INTRODUCTION

THE MUNICH COMPUTUS IN MODERN TIMES

Ever since Jean Mabillon, the founder of modern palaeography and diplomatics, studied the codex containing the Munich Computus in the monastery of St Emmeram in Regensburg as part of his travels through German and Swiss libraries in 1683,[1] it became well known for its unique transmission of the Regensburg annals (*Annales Ratisponensis*), which he subsequently edited in volume four of his *Veterum analectorum*.[2] Therefore, when this codex was transferred to the Königliche Hof- und Centralbibliothek (now Bayerische Staatsbibliothek) in Munich in 1812 as a result of the secularisation of Bavarian monasteries,[3] it received immediate attention because of these annals, particularly since these annals had been re-edited twice in the Benedictine Colomann Sanftl's handwritten catalogue of St Emmeram codices only three years earlier.[4] In 1819, the precursor to the *Monumenta Germaniae Historica* (*MGH*) was founded, with the primary object of editing all German sources of the medieval

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1   For Mabillon's voyage to Switzerland and Germany see especially Mabillion's own account entitled *Iter Germanicum* in the fourth volume of his *Veterum analectorum*, where he gives a detailed description of his stay at St Emmeram in Regensburg from 20 to 25 August 1683 (Mabillon, *Veterum analectorum* 4, 3–92, the stay in Regensburg on p. 51–61; the *Iter Germanicum* was published separately in Germany in 1717, where Mabillon's stay in Regensburg can be found on p. 55–66). Cf. also Jadart, *Mabillon*, 31–3, 206–8 (the latter passage is a summarized itinerary of the voyage); Bergkamp, *Mabillon*, 55–7; Ruinart, *Mabillon*, 64–9; Leclercq, *Mabillon*, 200–30 (a very lively description of Mabillon's stay at St Emmeram on p. 220–1); Barret-Kriegel, *Mabillon*, 64–7 (Mabillon's stay in Regensburg just briefly noted on p. 66).

2   Mabillon, *Veterum analectorum* 4, 476–7 (without indication of the codex). For the codices used by Mabillion during his stay in St Emmeram cf. Bischoff, *Mittelalterliche Bibliothekskataloge* 4,1, 133–4.

3   For the transfer of manuscripts from the Bavarian monasteries to the Königliche Hof- und Centralbibliothek in Munich in the course of the secularisation in the early 19th century cf. especially Hauke, 'Bedeutung', 87–97 (the case of St Emmeram in Regensburg on p. 91). For the transfer of manuscripts from St Emmeram in Regensburg in particular cf. Docen, 'Anzeige', 425; Hemmerle, *Benediktinerklöster* I, 105; idem, *Benediktinerklöster* II, 242; Bezzel, *Bayerische Staatsbibliothek*, 12–3; Bischoff, *Mittelalterliche Bibliothekskataloge* 4,1, 138; Kellner & Spethmann, *Historische Kataloge*, 385.

4   Sanftl, *Catalogus* II, 934–6; IV, 443–4. In the section on mathematics (*mathesis*), Sanftl also mentions the Munich Computus and other computistica from this MS (Sanftl, *Catalogus* III, 1729). For Sanftl's catalogue cf. Kellner & Spethmann, *Historische Kataloge*, 388–9.

period, AD 500 to 1500.[5] On foot of this, Bernhard Joseph Docen, the Munich librarian, was contacted with a request for a list of all texts in the newly acquired Regensburg manuscripts that would be of special interest to the intended corpus of editions. In his list, published in 1820 in the first volume of the *MGH*'s (or rather its precursor's) just-founded journal, Docen mentioned the *Annales Ratisponenses*, but without any reference to the manuscript in which they are contained.[6] This led to a further inquiry from the *MGH* about the manuscript in question, which Docen answered by providing a catalogue description of this codex. In this description, the Munich librarian mentioned a *Computus S. Augustini –, S. Dionysii, S. Quirili Greciae et ceterorum* as the main text of this manuscript. Not finding the time to study and contextualize this computus further, Docen tentatively conjectured that this text might have been composed at the time of or even by Bede himself; but, as he explicitly stressed in the final sentence of his article, it was also possible, if not likely, that this text presents an otherwise unknown, unpublished, and important source for Christian time-reckoning.[7] Yet, whereas the *Annales Ratisponenses* were re-edited by the first president of the *MGH*, Georg Heinrich Pertz, in the *MGH*'s first volume of editions,[8] the computus did not receive any further attention for another fifty years. The reason for this neglect presumably was Docen's tentatively assumed connection between this text and the Anglo-Saxon scholar Bede, which placed it outside of the *MGH*'s interest.

It was only due to Bruno Krusch's non-national, chronological interest that the Munich Computus did not remain in obscurity any longer. As a 21-year old doctoral student he came across the Munich Computus in the Bayerische Staatsbibliothek in 1878, while working on Victorius' paschal cycle and its precursors, the 84-year Easter tables.[9] Krusch was exclusively interested in only

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5   For the foundation of the *Gesellschaft für ältere deutsche Geschichtskunde* see Bresslau, 'Geschichte', 34–40 (p. 38: the principal object of editing all German medieval texts constitutes the first paragraph in the foundation statute); Fuhrmann, 'Goethe', 3; idem, *Gelehrtenleben*, 11–3; Schmitz, 'Entstehungsgeschichte', 503–7.

