ii et sociorum eius mar.*

450   que   [13]Ed[u]⟨*u*⟩*ardi conf.*   [14]Calixtum *papam et martyrem*
et   [18]Lucam *evangelistam* cum   [21]Undecim *milibus virginum de*
Colonia tu   [25]Cris*pini et Crispiniani martyrum* sume   [28]Simonem
et Iudam apostolorum   [31]Quin⟨*ti*⟩*ni martyris*

(45) ⟨*November.*⟩

455   [1]Om *omnium sanctorum*   [2]Memoratio *omnium fidelium* November
mensis   [6]Leonardi *confess.*   [8]Quatuor *coronatorum*   [9]Theodori
martyris   [11]Martin*ni epi.*   [13]Brig*cii epi. et conf.* tenet ⟨*⟩
cum   [18]Oc⟨*tava Martini*⟩   [19]El[i]⟨*isabeth*⟩ adde   [22]Ce⟨*ciliae*⟩
[23]Cle⟨*mentis*⟩   [24]Cri⟨*sogoni*⟩   [25]Katt*erinae virginis et martyris*

460   et   [27]Agricolae *et Vitalis*   [29]Sat⟨*urnini*⟩ *-one(?) martyris*   [30]An-
dreae apostoli

(46) ⟨*December.*⟩

December *mensis*   [4]Barbar*ae virginis et mar.*   [6]Nicol*ai epi. et conf.*
[8]sancticat *Mariae sanctificatio*   [11]Dama*si papae et confessoris*

465   [13]Luciam *virginem et martyrem*
postulat inde   [21]Thomas *apostolus* sibi   [25]Natt*ivitas domini*
[26]Steph*fani protomartyris*   [27]Johannis *apostoli et evangelistae*
[28]Pue⟨*r*⟩*orum*   [29]Thomae *epi.*   [31]Silv*estri confessoris*

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(47) *De inventione aurei numeri et* q⟨*?uousque*⟩ *duret et ad quid valeat.*

470   Ignorans numerum qui lunae praedicat ortum,
Per denos nonos Domini diviseris annos,

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442 iunctis: *ex* iacinct(i)? V
458-9 ce,cle,cri (*Nov. 22-4*): te, de,gri V   **469-74** (*§47*): *om.* N   **471** nonos:
nouos V   **472** notat: denotat V   **475** inveniendum: N: aureum numerum

Adiungens unum; quicquid superest, notat illum,
Et si nil restat, decimum nonum fore constat.
Dant centum quinque; duodenos dant tibi mille.

475 **(48)** Ad inveniendum primam lunam in kalendario quidam numerus
est positus et signatus, qui dicitur numerus aureus, quia sicut aurum
praecellit alia metalla, ita iste numerus inter alios numeros subtilior
reperitur; vel dicitur aureus, quia antiquitus litteris aureis scribebatur.
Iste igitur numerus durat per 19 annos, ita quod in primo anno
480 habemus 1 pro numero aureo, in secundo 2, et sic consequenter
usque ad 19. Postea revertimur ad 1, procedendo semper per 19
annos, et ideo iste processus dicitur cyclus decemnovennalis. Si igitur
vis scire, quotus sit numerus aureus et quotus annus cycli 19'lis, adde
unum annum annis domini, et deinde divide totum per 19 quotiens-
485 cumque poteris, et quicquid ultra remanserit erit aureus numerus; et
si nihil remanserit, tunc erit in 19° anno.   **(49)** Quare autem iste
cyclus non habet plures vel pauciores annos quam 19, haec est causa,
quia ille qui aureum numerum adinvenit, et dicitur quod fuerit Iulius
Caesar, in primo anno suae dominationis ubicumque invenit primam
490 lunam in quolibet mense posuit 1, in secundo 2, in tertio 3, et cetera
usque ad 19. In 20° vero anno invenit primam lunam in quolibet
mense ubi posuerat 1, in 21°, ubi posuerat 2. Invento igitur numero
aureo alicuius anni, ubicumque in quolibet mense per totum annum
ipsum inveneris, eadem die dic lunam esse primam, et sic secundum
495 kalendarium ecclesiasticum; et tamen quando dicitur prima secun-
dum ecclesiam, iam est tertia vel quarta secundum naturam, ut
inferius apparebit.

*add.*V   kalendario: ecclesiastico *add.*N   **477** inter alios numeros subtilior: N;
subtiliter V   **480** et sic consequenter: in 3° 3 etc. N   **483** cycli 19'lis: xix'alis
N; *om.*V   **486** 19° anno: b (?) *add.*V; nota quod quando dominus natus fuit de
isto cyclo trans⟨i⟩erat unus annus et ideo additur unus annus annis domini per 19
dividendo *add.*N   **488** aureum: *om.*N   et dicitur. . .caesar: N; dicitur. . .cae-
sar qui V   fuerit: *om.*N   **489** dominationis: indaginis N; considerationis
Guilelmus (Harper p. 109)   **490** lunam: N; litteram V   **491** 20°: vicesimo N; 2°
V   lunam: N; litteram V   **492** in 21°: et secundam N   posuerat 2: et sic
deinceps est dicendum quare etc. *add.*N   **494** inveneris: invenies V*a.c.*
496 ecclesiam: N; -asticum V   quarta: N; q. die V   **497** apparebit (*nusquam,*

(50) *De ordinatione aurei numeri in digito sinistrae manus.*

Addit lunaris tres cum decimo novenalis;

500 Denis nonisque completur cyclus uterque.

Aureus hinc numerus est versibus his manifestus:

Ternus undin nod octo sexd quinque tred ambo decem dod

Septem quin quartus duc iota novem dep ui quod.

(51) *In qua iunctura incipiat quilibet mensis.*

505 In digitis quinque numerus situabitur iste:

'Ter' parvi bina, 'nus' trina dat, 'und' tibi summa,

'Din' tibi dat quinta, 'nod' sexta, dat 'oc'que suprema,

'To' dat pol media, 'sexd' ra pol, 'quin' dabit in ra.

In totum comple, medium, medicum superadde;

510 Ra parvi finit numerum, quia 'quod' retinebit.

(52) In istis duobus versibus praedictis sunt 19 dictiones aureum numerum designantes, secundum quod in kalendario ordinatur, quarum aliquae sunt bisyllabae et aliquae monosyllabae: quaeque bisyllaba denotat numerum cum spatio subsequenti, monosyllaba 515 vero solum numerum repraesentat. Sunt autem in istis versibus 30 syllabae, et debent ordinari in 30 iuncturis, ut patet in textu, incipiendo in secunda parvi digiti, ponendo 'ter', in tertia 'nus', in summitate 'un', in quinta 'din', in sexta 'nod', in ultima 'oc', in media pollicis 'to', in radice eiusdem 'sexd', in radice indicis 'quin', in 520 secunda 'que', et sic deinceps, donec ultima syllaba, scilicet 'quod', in radice parvi digiti ordinetur, etc.

(53) Taliter incipies iuncturis postea menses:

Bina Ia Mar, Feb A terna, Ma summaque, Iunius extra,

ut vid.): VN   **498-510** (§*50-1*): ternus undin etc. N(*lemma*)   **499** addit: additur V   **500** denis: deinde V

506 dat: dant V   **508** ra pol: in(!) apol V   in ra: in 2ª V   **511** praedictis: *om.* N   **513** quaeque b-ba d-at: quae b.d. V; q. b-bae d-ant N   **514** cum: N; omni V   monosyllaba...repr-at: m-ae...r-ant N   **516** et debent o. in 30 iuncturis (-ura V) u.p.i.t.: iuncturis N   **517** secunda: iunctura *add.* N   **518** un: N; und V   **519** to: N; cto V   **520** que et sic d.: et s. d. per ordinem N   quod: quat N *ut alii testes versuum*   **522-7** (§*53*): taliter incipiens etc. N(*lemma*)   **522** incipies: -ens VN   iuncturis p. menses: i-re p. m-is V   **523** summaque: suppremaque V   iunius: p( )ns V   **527** cisio: cinsio V

Post Iul, Au suprema, Sep Oc ra pol, in No De post ra.

525   Iuncturis primam si vis inquirere lunam,

expandas digitis versus ut hic ordo requirit:

Cisio etc.

(54) Ianuarius, ut textus docet, et Martius incipiendus est in secunda iunctura parvi digiti, Februarius et Aprilis in tertia, Maius in
530   summitate, Iunius in quinta, Iulius in sexta, Augustus in ultima; September et October in radice pollicis, November et December in secunda indicis; quibus mensibus taliter ordinatis et inceptis si vis scire quoto die alicuius mensis luna sit prima secundum kalendarium, expande in iuncturis duos versus de 'Cisio' deservientes ipsi
535   mensi, incipiendo ipsos in iunctura, procedendo per ordinem iuncturarum in quibus ordinantur isti versus 'Ternus undin etc.'; et quaecumque syllaba tetigerit iuncturam illius anni numerum aureum designantem signat lunam primam in die cuicumque dicitur syllaba deservire.

540   (55)   Maiori numero debetur tertius ordo,

Cumque minor sequitur, maiori continuatur;

Sed facienda locis instantia sit duodenis:

Mensibus in paribus sex sunt, dicit tibi versus:

Sic faciet saltum 'bla si in steph o bar' addo,

545   Sex aliae resident in sex, factae prope finem:

'Un nod din' ponet tibi Iulius atque sequentes.

Octo Feb terna, duo dent Augusque December,

Iunius est quartae, sextae donetur Aprilis

Octo Decemberque November Iul Au Sep fine tenetur.

550   (56) Hic ponitur regula bimembris, scilicet de situatione aurei numeri in kalendario, et regula de se patet. Ab ista autem regula sequuntur 12 exceptiones, quae instantiae nominantur, quarum sex

528 ut textus d.e.m.inc. est: et mars N   **531** september, oct-er, nov-er, dec-er: N; septembrem, oct-rem, nov-rem, dec-rem V   **532** si: N; om.V   **534** de cisio: V (cf. l.527); om. N   deserv.: serv. N   **535** incipiendo: -ens N   iunctura: in qua ipse incipitur add. N   **537** quaecumque: quinque N   **538** designantem: N; -ntes V   signat: V; significat N   cuicumque: cuiusque VN   **540-9** (§55): maiori numero N(lemma)   **543** in par.: impar. V   **544** steph: schef V   **545** sex₁: sed V   **547** terna: externa V   **548** iunius: iulius V   **551** et regula: r(ubri)ca N   patet: in littera add. N   **552** exceptiones: N;

sunt in mensibus paribus circa principia eorundem. Menses autem pares sunt illi qui faciunt numerum parem inter alios menses, et sunt
555 secundus, quartus, sextus, octavus, decimus duodecimusque, scilicet Februarius, Aprilis, Iunius, Augustus, October, December; et alii sex dicuntur impares. Quilibet igitur de paribus habet unam instantiam circa principium suum, ita quod Februarii tertia die evenit instantia, eo videlicet quod ibidem ordinantur 19 post XI in secundo loco,
560 nullo spatio mediante, quod est contra regulam 'maiori numero etc.'. Alia instantia evenit sexta die Aprilis, alia quarta die Iunii, alia secunda die Augusti, et isti tres proveniunt et causantur ex eo videlicet, quod in locis praedictis ponitur iste numerus 16 immediate post 8, quod est contra istam regulam 'maiori numero etc.' Alia
565 instantia evenit tertia die Octobris, quod habet scribi iste numerus 13 immediate post 5, quod similiter est contra regulam. Et alia instantia est secunda die Decembris, eo quod hic in eadem linea scribuntur duo numeri, scilicet 13 et 2, et est contra regulam, quia iste numerus 2 debet scribi in sequenti linea et scribitur in eadem.
570 Sed hoc fit quia, quando habemus 2 pro aureo numero, hic incipit primus embolismus, et cum lunatio embolismalis habeat 30 dies, ideo iste numerus 2 hic antecipatur per unum diem, quia aliter non esset illa lunatio 30 dierum.

(57) Vel aliter: menses pares habent lunationes impares, scilicet 29
575 dierum, et menses impares habent lunationes pares, scilicet 30 dierum, et sic secundum kalendarium ecclesiasticum, quia, licet omnes lunationes secundum naturam habeant dies 29 cum dimidia, cum non posset frangere litteram ferialem, ordinavit quod menses impares haberent lunationes pares, ut dictum est. Et sic lunatio 30 dierum
580 recompensat dimidiam diem alterius, et sic apparet quod pro quolibet mense impare sunt 30 iuncturae necessariae, sed pro mensibus

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extensiones V   **557** ig. de paribus: mensis par N   **558** feb-ii: N; -ius V   **559** xi: ij N   **560** regulam: praedictam *add.* N   **564-6** alia inst. evenit --contra regulam: N; *om.* V   **565** habet scribi: h. scribere N; *def.* V   **567** est secunda (2ª V): evenit 4ª N   linea: littera et l. VN   **568** 2 et est: 22 est igitur hoc N   **569** iste: N; isti V   2 debet scribi: N; d. inscribi V   linea: littera V; l. vel littera N   eadem: N; eodem V   **570** fit: N; *om.* V   **575** menses: habent *add.* N   **577** cum di-a: et di-am diem N   **578** frangere: N; transiret V   **579** ut dictum est: scilicet xxx dierum et pares menses haberent impares scilicet 29 dierum N   **580** alterius: N; alteram V   **582** primam: in manu *add.* N

paribus 29 sufficiunt.   (58) Unde quando quaerimus lunam pri-
mam per istos versus 'Cisio ianus', debemus transire unam iunc-
turam in quolibet mense pari et illam minime computare; ubi autem
585 fiat saltus, apparet per istas sex syllabas 'bla si in steph o bar': per
'bla' intellegimus diem tertium Februarii, per 'si' sextum Aprilis, per
'in' quartum Iunii, per 'steph' secundum Augusti, per 'o' tertium
Octobris, per 'bar' quartum Decembris, quia in istis locis sunt
instantiae. In faciendo saltum corriguntur in manu, et hoc fit ut
590 magis possit kalendario uniformiter respondere.

(59) Aliae sex instantiae sunt in sex mensibus ultimis, scilicet circa
finem Iulii Augusti Sept Oct, circa finem No Decem: quilibet illorum
habet unam instantiam circa finem. Istae autem sex instantiae
proveniunt et causantur ex eo quod inter 11 et 19 non est spatium
595 neque locus vacuus, et inter 19 et 8 spatium ordinatur, quod est
contra utrumque membrum regulae praelibatae, scilicet 'maiori
numero etc.'. Ideo in manu debemus ponere pro istis sex mensibus
immediate post 11 19 et ponere spatium inter 19 et 8, quod sic fiet, si
ubi dicimus 'din', dicamus 'nod' dicendo 'ternus und nod din'.