6   Docen, 'Anzeige', 425–9 (the *Annales Ratisponenses* are listed on p. 428). Docen worked directly from Colomann Sanftl's handwritten early 19th-century inventory of Regensburg manuscripts, in which Sanftl had re-edited the *Annales Ratisponenses* and had referred to the Munich Computus (cf. note 4). For Docen's career and his position and occupation in the Munich library at that time see especially Haller, *Bayerische Staatsbibliothek*, 121–2, 132.

7   Docen, 'Notizen', 515–9.

8   The edition in *MGH SS* 1, 91–3. For this first *MGH* volume of editions cf. Bresslau, 'Geschichte', 151–6; Fuhrmann, 'Goethe', 20–1; idem, *Gelehrtenleben*, 33; Wesche, 'Der erste Band', 17–21; Schmitz, 'Entstehungsgeschichte', 518–9.

9   For the date of Krusch's discovery see Krusch, *Studien* II, 58. For his scholarly occupation at that time see Krusch, *Studien* I, v; idem, *Studien* II, 5. For his early career and his chronological studies see Heymann, 'Bruno Krusch', 505–6. Cf. also Ó Cróinín, *Early Irish history*, 1. Krusch may have known the brief reference to the Munich Computus in Halm et al., *Catalogus*, 175, which was published only two years earlier, in AD 1876; it seems likely that this or Docen's earlier reference stimulated Krusch's initial interest in this text; in his first publication on this computus, Krusch (*Studien* I, 10) refers only to Docen.

one feature of this text, namely its frequent references to a *latercus*, which he correctly identified as an 84-year Easter table with 14-year *saltus*, having Easter lunar limits of 14 to 20. Most unfortunately for chronological studies to the present day, however, he connected the *latercus* information of the Munich Computus with the *laterculus* of Augustalis as transmitted in the *Computus Carthaginiensis*, because of the similarity in terminology. This resulted in his wrong reconstruction of the *laterculus* of Augustalis, which Krusch believed covered the years AD 213–312.[10] It was only some 20 to 25 years later that Bartholomew Mac Carthy as well as Eduard Schwartz proved that the Munich *latercus* did not in the least refer to the *laterculus* of Augustalis, and that Krusch's reconstruction was therefore obsolete.[11] Krusch himself accepted this view shortly before his death.[12] However, many historians of chronology to the present day refer to Krusch's theory of the *laterculus* of Augustalis as historically correct,[13] so that it cannot be overemphasized that the basis for Krusch's reconstruction, the Munich *latercus*, has nothing to do with Augustalis' table.[14]

Despite the faultiness of his theory, Krusch certainly deserves all due credit for rescuing the Munich text from obscurity and for highlighting its exceptional chronological value in its unique *latercus* references. Precisely this unique data attracted two of the leading chronologists of their time to the Munich Computus, the Reverend Bartholomew Mac Carthy in 1901 and the classicist Eduard Schwartz in 1905. Mac Carthy was the first to prove that the *latercus* mentioned in the Munich text refers, in fact, to the 84-year Easter cycle followed in some regions of Britain and Ireland until the eighth century. Since no Easter table of that reckoning was known to have survived, the Irish scholar realized the outstanding value of the Munich Computus' information about that reckoning; he

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10 Krusch, *Studien* I, 5–19. The *Computus Carthaginiensis* is edited in Krusch, *Studien* I, 279–97.

11 Mac Carthy, *Annals of Ulster* 4, lxvi–vii, and especially Schwartz, 'Ostertafeln', 63–6. Cf. O'Connell, 'Easter cycles', 73–4; Wallis, *Bede*, xlv; Warntjes, '84 (14)-year Easter reckoning', 69–70.

12 Krusch, *Studien* II, 58.

13 Rühl, *Chronologie*, 122–4 (before the publication of Schwartz's correction); Schmid, *Osterfestberechnung in der abendländischen Kirche*, 19–20; Jones, *Bedae opera*, 15–6, 19; Cordoliani, 'Computistes insulaires', 6, 12; David, 'Saint Martin', 285; Strobel, *Ursprung*, 137, 161–2, 228, 273–4, 365, 384–6; Gougaud, *Christianity*, 186; Grumel, 'Problème', 167–8; Pedersen, 'Ecclesiastical calendar', 39–40; Stevens, 'Scientific instruction', 95; idem, 'Cycles of time', 37, 50; Blackburn & Holford-Strevens, *Companion to the year*, 806, 870, 872; Butzer & Butzer, 'Mathematics', 79; Lejbowicz, 'Computus', 160; idem, 'Tables paschales', 21, 44; Dekkers & Gaar, *Clavis patrum latinorum*, 725; Machielsen, *CCSL Clavis Patristica* 3A, 219; von den Brincken, *Chronologie*, 74; Holford-Strevens, *History of time*, 47.

14 The correct theory about this *laterculus* of Augustalis is Schwartz, 'Ostertafeln', 63–6. This is accepted by Gentz, 'Ostern', 1651; O'Connell, 'Easter cycles', 73–4; Wallis, *Bede*, xlv; Warntjes, '84 (14)-year Easter reckoning', 69–70. Ginzel, *Handbuch* 3, 243, only outlines Krusch's and Schwartz's theories, without stating any preference; Mc Carthy & Breen, *De ratione paschali*, 17 have their reservations about the Julian calendar and lunar limits attributed to this table by Krusch. See now also Mosshammer, *Easter Computus*, 224–8.

even attempted to reconstruct such a table from the data provided by the Munich text.[15] Subsequent to Mac Carthy's study, the Munich Computus was primarily analyzed for its references to this obscure and rather legendary Easter reckoning followed by the Irish and British in the early centuries of the middle ages. The most comprehensive analysis of the Munich *latercus* references was published by Schwartz, in his seminal study of the history of Easter tables, only four years after Mac Carthy's book had appeared in print,[16] which he may have known, even though he did not refer to it.[17] Being a very thorough and cautious scholar, Schwartz believed a reconstruction of the 84-year Easter table followed in Ireland and Britain based on the Munich data to be an impossible task.[18] Nevertheless, the Reverend D.J. O'Connell published another attempt at reconstructing such an Easter table on the basis of the Munich Computus in 1940,[19] an attempt that was refined by the Church historian Knut Schäferdiek in 1983.[20] However, only two years later an Easter table of that reckoning was discovered by Dáibhí Ó Cróinín in a Padua manuscript, which was subsequently reconstructed by Dan Mc Carthy.[21] In this reconstruction, the Munich Computus played a major part, since it transmits reliable and crucial information about the sequence of lunations underlying this table; the importance of this technical detail becomes immediately apparent from the fact that the reconstruction failed in the first place, precisely because this sequence of lunations was not consid-

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15   Mac Carthy, *Annals of Ulster* 4, lxv–lxxxi.

16   Schwartz, 'Ostertafeln', 89–104.

17   Schwartz does not mention Mac Carthy's work anywhere in his study. Consequently, O'Connell, 'Easter cycles', 67 assumes that Schwartz was not familiar with Mac Carthy's book; likewise, Mc Carthy & Ó Cróinín, 'Easter table', 66. Mc Carthy, 'Easter principles', 223, however, convincingly argues that the parallels between Mac Carthy's and Schwartz's studies in the analysis of the *latercus* are so close that they must have been, in some way, dependent. In his opinion, the two scholars were likely to have collaborated, with Schwartz providing the source for Mac Carthy, since Schwartz's account of the *latercus* is the more detailed of the two, even though the publication dates speak against this hypothesis. I am inclined to think that Schwartz knew Mac Carthy's study and extended and corrected it. Note, however, that the Göttingen library (Schwartz wrote his study of Easter tables in his time at the University of Göttingen) did not acquire a copy of Mac Carthy's volume 4 of the *Annals of Ulster* before 1929 (I would like to thank the Göttingen librarian Helmut Rohlfing for providing me with this information). Therefore, if Schwartz did know Mac Carthy's work, he probably worked from his own copy. Dáibhí Ó Cróinín informed me that he could not find any reference to Mac Carthy in Schwartz's Nachlaß in Munich.

18   Schwartz, 'Ostertafeln', 102.

19   O'Connell, 'Easter cycles', 84–106.

20   Schäferdiek, 'Osterzyklus', 357–78.

21   For the date of the discovery of the Padua table see Ó Cróinín, *Early Irish history*, 4; Mc Carthy & Breen, *De ratione paschali*, 10. It was first analyzed and published in Mc Carthy & Ó Cróinín, 'Easter table', 58–75, but correctly reconstructed only in Mc Carthy, 'Easter principles', 204–24; cf. Mc Carthy & Breen, *De ratione paschali*, 10–1. A translation and concise summary of the technicalities underlying this table can be found in Blackburn & Holford-Strevens, *Companion to the year*, 870–5. A full facsimile is printed in Warntjes, '84 (14)-year Easter reckoning', 80–2.

ered.[22] After the discovery of the Padua table, the Munich Computus obviously lost its importance as the primary witness for this Easter reckoning. Only one further study of the Munich *latercus* followed, a detailed comparison between the Munich data and the Padua table, with the object of identifying the source underlying the information about the *latercus* in the Munich text, as well as analyzing its author's familiarity with this reckoning. Moreover, this study proved that a reform of this 84-year reckoning to prevent it from becoming increasingly inaccurate had never been executed, and neither did this reckoning include mechanisms that would have made it more accurate astronomically while abandoning its cyclic character at the same time.[23]

A different interest in the Munich Computus also existed, beyond the technical details of the 84-year Easter reckoning followed in Ireland and Britain, because of the few Old Irish words contained in this text. Generally, the incorporation of Old Irish words in the main body of a Latin text, as is the case in the Munich Computus, is a very rare phenomenon compared to the regular occurrence of Old Irish in interlinear or marginal glosses to other Latin texts. This phenomenon is yet to be fully explained, and any future study of it will need to rely on the evidence of the Munich text in particular, and of early Irish computistical material in general.[24] Moreover, any new discovery of Old Irish terms complements the comparatively small corpus of Old Irish vocabulary from this early period of the written Irish language. Mac Carthy drew attention to the occurrence in the Munich Computus of the bilingual term *dies cetene*,[25] Ó Cróinín to the Old Irish verb *tomel*.[26] This terminology, together with the additional occurrence of the curious term *noinaic*, and a few Old Irish numerals, have only recently been analyzed linguistically, and thoroughly discussed in the context of code-switching and code-mixing.[27]