600 **(60)** *De epactis et regularibus lunaribus.*

Per tres iuncturas pollex formabit epactas:
Iuncturis tribus his auri numerum situabis,
Deme unum, post adde novem, post undeviginti,
Et si triginta superant, triginta moveto.
605 Mensis lunares sic scire potes regulares:
Quinque Sep Oc dantur, No De septem, ter tria Ia Mar,
Ap Fe decem sumat, post unum cuilibet addam.
Aetatem lunae regulares dant et epactae
Principio mensis, sed si numerus superabit

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583 ianus: N; manus V   **585-7** bla si--quartum iunii per: N; bla cen lo V (*sylla-
bis ex §35sqq. usus*)   **589** in faciendo: quae faciundum N   **590** magis: maius
N   **592** sept oct: N; sex ac V   **596** contra: N; *om.* V   regulae praelibatae:
N; reg(ula)re p-ato V   **597** manu: mane V; manus N   **598** inter: N; in
V   si ubi dic.: sic ubique dicebamus N   **599** dicamus nod: et ubi nod din
add. N   und: un et N   din: N; *om.* V   **600-11** (*§60*): per tres iuntturas etc.
N(*lemma*)

602 auri: anti V   situabis: si tu ab isto V   **606** sep: sex V   mar: mat V
607 cuilibet addam: quilibet adam V   **612** secundum: N; primum V   quo-

610   Horum triginta, triginta tollere cura.
            Mars concurrentes renovat, September epactas.

(61) Ad habendum secundum kalendarium ecclesiasticum, quota sit
luna in prima die mensis cuiusque, duo numeri sunt inventi, scilicet
epacta et regularis lunaris. Epacta est numerus variabilis datus anno,
615 et dicitur ab 'epi', quod est 'supra', et 'thesis', quod est 'positio',
quasi numerus suprapositus, scilicet supra regularem lunarem; quem
numerum, scilicet epactam, invenies in quolibet anno cycli decem-
novennalis in tribus iuncturis pollicis numerando, scilicet incipiendo
in summitate, in qua ordinabitur primus annus cycli decemnoven-
620 nalis, secundus in media, tertius in radice, iterum revertendo ad
summitatem, et sic per ordinem iuncturarum totus cyclus expleatur
et in summitate pollicis finiatur. Si vero annus, cuius epactam quaeris
per istam ordinationem, in summitate inveniatur, remove 1, si in
media, adde 9, si in radice, adde 19, et totum erit epacta; sed si
625 maior numerus proveniat ex tali ordinatione quam 30, tolle 30, et
residuum erit epacta. Et sic apparet quod in primo anno cycli decem-
novennalis epacta est nulla, in secundo 11, in tertio 22, in quarto 3,
et cetera.   **(62)** Vel aliter, in primo anno epacta est nulla, cui si
addideris undecim, habebis epactam secundi anni, scilicet undecim;
630 cui si addideris 11, habebis epactam tertii anni, scilicet 22, et sic
semper addendo 11 procedas. Si autem maior numerus proveniat
quam 30, proice 30, et residuum erit epacta. Nota etiam quod in
primo anno epacta est nulla, quare tunc sufficiunt mensium regu-
lares. Nota etiam quod quantum ad epactas et embolismos incipi-
635 mus in Septembri, quia Arabii, qui istos numeros invenerunt, annum
inceperunt in Septembri.

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ta: N; quoto V   **614** lunaris: *om.* N   **617** numerum sc. epactam: N; n-us sc.
ep-us V   anno: anni V; anno per annos N   **618** numerando sc.: nume-
randos VN   **619** qua: N; quo V   **620** revertendo ad sum-tem: iiii in sum-te
N   **621** et sic p.o.i.: etc. p.o.i. donec N   **622** epactam: N; -ta V   **623** si
in--9: N; *om.* V   **624** erit: sit V; sic N   **625** ordinatione: dictione N
626 erit: sit VN   **629** undecim (xi N): -mum V   epactam secundi: N; -cta si
V   **630** epactam: N; -ta V   **631** procedas: *om.* N   **632** proice: remove
N   et: N; *om.* V   erit epacta: sit p(er)acta N   **633** quare: quia VN
634 quod: N; *om.* V   embol.: cyclum xix'alis(!) et annos eiusdem *add.* N
635 Arabii: Arabi V; Graeci N   **636** inceperunt: incipiunt N   **637-8** datus
mensi--sicut regula: *om.* N   **639** suum r-em: N; suos r-es V   **640** patet:

(63) Regularis lunaris est numerus invariabilis datus mensi, et dicitur regularis a regula, eo quod est invariabilis sicut regula. Quilibet autem mensis habet suum regularem; quotus vero sit regularis
640 lunaris cuiusque mensis, patet per hos versus 'quinque Sep Oc dantur etc.'. Vel aliter: iunge regularem lunarem Septembris cum diebus eiusdem et subtrahe lunationem Septembris a toto numero, et residuum erit regularis mensis sequentis, scilicet Octobris. Iuncta igitur regulari lunari mensis cum epacta anni, vel e converso, numerus
645 inde proveniens dabit quota sit luna in prima illius mensis, cuius regularem iunxeris cum epacta. Tamen si maior numerus proveniat quam 30, tolle 30, et residuum dabit illud, etc.

(64) *De annis embolismalibus.*

Embolismales annos sic noscere debes:
650 Tertius et sextus, octavus et undecimus post
Et quartus decimus, decaseptimus et decanonus.
Embolismalis lunatio semper erit par;
Illius est mensis cui dat lunatio finem.
Menses atque dies quibus incipiunt ita nosces:
655 MoBilis IBi CiFox ACer LiBer HaBeto CoEvos.

(65) Annus solaris, qui constat ex 12 mensibus, ut visum est, superat annum lunarem, constantem ex 12 lunationibus, in 11 diebus; et proveniunt et causantur 7 lunationes in 19 annis, et quaelibet lunatio ita collecta dicitur embolismus. Et dicitur embolismus ab
660 'en', quod est 'idem', et 'bolus', quod est 'morsus', †et lismos† quod est colligere, quasi lunatio collecta ex diversis morsibus. Sunt enim 7 lunationes tales, et distribuuntur 7 annis, qui dicuntur embolismales. Qui autem sunt illi, habetur per hos versus, 'Embolismales'.

apparet N   **642** diebus: N; versibus V   **643-4** sequentis--lunari mensis: *om.* N   **645** in prima: p. die N   **646** iunxeris: iux. V; iuns. N   **648-55** (*§64*): *om.* N   **649** noscere: cogn. V
   653 cui: cum V   **655** cifox: afox V   **656** solaris: solis VN   **657** ex 12: *om.* N   in: et V; *om.* N   **659-60** et dicitur--lismos: N; *om.* V   **659** embolismus: emolbollimus N; *def.* V   **660** idem et: idem quod N; *def.* V   et lismos *temptavi*; cilisinos N *ut vid.*   **661** morsibus: N; mensibus V   7: vii N; octo V   **662** distribuuntur: describuntur N   **663** habetur: habentur VN   embolismales: etc. mobilis abo cifox acer liber habeto cohe(n)nos ambo dehinc quintus

(66) *De clavibus festorum mobilium.*

665   Per clavis numerum cognosces mobile festum.
       Tunc auri numerum numerant summae digitorum:
       Vicenos quinos, tredecim, plus asse tricenos,
       Undeviginti, epta, digitis pro clavibus apta.
       Si quadraginta superant, triginta moveto:
670   Sit numerus clavis illud tibi quod remanebit;
       Pro sep et quadra bissexte diem superaddas.
       Incipientque dies clavem numerare sequentes:
       G Iani prima, post ultima, Gque ⟨secunda
       Martis, et Aprilis G tertia Gque⟩ suprema.
675   Post clavis numerum Domini lux dat tibi festum;
       Si cadat in lucem Domini, suppone sequentem.
       Terminus et festum numquam celebrantur ibidem.