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22 For the problems occurring in the first attempt of reconstruction due to the application of the alternating sequence of lunations cf. Mc Carthy & Ó Cróinín, 'Easter table', 231–2. The non-alternating *latercus* sequence of lunations was then applied in Mc Carthy's definite reconstruction of the Padua table (Mc Carthy, 'Easter principles', 210–3); its importance for this reconstruction is subsequently stressed in Mc Carthy, 'The origin of the *latercus*', 25–6; Warntjes, '84 (14)-year Easter reckoning', 43.

23 Warntjes, '84 (14)-year Easter reckoning', 31–85.

24 Other computistical texts, in which Old Irish words occur in the main body of the Latin text, are the newly discovered *Computus Einsidlensis* and a lemmatized treatise on the Dionysiac and ps-Dionysiac *argumenta* in Padua, Biblioteca Antoniana, I 27, 77v–78r. For Old Irish in the *Computus Einsidlensis* cf. Warntjes, 'Computus Einsidlensis', 62 (note that one of the page references to the occurrence of Old Irish in this text has been cited wrongly due to a printing problem, which led to all '7' being substituted by '9' throughout the article; in note 7 – itself misprinted as 9 – it should read 97 instead of 99) and especially the full analysis of all Old Irish terms found in this text in Bisagni & Warntjes, 'Early Old Irish material', 77–105. For the occurrence of Old Irish in the Padua MS see Ó Cróinín, 'Dionysius Exiguus', 272.

25 Mac Carthy, *Annals of Ulster* 4, clxxx.

26 Ó Cróinín, 'Old Irish gloss', 131–2. Cf. also Ó Cróinín, 'Earliest Old Irish glosses', 16–7.

27 Bisagni & Warntjes, 'Latin and Old Irish', 1–33. For the Old Irish terms in the Munich Computus cf. also p. LXXV–LXXVI below.

Since the primary interest in the Munich Computus lies in the passages that deal with either these Old Irish words or the details of the *latercus*, the question remains whether these features present all of the text's originality and therefore constitute the only points of interest in this text. If so, would not an edition and detailed analysis of these passages, as now provided by the two most recent studies, suffice? In other words, is an edition of the entire text necessary and of any interest?

Docen's verdict would have been that if the Munich Computus proves to be an independent and unpublished text, as it surely does, then it certainly deserves to be edited in its entirety, as would any other text with these two characteristics.[28] However, the two German scholars who had worked most intensively on this text, Krusch and Schwartz, explicitly denied any value in editing the Munich Computus. In 1905, Schwartz wrote on this matter:[29]

> Sollte jemand auf den Einfall kommen den münchener Computus in ganzem Umfang abdrucken zu lassen, so würde der wesentliche Erfolg der sein, dass Bedas chronologisches Wissen und seine nüchterne, nie sich verwirren lassende Praecision sich von einem dunklen Beispiel occidentalischer Ignoranz mit wirklich Erfurcht gebietender Klarheit abheben.

Previously, in 1878, Krusch had only randomly studied the Munich Computus for his dissertation. After having read Schwartz's account of the Munich *latercus*, however, he returned to the text and transcribed it in full. His final verdict, formulated in 1937, was:[30]

> Ich habe den Computus zuerst entdeckt. Dann hat Schwartz die Hs. sich kommen lassen und ihn abgeschrieben. Um seine Ergebnisse nachzuprüfen, mußte ich sie mir wieder kommen lassen, und jetzt habe ich den Computus ganz abgeschrieben. Aber ich bin mit Schwartz der Ansicht, daß er den Druck nicht verdient. Die Hs. ist sehr fehlerhaft geschrieben. Schwartz hat vieles verbessert, aber noch mehr ist zu tun.

For these two scholars, then, three principal arguments spoke against an edition of this text. It was contemporaneous with Bede, so that in all probability most of the information given in the Munich Computus could be found in a clearer and more precise style in Bede's major computistical work, *De temporum ratione*. Therefore, the extremely time-consuming work of correcting this highly corrupted text would not prove worth the effort. Moreover, in some instances the Latin appears 'barbaric', to a degree that the sense of certain passages may never be fully understood.

Interestingly enough, in the 20th century it was particularly this last aspect, the 'barbaric' Latin, that attracted scholars to this text in its entirety. Schwartz, being one of the leading classicists of his time, showed little or no appreciation for non-classical Latin. Yet, in the last two decades of the 19th century, and especially with the appointment of Ludwig Traube to the newly created chair of

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28   Cf. Docen, 'Notizen', 518–9.
29   Schwartz, 'Ostertafeln', 93.
30   Krusch, *Studien* II, 58. Cf. Ó Cróinín, 'A seventh-century Irish computus', 104.

medieval Latin in Munich in 1904, this general attitude changed.[31] Regional differences and characteristic features of medieval Latin became the focus of analysis, with Hiberno-Latin constituting one of these regional categories.[32] Mac Carthy, in a brief and rather uninspired analysis of the Munich Computist's orthography, was the first to hint at the potential of the Munich Computus for the study of Hiberno-Latin.[33] Traube's second successor, Bernhard Bischoff, arguably one of the most prolific scholars of Hiberno-Latin in the 20th century, referred to the Munich Computus only in passing.[34] A few more Hiberno-Latin aspects in this text have more recently been pointed out by Ó Cróinín,[35] but a comprehensive analysis of the Munich Computist's Latin as a whole has not been considered to the present day. It is hoped that the present edition provides the stimulus for such a study, especially since the study of the Latin of early medieval scientific texts (Hiberno-Latin or not) is a more general desideratum.

The true computistical value of the Munich Computus has only most recently been emphasized. Charles W. Jones, the author of the outstanding edition of Bede's computistical works, pointed to Bede's dependency on an Irish collection of computistical tracts, which he identified with a large section of the Sirmond manuscript (Oxford, Bodleian Library, Bodley 309).[36] With the exception of some minor pieces, the tracts themselves are, however, not of Irish ori-

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31 Traube was one of three scholars who are regarded as the founding fathers of the study of medieval Latin; the other two are Traube's contemporaries Wilhelm Meyer in Göttingen and Paul von Winterfeld in Berlin. For the creation of the chair of medieval Latin in Munich, Traube's early career, his pioneering work and impact on the study of medieval Latin cf. Boll, 'Traube', XVIII–XXXI, XLI–VII; Silagi's notes to Traube, *Rückblick*, 3–9, 30–1; Lehner & Berschin, 'Nachwort', 243–4.

32 Seminal is Traube's 'Die lateinische Sprache des Mittelalters', which is published in his *Vorlesungen* 2 (the special place of Ireland and Britain in the development of medieval Latin on p. 39–41, 61–2, 91). For the subsequent development of the study of Hiberno-Latin in the 20th century and its results cf. Herren, 'Sprachliche Eigentümlichkeiten', 425–33; Stotz, *Handbuch zur lateinischen Sprache* 1, 85–6, 107–12. An overview of the literature on the subject prior to 1972 is provided by Bieler, 'Hiberno-Latin dictionary', 248–55, without reference to any scientific work. A detailed linguistic analysis of a Hiberno-Latin text, as well as a thorough (though sometimes outdated) discussion of Hiberno-Latin features, is provided in Bengt Löfstedt's dissertation on the Irish grammarian Malsachanus (Löfstedt, *Malsachanus*, 81–156), and also in his discussion of the language of the *Anonymus ad Cuimnanum* (Bischoff & Löfstedt, *Anonymus ad Cuimnanus*, xxiv–xxxviii). It is worth noting here that Traube also had an interest in computistical texts; his study of the *Computus* of Helperic of Auxerre (Traube, 'Computus Helperici') still is the best study of that text to date; cf. Borst, *Kalenderreform*, 140.

33 Mac Carthy, *Annals of Ulster* 4, clxxviii–ix; cf. also his discussion of the Hiberno-Latin term *singularis* in Mac Carthy, *Annals of Ulster* 4, lxix.

34 Bischoff, 'Das griechische Element', 250.

35 Ó Cróinín, 'Hiberno-Latin calcenterus', 56–7; idem, 'A seventh-century Irish computus', 104–7; Walsh & Ó Cróinín, *Cummian's letter*, 62–3, 182, 211.

36 Jones, 'Sirmond manuscript', 208–19; idem, *Bedae opera*, 105–13. For subsequent discussions of this manuscript and Bede's dependency on its material cf. Ó Cróinín, 'Irish provenance', 173–90; idem, 'Bede's Irish computus', 201–12; Wallis, *Bede*, lxxii–ix; Springsfeld, *Alkuins Einfluß*, 68–80; Graff, 'Recension of two Sirmond texts', 112–42.

gin.[37] Jones also mentioned the Munich Computus in this pre-Bedan Irish context, but he never discussed it and its relation to Bede's and other computistical texts in any detail.[38] It was not until the studies of Dáibhí Ó Cróinín in the 1980s that the genuinely Irish contribution in the field of computistics in the period between Isidore and Bede was placed on a solid footing. After having discovered a most original Irish computistical textbook of this period, *De ratione conputandi*, he compared selected passages of this new textbook with the Munich Computus in the article announcing the discovery, as well as in his subsequent edition of *De ratione conputandi*.[39] Unfortunately, in both studies the comparison was not systematic, so that many parallels between the two texts remained unnoticed. Nevertheless, in the company of *De ratione conputandi*, the Munich Computus was rightly considered as an extremely important witness to what may be termed as the Irish phase in the history of computistics, i.e. the period between the reception of Isidore and that of Bede. Yet, in Jones' and Ó Cróinín's studies, the Munich Computus was almost exclusively discussed in an Insular context. It is the merit of Arno Borst to have placed this computus in