(67) Ad habendum quinque festa mobilia quidam numerus est in-
ventus, qui dicitur clavis terminorum quia, sicut per clavim domus
680   ingredimur sive portas, ita per istum numerum in festorum mobi-
lium notitiam devenimus. Sunt autem festa mobilia quinque, scilicet
septuagesima, quadragesima, pascha, rogationes et pentecoste. Si vis
igitur scire quota sit clavis in aliquo anno, computa numerum
aureum totius cycli decemnovennalis in summitatibus quinque digi-
685   torum, incipiendo a summitate pollicis per ordinem donec invenias
numerum aureum istius anni, in quo quaeris clavem, in summitate
alicuius digiti. Si vero inveneris ipsum in summitate pollicis, adde 25,
et totum erit clavis; si in indice, tredecim; si in medio, 31; si in
medico, 19; si in parvo, 7. Tamen si maior numerus provenerit
690   quam 40, tolle 30, et residuum erit clavis.   **(68)** Inventa igitur clave
alicuius anni, computa tot dies, quota est clavis, pro quolibet festo
mobili, incipiendo pro septuagesima in prima G Ianuarii, pro qua-

octavus et xi post ternus dicimus(!) sextus decimus et decanonus *add.*N   **664-77**
(§66): per clavis numerum etc. N(*lemma*)   **665** per: et V   **666** numerant: -rat
V   **667** tricenos: picenis V   **669** superant: -rat V   **670** sit: si V
671 superaddas: s(un)t addas V   **679** clavis: N; aquis V   clavim: N; clavos
V   **680** ingredimur: N; -itur V   sive portas: *om.*N   **682** rogationes: N;
-num V   pentecoste (N; -tes V): nota quod dominica ante ascensionem domini
dicuntur rogationes *add.*N   **685** invenias: -amus VN   **686** in summitate: N;
*om.*V   **687** inveneris: non inv. VN   **688** totum: N; tantum V   **689** me-

dragesima in ultima G, pro pascha in secunda G Martii, pro rogatio-
nibus in tertia G Aprilis, pro pentecoste in ultima G Aprilis, quia per
695 ista quinque habemus sedes festorum mobilium. Computa ergo a
sede clavis tot dies, quota est clavis, et post terminum talis computa-
tionis sequenti dominica festum mobile celebretur. Verumtamen si
clavis terminetur in die dominica, non in illa die, sed in sequenti
festum mobile celebretur.

700 **(69)** *Sequuntur versus ad inveniendum festa mobilia.*

Postea mobiliá si vis cognoscere festa,
Sep quadra pascha ro pen 'pris sti ne ci que' dato sedem;
Sedem festorum radix tenet indicis horum.
Aureus hinc numerus iuncturis inveniatur,
705 Dat tibi post numerum domini lux mobile festum.
Doc Ianus, octo Febris, bis undin Mar, bis
Tres decem A, ⟨decem Mai. . .⟩

(70) Si vis invenire festa mobilia per regulas manuales, ordina litteras
feriales, quae sunt A B C D E F G, in quinque digitis, scilicet in
710 quattuor sinistrae manus et in parvo dextrae manus, quia licet suffi-
ciant 4 digiti pro festis fixis, tamen pro festis mobilibus sunt 5
necessarii. Ordinabuntur igitur ipsae litterae per illas scilicet regulas
'A B C extra etc.', et tunc quaere iuncturam significantem aureum
numerum illius anni, quo invento ordina istas quinque syllabas in
715 radice indicis, scilicet 'pris sti ne ci que'; quibus quinque syllabis sic
in radice indicis situatis, expandantur isti versus 'Ci octave' per
ordinem singulorum digitorum, incipiendo pro septuagesima ab ista
syllaba 'pris', dicendo 'Prisca Fab Ang Vin Cen etc.', donec invenias

dico: N; medio V   19: 29 N   **693** ultima g: ult. N   rogationibus: N;
-num V   **694** pentecoste: -sten V; pent( ) N   g aprilis: *om.* N   **695**
quinque: g *add.* N   sedes: quinque *add.* N   **696** comput.: N; deput. V
698 illa die: illo N   **700-7** (§69): postea mobilia etc. N(*lemma*)
    702 quadra, pen, ci: quad, pentecosten, a V   **705** domini: *om.* V   **706**
doc: docet V   **707** a: ma V *et add.* [[igitur ipsae litterae per illas]] *ex inferioribus*
709 quae sunt: vii scilicet *add.* N   g: N; g h V   **711** tamen pro--necessarii
(-rie N): N; *om.* V   **713** significantem: signantem V; -cationem N   **714** quo
invento: qua i-a N   **715-6** scilicet pris--indicis: *om.* N   **715** ne ci: me a V
716 ci octave: cisio ianus etc. N   **717** incipiendo: N; incipe et da V   **718**
pris: prius N   vin cen: vim can V; *om.* N   **719** dominicalem: N; -cam V

iuncturam dominicalem primam post numerum aureum existentem;
720 et quaecumque syllaba tetigerit ipsam iuncturam dominicalem pri-
mam post numerum aureum existentem, signat septuagesimam
celebrari in die cui dicitur ipsa syllaba deservire. Et sic de aliis est
dicendum, incipiendo pro quadragesima ab ista syllaba 'sti', pro
pascha ab illa 'ne', pro rogationibus ab illa 'ci', pro pente ab illa
725 'que'. Unde, si habemus numerum aureum 16 et litteram dominica-
lem D, tunc festa mobilia praecise celebrantur in diebus, quibus
deserviunt istae quinque syllabae supradictae, etc.

(71) ⟨*Hebdomadae a nativitate domini usque ad quinque festa mobilia.*⟩

    Hebdomadas a nat pro festis indicis A dat
730   Quattuor hinc, septem, tredecim, decem octo, viginti.
    Quaevis tacta dehinc iunctura diem superaddit;
    A dabit hebdomadam; tamen indicis A nisi tangam,
    Citra quaeque vacans iunctura diem movet unam.

(72) Computa in A indicis 4 hebdomadas a nativitate usque ad
735 septuagesimam, 7 usque ad quadragesimam, 13 usque ad pascha, 18
usque ad rogationes, 20 usque ad pentecosten. Si vero iunctura
dominicalis post numerum aureum propinquior esset ultra A indicis,
tunc pro qualibet iunctura existente ab A indicis usque in iuncturam
dominicalem primam post aureum numerum addetur una dies ipsis
740 hebdomadis in A indicis computatis, et pro qualibet A una hebdo-
mada, quia ab A usque ad A est hebdomada numeranda. Sed si
iunctura dominicalis propinquior post numerum aureum esset ante A
indicis, tunc pro qualibet iunctura vacante removetur una dies.

(73) *Hebdomadae a pentecoste usque ad festum sancti Iohannis baptistae.*

745   A pente festis sic distant festa Iohannis:
    Indicis hebdomadas G sex dat, et altera tollit:
    Ultra vel citra dic ut supra vice versa.

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721 signat: significat N   septuag.: semper N   **723** quadrag.: septuag.
N   sti: bru N   **724** illa ne: ista syllaba ne N   rogationibus: N; -num
V   ci: a V; co N   pro pente a.i.q.: *om.*N   **725** 16: xij V; xv N   **726**
celebrantur: -arentur N   **727** deserv.: serv. N   **728-65** (§*71-6*): *om.*N
729 a dat: addat V   **730** decem: *om.*V   **731** quaevis: quae nisi V   **732**
a₂: *om.*V   **733** iunctura: -ram V   **734** 4: viginti *add.*V   **735** ad₁: *om.*V
736 rogationes: -num V   iunctura: littera V   **737** ultra a: ultima V

(74) A pente festis computa in G indicis 6 hebdomadas usque ad festum sancti Iohannis baptistae. Si vero iunctura dominicalis prima
750 post numerum aureum sit ultra G indicis, pro qualibet iunctura ultra existente usque in ipsam iuncturam dominicalem removeatur una dies, et pro qualibet G una hebdomada; sed si ipsa iunctura dominicalis sit ante G indicis, tunc pro qualibet iunctura vacante addatur una dies.

755 **(75)** *Hebdomadae a pentecoste usque ad adventum.*

> A pente distat adventus et undetriginta
> Hebdo dat indicis A, B tollit quaelibet unam.
> Andreae festo vicinior ordine quovis
> Adventum domini prima colit feria;
760 Si cadat in lucem domini, celebratur ibidem.

(76) Computa in A indicis 29 hebdomadas, et si iunctura dominicalis prima post numerum aureum sit ultra A indicis, tunc pro qualibet B ab A indicis usque ad ipsam iuncturam dominicalem existentem remove unam hebdomadam ab ipsis 29 hebdomadis in A indicis
765 computatis.

(77) *De inventione litterarum tabularium alphabeti.*

> Noscere si quaeris quae littera sit tabularis,
> Alphabeta duo debes cognoscere primo:
> B post-punct primum, sed A pre-punct esto secundum,
770 Vel primae nigrae fiant, rubeaeque secundae.
> Primum finit in U, reliquum se terminat in Q.
> Indicis incipiet ra primum, sexta secundum
> Incipiet medici; post aurum tangere lucem
> Quae domini poterit, haec littera sit tabularis.

775 **(78)** Videntes computistae quod festa mobilia poterant celebrari in 35 diebus, iuxta illud ordinaverunt 35 litteras tabulares, quibus tabulas

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738 usque in: v(idelicet) V   **740** qualibet a: q. /n/ V   **744** pentecoste: -ten V   **746** hebdomadas: ebda( )g V   **750** post--indicis: s.u.g i.p.n.a. V
    752 si: sicut V   **757** dat indicis a: g d.i. ab a V   **758** andreae: -ea V
762 ultra: ultima V   **764** hebdomadis: -da V   **766-74** (§ 77): noscere si quaeris N(*lemma*)   **766** tabularium: -arum V   **767** noscere: N; poscere V
769 postpunct: -ctum V   **776** quibus tabulas: N; et cuilibet t-ae V   **778**

depinxerunt. Et ordinaverunt duo alphabeta: primum incipit per B
et finitur in U, cuius litterae sunt postpunctatae, secundum incipit per
A et finitur in Q, cuius litterae sunt praepunctatae. Si ergo vis scire
780 quae littera sit tabularis in aliquo anno, incipe primum alphabetum a
radice indicis et procede per ordinem iuncturarum litteras expan-
dendo. Et si non sufficiat primum, incipe secundum in sexta iunctura
medici et fac ut prius; et quaecumque littera poterit tangere iunc-
turam dominicalem primam post aureum numerum, dicatur littera
785 tabularis. Et sic poteris verificare tabulas et probare.

(79) *Hebdomadae a nativitate domini usque ad quadragesimam.*

B sex hebdomadas, F septenas dat, N octo,
Uque novem, G secunda decem, quibus O dedit unam.
Addidit hebdomadis B dies tres initiales,
790   Littera quaeque sequens praemissis addidit unam.
Anno bissexti vult una dies superaddi.

(80) Nota quod, quando B primi alphabeti est littera tabularis, tunc
sunt computandae sex hebdomadae et tres dies a nativitate domini
usque ad quadragesimam, et quando F 7, quando N 8, quando U 9,
795 quando G secundi alphabeti 10, quando Q 11 et dies 2; et anno
bissextili vult una dies superaddi.

(81) *Sequitur de cyclo indictionali.*

Si per quindenos domini diviseris annos,
His tres adiungens, indictio sit tibi praesens.
800   Dum redit October, indictio sit nova semper,
Quattuor atque tribus illi praelata diebus.

(82) Indictio sive cyclus indictionalis est spatium 15 annorum conti-
nens 3 lustra, id est 3 quinquennia. Nam cum Romani subiugassent
totum mundum, edictum fecerunt quod in quolibet quinquennio

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finitur: terminatur N   postpunctatae: N; -ctae V   **778-9** secundum--prae-
punct.: *om.*N   .**779** praepunctatae: -ctae V   **781** expandendo: N; exponendo
V   **783** medici: N; media V   et fac ut: ubi N   littera: N; iunctura l. V
786-96 (*§79-80*): *om.*N   **787** b: *om.*V   **795** g secundi alph.: q si alfabe (!)
V   quando q: quandoque primi V   **797-801** (*§81*): si per quindenos
N(*lemma*)

805 venirent homines de diversis nationibus Romam tributa imperatoria
deferentes, et ordinaverunt tria tributa, scilicet aes, argentum et
aurum, unde versus:

> Roma tributa dari sibi per quinquennia iussit,
> Aes prius, argentum post hoc indixit et aurum.

810 Si igitur vis scire, quota sit indictio omni anno, divide annos domini
in numerum quindenarium, semper proiciendo 15, et illud quod
superfuerit erit indictio, adiunctis tribus simul annis ad annos
domini. Si vero praecise diviseris eos in 15, singulis computatis, tunc
erit quintus decimus annus indictio. Remanent autem computando
815 de 100 10 et de 1000 100; computa et invenies; et sic computatione
facta de mille cccc^{tis} lxxxii nihil remanet.

(83) *Quomodo annus dividitur in quattuor partes temporis.*

> Ver Petro detur, aestas exinde sequetur,
> Hanc dabit Urbanus, autumnum Symphorianus,
820   Festum Clementis hiemis caput est orientis.

(84) Nota quod annus dividitur in 4 partes, scilicet in verem, aesta-
tem, autumnum et hiemem; ubi vero incipiunt, in littera satis patet.
Ver est humidus et calidus, cui correspondet sanguis; aestas est calida
et sicca, cui cholera correspondet; autumnus est frigidus et siccus, cui
825 correspondet melancholia; hiems est frigida et humida, cui cor-
respondet phlegma.

(85) *De vigiliis sanctorum et de ieiuniis quattuor temporum quomodo inveni-
untur.*

> Nat mat penthe io pe iac lau sumptio barto
830   Simon et omne math an thomas triduum quadragena.
> Dant crux, lucia, cineres, carismata dia
> Quod fit in angaria quarta sequens feria.
> Nobis ecclesia ieiunia praecipit ista.

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804 quolibet: N; q. anno V   806 aes: ferrum N   807 versus: *om.* N
809 aes--ind. et au. (i.e.a.: induxit a. V): et prius ferrum post argentum indixit
aurum N   810-6 si igitur--nihil remanet: *om.* N   817-37 (§*83-6*): *om.* N
818 ver: ter V   820 hiemis: hiems V   821 verem: V, *cf.* l. 823   831

(86) Inde dies aegros per versus noveris istos:

835   AuGurio DeCies AuDito LuMine ClanGor

⟨LinQuit OLens ABies CoLuit CoLus EsCula GaLus

Omnibus in reliquis, sed non hic H numeratur.⟩

(87) In anno sunt 24 dies, qui secundum antiquos dicti fuerunt dies
aegri, id est mali, abominati et infelices propter malas aliquas
840 constellationes, ut dicebant. Referebant namque quod in illis diebus
non erat bonum incipere aliquod opus vel negotiationem, et quod si
quis in aliquo ipsorum aegrotare inciperet, vix aut numquam respi-
raret, et hoc habebant in sorte. Sed hoc non est credendum, quia
sancta ecclesia prohibet carminibus et sortilegiis fidem dare. Dicuntur
845 etiam Aegyptiaci, quia in illis diebus missae sunt plagae super
Aegyptios, scilicet 24, quarum 10 fuerunt principales et 14 non ita
principales. Dicuntur etiam vetiti sive prohibiti quantum ad phlebo-
tomiam faciendam propter quandam haeresim evitandam; nam anti-
quitus Romani in illis diebus sibi faciebant minui, ut sanguinem
850 suum sacrificarent Plutoni, qui Pluto secundum fabulas dicitur deus
terrae inferni et divitiarum, et sic faciebant ut in divitiis abundarent;
unde in principio fidei nostrae inhibuerunt sancti patres phleboto-
miam propter huiusmodi haeresim evitandam, unde dicit beatus
Augustinus quod Kalendae et dies Aegyptiaci non sunt obser-
855 vandae.