37 Jones divided the allegedly pre-Bedan section of the Sirmond manuscript into two books; book one contains items 3 to 9 in his list, while book two consists of items 13–45 (cf. the references in the previous note). In this second book, evidently of Irish origin are sections of item 26 (published in Ó Cróinín, 'Bede's Irish computus', 209–10; the originally Irish bits are numbered VI and VIII–XII in Ó Cróinín's edition) and of items 35–36 (published in Ó Cróinín, 'Bede's Irish computus', 204–7; quite certainly of Irish origin are the unidentified pieces numbered IX and X by Ó Cróinín; note that the source references on p. 207 of Ó Cróinín's article are out of sequence: the Isidorian citation listed under V belongs to IV, and subsequently the source identifications VI to IX refer, in fact, to V to VIII; number IX is, therefore, unidentified); for parallels between these sections of the Sirmond manuscript and the Munich Computus cf. the following passages in the edition of the Munich Computus below (the edition is abbreviated as MC in the following, with references to chapter.lines): 41.107–110, 44.11–12, 50.22–28, 50.47–49, 59.38–69, 62.65–67, 64, and see also the discussion on p. LVII–LVIII and LXXX–LXXXII below; item 13 may also be of Irish origin, since it shows parallels to a heavily corrupted, apparently Irish tract in Padua, Biblioteca Antoniana, I 27, 77v–78r (cf. Ó Cróinín, 'Dionysius Exiguus', 272–4). In the first book, items 4–5, the tracts *De computo dialogus* and *De xiiii divisionibus temporum*, ultimately derive from Irish tracts, but here appear in a Carolingian recension (my reading of the evidence; for the controversy about place and time of these tracts cf. note 55); items 6 to 8, the ps-Alcuin tracts on the bissextile day and the *saltus lunae*, show many parallels to Irish texts (cf. MC 8.38–43, 24.12–14, 36.2–5, 41.7–8, 41.38–49, 41.80–88, 41.92–106, 46.16–20, 48.2–7, 55.6–12, 62.14–63, 62.68–72, 62.87–95, 62.111–117), but they may also have been (and in my opinion are) continental compositions drawing on Irish sources (again, their origin is highly disputed; cf. Jones, *Bedae opera*, 110; Cordoliani, 'Traités', 53; Dekkers & Gaar, *Clavis patrum latinorum*, 736; Borst, 'Alkuin', 59–61; Stevens, 'Rabani', 173–4; idem, 'Present sense', 18–20; Machielsen, *CCSL Clavis Patristica* 3A, 215; Springsfeld, *Alkuins Einfluß*, 77–9; Butzer & Butzer, 'Mathematics', 79).

38 Jones, 'Sirmond manuscript', 209–10, 213–4, and especially idem, *Bedae opera*, 110, where he simply states that Bede does not cite the Munich Computus.

39 Ó Cróinín, 'A seventh-century Irish computus', 104–7, 110–1, 118–9, 124–7; Walsh & Ó Cróinín, *Cummian's letter*, 23–4, 115–6, 134, 143–5, 156, 163, 165, 169, 172, 181, 204–5, 210. For the Munich Computus in the context of the reception of Virgilius Maro Grammaticus in computistical literature see Ó Cróinín, 'Virgilius Maro Grammaticus', 197–200.

a wider, Western European context. In his 2006 monumental corpus of editions of Frankish computistical texts, the Munich Computus plays an important part as a crucial source for Frankish computistica of the eighth century.[40] This demonstrates the influence of this Irish computistical textbook and highlights its role in the shaping of western medieval computistics.

Consequently, the principal value of the Munich Computus lies in the fact that it is a crucial text in the history of the most important science of the early middle ages, computistics, and as such essential to the understanding of the development of science in this period. Its scientific context, and especially its outstanding place in the formative period of medieval computistics, will be accentuated in detail in the following two chapters.

Terminology: Before proceeding to these, however, a note on the titles given to the Munich Computus in the studies outlined above is necessary. In general, the reference to Munich does not appear appropriate for a text that was evidently composed in Ireland and copied in Regensburg, where it was subsequently housed for almost a millenium before being transferred to Munich. Yet, ever since Mac Carthy's study of this text, which was the first such study published in English, this text is exclusively referred to as the 'Munich Computus' in English publications.[41] It appeared inappropriate, therefore, to change this terminology for the *editio princeps* of this computus, which would only lead to confusion about the text in question.

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40 The fact that Borst begins the introduction to his corpus of editions with a quote from the Munich Computus illustrates the importance placed by him on this text. Borst, *Studien*, 1. On p. 134–7 he discusses this text in the context of pre-Bedan Irish computistics, there presented as one of the main foundations of Frankish computistics. The Munich Computus is referred to as *Comp. Hib.* throughout Borst's editions.