Et sic est finis praesentis operis.

*Explicit computus metricus manualis secundum Gerlandum cum declaratione
magistri Petri de Dacia, copiatus per me magistrum Nicolaum de Ripis Venetum
1494.*

860   *(Additiones codicis V:)*

Ad habendam veram revolutionem et coniunctionem lunae secun-
dum Hebraeos plura sunt notanda. Primum siquidem est quod dies

carismata: -ma V   **838** secundum: N; s(un)t V   **839** abominati: omin. N
840 referebant n.q.: dicebant quia N   **841** et: N; *om.*V   **843** et hoc h.i.
sorte: *om.*N   **845** aegypt.: et bene *add.*N   **846** 24: plagae *add.*N   **848** fa-
ciendam: N; fiendam V   **850** fabulas: historias f-am N   **852** fidei n.: n.
legis N   s. patres: doctores N   **856-9** et sic--1494: *om.*N   **858** venetum:

naturalis habet horas aequales 24 et incipit in sero, scilicet in occasu
solis, quando stellae incipiunt apparere, iuxta illud quod legitur in
865 Genesi: 'Et erunt vespere et mane, dies unus'; durat enim ab occasu
solis usque ad occasum. Unde dies dominica incipit die sabbati in
sero, dies similiter lunae die dominica in sero, et sic de aliis est dicen-
dum. – Secundum est quod hora habet puncta 1080. – Tertium est
quod debemus scire diem, horam et punctum revolutionis seu
870 coniunctionis lunae mensis praecedentis ad hoc quod sciamus revolu-
tionem mensis proximi subsequentis. – Quartum est quod quaelibet
lunatio habet dies 29 et horas 12 et puncta 793. Unde versus:

Vicenas nonas luces, horas duodenas
Cum septingentis punctis nonaginta tribusque
875   † Continet quae⟨q⟩ue mensis lunationis
quaeque hora ex mille punctis et octoginta†.

– Quintum est quod, viso et habito quota feria mensis praecedentis
fiat coniunctio sive revolutio lunae, tunc pro coniunctione sive revo-
lutione mensis sequentis addatur feria feriae, horis vero quae super-
880 fuerunt de praecedenti lunatione addendae sunt horae 12, et punctis
addenda sunt puncta 793. Si vero ex additione horarum proveniant
plures horae quam 24, tunc iterum addatur una feria supra feriam
iam additam, horas quae superfuerunt retinendo. Similiter si ex addi-
tione punctorum proveniant plura puncta quam 1080, tunc iterum
885 addatur una hora, puncta quae superfuerunt retinendo. Nota quod
anno Christi †M°CCC† mense Ianuarii XI.die eiusdem fuit facta
revolutio lunae, scilicet feria sexta hora XVII post puncta illius horae
807; sequens vero revolutio facta fuit decima die Februarii feria prima
hora sexta post puncta illius horae 520; et sic de aliis, ut in praesenti
890 tabula continetur superius. – Finis.

Incipit abacus secundum multiplicationem numeri 1 2 3 4 5 6 7 8 9
10. Nota igitur quod quaelibet figura in primo loco posita repraesen-
tat se ipsam, in secundo decies tantum, 12, in tertio centies tantum,
123, in quarto loco milies tantum, 1234, in quinto loco decem milia
895 tantum, 12345, in sexto loco centum milies tantum, 123456, in

Berardelli; Venetiis *Schück, fort. recte*; *evanescit* V   **867** dominica: -co V   **873**
nonas: notas V   **878** pro c-one s. r-one: per c-onem s. r-onem V   **883** ex:
om. V   **889** puncta: -te V   **890** *abest tabula*

septimo loco mille milies tantum, 1234567, in octavo loco decem mille milia tantum, 12345678, in nono loco centum mille milia tantum, 123456789, in decimo loco ⟨mille⟩ mille milia, 12345678910. Explicit numerus abaci.

Demonstrationes magistri Petri (?)Dace super quadrantem

Frater Petrus Inguari
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DEMONSTRATIONES MAGISTRI PETRI (?)DACE SUPER QUADRANTEM.

Hessische Landes- und Hochschulbibliothek 780. 21½×15½, ff.311, written about 1465 in Sulzbach in the Oberpfalz (Bischoff, below), containing miscellaneous astronomical texts. The manuscript was first described in detail by B.Bischoff ("Neuaufgefundene Auszüge aus einem verschollenen Katalog der Amploniana", München 1934, reprinted with one correction in Mittelalterliche Studien I,1966,133-40).

The present text (T&K 35) is at ff.245v-246v, preceded by some short texts on measuring ("De declinatione solis per quadrantem", "Ad mensurandum cum virga, cum speculo"), and followed by one "de virga visoria" partly in German (titles from Bischoff). Of these I have only seen the text last mentioned, and cannot determine whether our text was intended to illustrate the others.
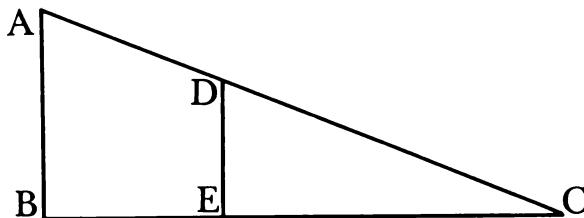
As it appears, only banal use is made of the Quadrant, such as may fit the Old Quadrant as well as any other type; thus, in the few references to be cited, I have kept to Tannery's edition of that work (1922). O.Pedersen (1976,47) notes the textual dissimilarity to the treatise(s) on the New Quadrant (cf. *Intr.* §11a; the passages in question largely coincide with those on the Old Quadrant) and disbelieves in the ascription to Peter of Dacia. With the present state of evidence the matter should be left at that.

Some instances of "(et)" miswritten for "2" and "est" for "3" have been emended tacitly.

(Hdg.:) Demonstrationes magistri Petri Dace super quadrantem.

(Txt:) Ad demonstrandum rerum altitudines, procedendo in omni consideratione, qua per instrumentum quis altitudinem rei mensurandae prospicit, ex re erecta mensuranda et ex radio visuali et ex plano unus magnus triangulus constituitur. Radius autem visualis in continuum duci imaginatur usque dum angulum faciat in contac-

tum sui cum plano. Item et in hoc triangulo est quidam triangulus partialis, qui componitur ex altitudine oculi considerantis et ex duabus partibus, scilicet plani et radii visualis, quarum una est ab oculo ad punctum contactus, sicut hic patet:

Sit enim linea AB res mensuranda, linea DE elevatio oculi considerantis, linea AC[1] radius visualis in continuum ductus ad contactum sui cum plano, et linea ⟨BC⟩ sit planum a pede rei mensurandae ad contactum sui cum radio visuali. – Est ergo unus magnus triangulus ABC, et alius partialis EDC, quorum latera proportionalia esse sic demonstrabo[2]: Lineae AB et DE sunt aeque distantes, super quas cadunt 2 lineae rectae, superius AC et inferius BC. Per 29. igitur primi Euclidis angulus CED[3] est aequalis angulo CBA, et angulus C est communis in utroque triangulo. 3 igitur anguli unius sunt aequales 3 alterius. Sed quia[4] anguli unius trianguli omnes sunt aequales angulis trianguli alterius, per 6. sexti latera unius sunt[5] proportionalia lateribus alterius. Quae ergo est proportio EC ad DE trianguli DEC, eadem erit proportio BC ad AB trianguli ABC. Tunc utaris hoc principio: Cum 4 magnitudines sive numeri sic se habent, sicut se habet primum ad secundum, sic tertium ad quartum, si secundum[6] multiplicaveris per tertium et productum [dividis] diviseris[7] per primum, [et] exibit quartum, ut patet in his numeris 2 6 3 9 vel 3 6 4 8. Et nota diligenter quod, cum dico sic, comparando magnitudines adinvicem, "sicut se habet hoc ad hoc", tunc[8] semper quod primo enuntio erit ⟨primum⟩, quod secundo secundum etc. Cum ergo latera EC ad ED sic ⟨se habent sicut⟩ BC ad BA, tunc EC[9] erit primum, ED secundum, BC tertium, BA quartum, quod est ignotum. Duc ergo secundum in tertium, et divide productum per primum, et exibit quartum[10], quod est quaesitum. Sed tu quaeres, quid istorum ponam primum, quid quartum? dico quod illud debet poni quar-

tum, quod inter ista est ignotum et quod hic quaero, et ideo proportionale erit tertium, et pars tertii ⟨erit primum** et pars quarti⟩ erit secundum, scilicet ED. – Ex his patet quod, si sciretur ubi radius visualis transiens per summitatem rei retroductus in planum attingeret, per iam dicta esset facile invenire altitudinem rei; et ideo, quia istud non est facile invenire, ideo varietas huius quodam alio modo invenitur. Quia ⟨sicut⟩, si in hora considerationis perpendiculum quadrantis ⟨cadit super lineam mediam quadrantis⟩, quanta[11] est distantia oculi a terra, tanta est distantia pedis a puncto contactus radii visualis retroducti cum plano, sic apparebit in demonstrationibus mensurationum ⟨quod proportio⟩ umbrae rectae ad 12 erit proportio distantiae pedis a puncto contactus ad elevationem oculi. Et ideo sicut prius ad habendum altitudinem rei per ED multiplicamus BC et productum dividimus[12] ⟨per EC⟩, sic[ut] iam per 12 puncta multiplica BC et productum divide per puncta accepta. Quia ED semper eadem, quia divisibilis in 12, ideo sibi correspondet totum latus, scilicet 12 puncta; sed quia, secundum quod considerans magis[ter] accedit ad rem et a re recedit[13], plura et pauciora puncta abscindit perpendiculum, [CEB] puncta hic ⟨accepta⟩ correspondent distantiae pedis ad contactum plani cum radio visuali, quia et haec distantia maioratur et minoratur secundum accessum et recessum considerantis ad rem vel a re. Haec igitur figura et haec demonstratio est quasi via ad demonstrandum.

Aliter[13a] haec enim figura, licet sit propria ad demonstrandum rei altitudinem, cum rei altitudine⟨m⟩ accipimus per radium visualem, faciliter trahi potest ad demonstrandum idem, cum loco radii visualis utimur radio solis. Cum enim sol est in horizonte, umbra rei est maxima, sed[14] cum est in zenith, est minima necessario; cum est in medio inter horizontem et zenith, est media et rei aequalis; et tunc cadit perpendiculum super lineam mediam quadrantis [in utraque latera quadrantis] inter utraque latera umbrarum in quadrante. Et res cum umbra est aequalis, quando perpendiculum cadit in medio; ideo cum in alteram partem declinat, semper quae est proportio punctorum umbrae ad 12, eadem est proportio umbrae ad rem, et loquor de punctis umbrae rectae; ita quod illa puncta umbrae rectae erunt primum, 12 secundum, umbra[m] tertium, et res erecta quartum. Duc igitur secundum in tertium, et productum divide per primum, et exibit quartum. Vel etiam non cures de conversione umbrae versae in

rectam[15], sed cum perpendiculum cadit super aliquot puncta in latere dextro, fac sicut modo dixi et auctor[16] dicit; sed cum cadit super aliquot puncta in latere sinistro, tunc e converso 12 puncta erunt primum, et puncta super quae cadit perpendiculum secundum, et semper umbra tertium; duc ergo secundum, et cetera. Et invenies, si cadit super dextrum latus, quod semper umbra minor est re de tanto, quanto puncta, super quae cadit perpendiculum, sunt pauciora quam 12; et si cadit super sinistrum, de tanto erit umbra longior re, de quanto 12 excedunt puncta, super quae cadit perpendiculum.

Figura supradicta adaptatur[17] congrue ad inventionem[18] altitudinis rei per umbram et baculum: sit enim res erecta sicut prius AB, et umbra comprehensa infra triangulum ABC, ita quod conus umbrae sit C, iuxta quem erectus est baculus[19] DE. Et tunc argue sicut prius: sicut se habet EC ad ED, sic BC ad AB, quia latera hic proportionalia sunt, ut visum est prius; quod autem prius est radius visualis ABC, iam est radius solis, quae est limbus umbrae. Per hanc etiam figuram demonstratur intentum, cum per baculum et oculum iuxta terram positum summitatem[20] rei intuetur aliquis.

Ad demonstrandum rei altitudinem, cum sita fuerit in valle, sit figura sequens:

et sit vallis GBF, et res erecta mensuranda AB, et planum in quo stat considerans sit FC; radius visualis transiens per ambo foramina, perpendiculo cadente super latus "AB"[21] quadrantis, sit linea DE; et punctus signatus[22] in re mensuranda sit D; radius autem visualis, perpendiculo cadente super lineam mediam, sit linea AE[23]; illa eadem ducta in retro ad contactum cum plano sit AC. Ad demonstrandum igitur intentum, a puncto F trahatur linea ⟨per⟩ proposi-

tionem primam primi; ducatur autem aeque[24] distanter lineae ED per 12. primi; et sit linea FG, pars lineae CG. Figura igitur sic disposita[25], demonstrabo[26] altitudinem AB sic: Hic est unus triangulus AGC, et ⟨alius⟩ ADE, quorum duo latera unius probabo esse proportionalia duobus lateribus alterius, sic: duae sunt lineae aeque distantes, quae sunt CG[27] et ED[28], super quas cadit linea AC[29]: per 29. primi, anguli AED [et CE] et ACG sunt aequales. Item super easdem cadit AG[30]: igitur per eandem 29., anguli ADE et AGC[31] sunt aequales. Item angulus A est communis in utroque triangulo. 3 igitur anguli unius trianguli sunt aequales tribus angulis alterius. Ergo per 6. sexti, latera erunt proportionalia; quae ergo est proportio [DE ad] GC ad GA, eadem est proportio DE ad DA; igitur C ⟨G⟩ est aequalis GA per ea quae ostensa sunt in demonstratione prima, quia comprehenduntur infra radium visualem, perpendiculo cadente super lineam mediam quadrantis. DE[32] ergo et DA erunt aequales. Cum ergo DE est distantia inter considerantem et rem, DA eodem modo est distantia inter summitatem rei a puncto notato: quantum ergo est inter considerantem et rem, tanta altitudo rei a puncto notato in sursum; cui si addideris distantiam quae est inter B et D, [et] exibit altitudo totius AB. Sed tu dicis, quantitas BD est mihi ignota: dico quod ⟨si⟩ sit tantae elevationis, quod punctum D non possit manu vel baculo tangi, et sic altitudo eius non potest mensurari hoc modo, tunc in valle existens cum re erecta accipias altitudinem illius puncti per quadrantem, ut prius dictum est, et sic semper erit altitudo puncti nota.

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[1]AD   [2]-abo: -atio   [3]CDE   [4]est   [5]sint   [6]s.s.: s(ed) si   [7]-soris
[8]t()   [9]BC   [10]secundum   [11]4^a [12]-damus   [13]cf. §49   [13a]alia
[14]12   [15]versam   [16]acc(i)o; cf. §51   [17]adapt()a   [18]acc(i)o(ne)m   [19]-1o
[20]su(mm)i(ta)s   [21]cf. §50   [22]p.s.: puncta sig(na)t   [23]AC   [24]ea(dem)
[25]deposita   [26]-ac(i)o   [27]AG   [28]EF   [29]AGC   [30]CG   [31]ACG
[32]DC

"FRATER PETRUS INGUARI STUDENS ROSKILDENSIS".