41 Mac Carthy, *Annals of Ulster* 4, lxvii–lxxv, ccxxviii–xxx; Kenney, *Sources*, 223; O'Connell, 'Easter cycles', 84–90; Lapidge & Sharpe, *Bibliography*, 95; Ó Cróinín, 'A seventh-century Irish computus', 102–27; idem, 'Old Irish gloss', 131–2; idem, 'Irish provenance', 183; idem, 'Virgilius Maro Grammaticus', 197; idem, 'Columbanus', 52; idem, 'Earliest Old Irish glosses', 16; idem, *Early medieval Ireland*, 188; idem, *Irish history*, 4–5; Walsh & Ó Cróinín, *Cummian's letter*, 258; Mc Carthy & Ó Cróinín, 'Easter table', 58–67; Mc Carthy, 'Easter principles', 205–24; idem, 'Origin', 49; Warntjes, '84 (14)-year Easter reckoning', 31–85; idem, 'Earliest occurrence', 96–105; Bisagni & Warntjes, 'Latin and Old Irish', 1–33; idem, 'Early Old Irish material', 77–91. The manuscript reference is preferred by some authors (Jones, 'Sirmond manuscript', 209; idem, *Bedae pseudepigrapha*, 48–9, 125; idem, *Bedae opera*, 110), and on very few occasions the lengthy heading of this text is referred to (Mac Ginty, 'Irish Augustine', 78). Note, however, that Jones, *Bedae pseudepigrapha*, 67, in his imprecise and vague treatment of the Munich MS, describes this text as 'the Irish Computus, composed AD 689'; he gives the heading of the Munich Computus as the incipit, but no explicit or folio number for the end; it appears from Jones, *CCSL* 123B, 351 that he regarded the entire MS from fol. 8r onwards as one recension of the now lost, hypothetical 'Irish computus'; hence, 'the Irish Computus, composed AD 689' was a description rather than a title, and referred to more than just the text from fol. 8r to 46r. For 'Munich Computus' denoting the MS as a whole, rather than the specific text of fol. 8r–46r, see note 54.

Unfortunately, anonymous computistical texts of the early middle ages are often referred to under various titles by modern commentators, depending on their personal preferences. This led to the bizarre situation that some of these texts are referred to by three or more different titles, with only their dates of composition providing definite clues about their identity. The wish to avoid such a scenario for the Munich Computus may serve here as a justification for retaining this rather inappropriate title. Some of the more prominent anonymous eighth-century computistical texts may illustrate the argument: The computistical anthology Milan, Biblioteca Ambrosiana, H 150 inf, is published under the title *Liber de computo* in volume 129 of the *Patrologia Latina*, and referred to by this name in some studies; in others, however, it appears as the Bobbio Computus (because of its provenance), the Milan Computus (because of its present location), or as one (if not the main or only) recension of a computistical compilation called *Computus Graecorum sive Latinorum*.[42] Similarly, evidently Frankish computistical texts in particular have received numerous different titles over the past century: The Frankish computus of AD 727 based on Victorian principles was first called according to the sole manuscript witness 'Berner Computus Nr. 611 von 727' by Krusch, and it was described as 'Komputus im Berner Codex n. 611 aus dem Jahre 727 n. Chr.' by Schmid; in Krusch's following *editio princeps*, however, he published it under the title 'Der merowingische Computus Paschalis vom Jahre 727 n. Chr.', so that it was subsequently referred to as 'Der merowingische Computus von 727', with the English equivalent 'Merovingian computus of 727', the French 'Comput Mérovingian de 727', the Latin *Computus paschalis merowingicus anni 727*; yet, Jones preferred to term it *Computus Victorianus*; in catalogues it is listed as *Computus paschalis a. 727*, or simply *Computus paschalis*, accompanied by additional reference to the manuscript, while it appeared as 'L'Anonyme de 727' in French literature; it has just recently been critically edited by Borst as 'Das burgundische Lehrgespräch von 727', with the Latin title *De ratione conpoti* and the abbreviation *Dial. Burg.*; an earlier publication by Borst makes it apparent

42 *Liber de computo*: *PL* 129, 1275–372; Cordoliani, 'Traités', 64; Jones, *Bedae pseudepigrapha*, 151; idem, 'Sirmond manuscript', 208; idem, *Bedae opera*, 111, 401; idem, *CCSL* 123A, XIII; idem, *CCSL* 123C, 777; Boschen, *Annales Prumiensis*, 246, 252; Rissel, *Rezeption*, 28–9; Walsh & Ó Cróinín, *Cummian's letter*, 115, 257; Dekkers & Gaar, *Clavis patrum latinorum*, 736; Machielsen, *CCSL Clavis Patristica* 3A, 198. Bobbio Computus (which is the title used in the present study, so that it is not confused with Rabanus Maurus' or Helperic's *Liber de computo* or other texts of the same title): Wallis, *Bede*, lxxii–iii, 451; Warntjes, '84 (14)-year Easter reckoning', 41–3. Milan Computus: Ó Cróinín, 'A seventh-century Irish computus', 105, and more often. *Computus Graecorum sive Latinorum*: Borst, 'Alkuin', 57; idem, *Plinius*, 119; idem, *Kalenderreform*, 181–2; idem, *Streit*, 143, 168; idem, *Studien*, XXVII (abbreviated as *Comp. Graec.* throughout Borst's corpus of editions); Kühnel, *End of time*, 102; Dekkers & Gaar, *Clavis patrum latinorum*, 736; Cordoliani, 'Traités', 59, 64; idem, 'Encyclopédie carolingienne', 237; idem, 'Contribution', 174; idem, 'Manuscrit de comput ecclesiastique', 20; Machielsen, *CCSL Clavis Patristica* 3A, 200–3; Lejbowicz, 'Tables paschales', 22; Germann, *De temporum ratione*, 44, and more often. Untitled: Wiesenbach, *Sigebert von Gembloux*, 59.