København, Gl.kgl.S., 1810,4°. Vellum and paper, 22×14½, ff.76. Earlier possessed by a court physician of Frederik I (1523-33). The manuscript is mainly written in two hands from the 14th c., and the bulk of it is occupied by Sacrobosco's Sphere, Compotus, and Algorism. One may also note a list of eclipses for 1313-1330 (f.5r), and an anonymous text of ?William of St.Cloud's Directorium (f.7r: *Calendar*, App.5(h3)).

On ff.1r,7v,68v,69r-v, and 74r-v, there are notes, apparently in one hand, from the 15th c. Since 74r has a dating and 74v bears the subscription in question, I print them in full while giving extracts of the rest. "App." refers to the Appendices in the edition of the *Calendar*.

Jørgensen 1923,421-2 (full descr.). Notes by J.W.S.Johnsson, see *Introduction* §10d. Sarton II, 1931, p.997. OP p.48.

1r (Top:) Haec est tabula planetarum. Planetae dierum: Sol luna Mar quoque Mer Iupiter Venus atque Saturnus. Planetae horarum: Sol Ve Mer luna Saturnus Iupiter et Mars. (Rota for planetary domination in hours, with sectors/zones corresponding to rows/columns in a Planet table, 7 rows, 24^h.) (Bottom:) Qualitates planetarum. Jupiter atque Venus. . .mediocres (:App.6(c)).

7v (Top:) Nota, signa zodiaci sunt 12, et hae sunt figurae. Tabula signorum. Est aries taurus. . .caper amphora pisces. (Rota(12), with names of zodiacal signs, and figures of their constellations; compass directions are added, "oriens" corresponding to Aries.) (Bottom:) Cornu arietis habet stellas sic positas (:figure, then three more such notes).

68v (Top:) Ista tabula vocatur testimonium planetarum, quia invenitur hic mutatio aëris et virtutes atque dispositiones planetarum.

(Rota(12 sectors, 7 zones), contents as in the "tabula dignitatum 7 planetarum" in ms.Ba(App.6(d10)),149v. No canon. Johnsson observed a similar rota in ms. K of the *Calendar,* at 140r. This, however, occurs in an astrological miscellany of the late 14th century, unconnected with Peter of Dacia).

69r-v (App.6(d6):) Aries. Nil capiti facias. . .sit potio sumpta sal-⟨ubris⟩. Expliciunt qualitates signorum ⟨. . .*(stain)*⟩.

74r (Hdg.:) Tabula continuationis coniunctionis. (Txt:) Sciendum vero quod practica istius tabulae sine subtractione horarum durat per 19 annos, capiendo initium annorum anno domini 1394 currente. Post lapsum vero illorum annorum, quod erit anno domini 1413 currente, istud praecedens non est ⟨*?⟩ concordantia tabulae subsequentis. Ad propositum vero istius tabulae, si horas veras et horarum minuta scire volueris, tunc scias annos a nativitate Christi, quos quaere in subscripta tabula, quae intitulatur Tabula continuationis coniunctionis:

(Rota, with sectors like the columns following, all numbers repeated:)

Anni	1394	1413	1432	1451	1470
Horae	0	7	14	22	5
Minuta	0	24	5	22	28

(Txt:) Horas autem et minuta, quae sunt ex directo annorum domini, subtrahe ab horis et minutis in hac tabula positis. Si autem annos praedictos non inveneris, tunc recipe annos domini praecedentes in praefata tabula scriptos, ⟨et⟩ horas et minuta, quae sunt ex directo illorum annorum, [et] subtrahe. Si autem contigerit quod minuta a minutis subtrahere non poteris, tunc ab horis recipe unam horam et illam resolve in 60 minuta, et subtrahe; similiter si horas ab horis subtrahere non potes, recipe diem coniunctionis et resolve eum in 24 horas, et subtrahe. Et habebis horas cum suis minutis certissime. Verbi gratia, anno domini 1394 (1494 *ms.*) currente nihil subtrahetur ab horis et minutis, donec elabuntur 1413 anni incompleti; tunc 7 horae et 24 minuta ab horis et minutis hic inventis subtrahentur, et illa subtraxio durabit usque ad annos domini 1432 incompletos. Et sic haec tabula parvula durabit, a principio usque ad finem, fere ad C annos. Explicit.

(A closely parallel text is the canon to the *tabula continuationis coniunctionis* appended to the Austrian calendar App.5(j9), ms. Bf,7r+; the text and table are at 14v-15r, beginning in 1425 and with the values $0^h;0$ 7;28 14;56 22;24 5;52. There is no calendar in the present manuscript.)

p.18 **74v** (Top:) Haec tabula vocatur tabula minutionis.
                    Nota signa 12:
            Est aries taurus gemini cancer leo virgo
            Libraque scorpius architenens caper amphora pisces.
                    Nota situationes eorundem:
            Dum minues leo bis numeres aries capricornus
            Unda liber taurus geminos virgique sagitta,
            Cetera ter ponas per quae tibi norma patebit.

(Bottom:)   Nota qualitates signorum:
            Est aries minuendo bonus liber unda sagitta,
            Can sco ge pis media, cetera vero mala.
                    Nota litteras signorum in capitibus mensium positorum:
            Ian petit A, sed Martius F, Iul et S numerando,
            M May, Q Iunius, I 4us, Gque Decumber(!),
            9 primum Sep habet, Oct A tenet, E-que secundus,
            Aug rapit Y, No sed E, per litt⟨. . . . .*(stain)*⟩.

(Right margin:)
            1us: Iota per ξ, duo P, sed E 3us, Y quoque quartque,
            2us: B sext, M quinque, T septimus, I nuper octque,
            3us: 9 primumque novem, Q quinque bis, F nuper vdin,
            4us: Zeta dud, N quoque tred, C quat, U quin, K simul et sed,
            5us: R doc, G quoque nod, 9 dico depque secundum.

(Centre, a rota (19 and 12) with sectors like the rows of the following tables; clockwise, left columns outermost:)

ternus	3	aries	E	Ian.	A
vdin	11	aries	F	Feb.	E
nod	19	ari	G	Mar.	F
octo	8	es	I	Apr.	I
sed	16	ari	K	Mai.	M
quinque	5	es	M	Iun.	Q
tred	13	ari	N	Iul.	S
ambo	2	es	P	Aug.	Y
decem	10	ari	Q	Sep.	9 1^m
doc	18	es	R	Oct.	A
septem	7	aries	T	Nov.	E
quin	15	aries	U	Dec.	G
quater	4	aries	Y		
dud	12	aries	Z		
iota	1	ari	ξ		
novem	9	ari	9 1^m		
dep	17	es	9 2^m		
vi	6	ari	B		
quat	14	es	C		

(Left margin:) Nota, pro uberiori declaratione tabulae illius artificialiter habenda: si scire volueris in quo die et quo signo luna fuerit, primo in radice indicis ponentur isti versus scilicet "Cisio Ianus", et computentur singulae iuncturae inclusive usque ad diem quaesitum. Quo habito, in radice eiusdem indicis recomputentur eaedem iuncturae cum isdem metris, et hoc cum aliquibus litteris in principio cuiuslibet mensis situatis, quae patent per haec metra "Ian petit A sed Martius F"; et computabitur ut prius ad diem pro quo quaesitum erat; et haec littera reperta, diei tali apta, memoriae commendetur. Deinde sumetur littera in supremo sita directe in linea arietis, aureoque numero non inepta, per haec metra "Iota per ξ etc.", et computetur ut prius per haec metra "Est aries taurus", ita tamen quod quaelibet iunctura sumet quodlibet signorum bis vel ter per haec metra "Dum minues leo bis numeres". Et sic per talem practicam pervenitur ad verissimae rei experientiam exsequendam. Haec frater Petrus Inguari studens Roskildensis. – Nota quod ista littera "9" duplicabitur computando.