that the latter abbreviation stands for *Dialogus de computo Burgundiae*.[43] The Frankish computus of AD 737 based on Dionysiac principles was first referred to as *Tractatus de computo ecclesiastico* by Labbe, who was only concerned with the dating clause incorporated in the text; it was not given any title by Valentin Rose, who first described it in some detail in his catalogue of Berlin manuscripts, and there only tentatively characterized it as 'ein Schulbuch über den computus vom Jahre 737'; Krusch called this text more rigorously 'Das älteste fränkische Lehrbuch der dionysischen Zeitrechnung', and it was later referred to as simply 'Fränkisches Lehrbuch von 737', translated into English as 'Merovingian manual of 737'; Cordoliani refers to this text as 'Comput dionysien de 737', and, in accordance with Cordoliani's title, it appears as *Compotus Dionysii a. 737* or *Computus Dionysianus a. 737* in recent catalogues; Borst terms this text in the *editio princeps* 'Das neustrische Streitgespräch von 737', with the Latin title *De paschali racione aliique causis* and the abbreviation *Dial. Neustr.*; again, an earlier publication by Borst reveals that the latter abbreviation stands for *Dialogus de computo Neustriae*.[44] The Frankish computistical formulary of AD 793 has received less variation in its titles over the years; it has mostly been referred to as *Annalis libellus*, which was also the Latin title first preferred by Borst (with the abbreviation *Ann. lib.*), before he opted for changing the order of words to *Libellus annalis* with the corresponding abbreviation *Lib. ann.* in his recent edition; the German title employed there and earlier is 'Das Veroneser Jahrbüchlein von 793'; in a recent catalogue of computistical

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43   For Krusch's titles see Krusch, 'Lehrbuch', 241; idem, *Studien* II, 53. 'Komputus im Berner Codex n. 611 aus dem Jahre 727 n. Chr.': Schmid, *Osterfestberechnung in der abendländischen Kirche*, 82. 'Der merowingische Computus von 727': Borst, 'Computus', 15; idem, *Computus*, 42, 152. 'Merovingian computus of 727': Thorndike & Kibre, *Catalogue of incipits*, 82; Walsh & Ó Cróinín, *Cummian's letter*, 118, and more often; Wallis, *Bede*, 13, and more often (it does not appear in the indices of either work). 'Comput mérovingien de 727': Cordoliani, 'Traités', 59 ; idem, 'Table pascal de Périgueux', 60 (with additional MS ascription). *Computus paschalis merowingicus anni 727*: Machielsen, *CCSL Clavis Patristica* 3A, 192. *Computus Victorianus*: Jones, *Bedae opera*, 400 ; idem, *CCSL* 123C, 735. *Computus paschalis a. 727*: Dekkers & Gaar, *Clavis patrum latinorum*, 732. '*Computus paschalis* in der Handschrift Bern 611': Frede, *Kirchenschriftsteller*, 78. 'L'Anonyme de 727': Lejbowicz, 'Computus', 159–61, 181. For Borst's titles see: Borst, *Schriften*, XXIX, 348, 353. *Dialogus de computo Burgundiae*: Borst, *Streit*, 84, 168. Pedersen, 'Ecclesiastical calendar', 55 describes it as 'a Merovingian *Computus Paschalis* from A.D. 727'.

44   *Tractatus de computo ecclesiastico*: Krusch, 'Einführung', 137; Schmid, *Osterfestberechnung in der abendländischen Kirche*, 83. For Rose's description see Rose, *Handschriften-Verzeichnisse*, 285–6; for Krusch's title Krusch, 'Lehrbuch', 232. 'Comput dionysien de 737': Cordoliani, 'Traités', 59; idem, 'Table pascale de Périgueux', 57. *Compotus Dionysii a. 737*: Thorndike & Kibre, *Catalogue of incipits*, 1249. *Computus Dionysianus a. 737*: Frede, *Kirchenschriftsteller*, 84 ; Dekkers & Gaar, *Clavis patrum latinorum*, 732; Machielsen, *CCSL Clavis Patristica* 3A, 282. 'Fränkisches Lehrbuch von 737': Borst, 'Alkuin', 55; idem, *Plinius*, 114–6. 'Merovingian manual of 737': Kühnel, *End of time*, 101. Borst's titles: Borst, *Schriften*, XXIX, 375, 381. *Dialogus de computo Neustriae*: Borst, *Streit*, 24, 169. Untitled: Jones, *Bedae opera*, 66; Rissel, *Rezeption*, 28; Stevens, 'Rabani', 170; Walsh & Ó Cróinín, *Cummian's letter*, 161; Declercq, *Anno Domini*, 162.

texts it has been simply termed *libellus computisticus*.[45] The two enormous Frankish computistical compendia of AD 809 and 818, however, have received a great variation of titles: The earlier one has been called 'astronomisch-komputistisches Lehrbuch', 'astronomisch-komputistisches Werk von 809', 'Seven-book computus' with the German equivalent '7-Bücher-Computus', 'une grande compilation d'astronomie et de comput de l'an 809', 'Aix-la-Chapelle encyclopedia', while it was termed by Borst in his recent edition and earlier as 'Die Aachener Enzyklopädie von 809' (which is translated into English as the 'Aachen encyclopaedia of 809'), with the Latin title *Libri computi* and the corresponding abbreviation *Lib. comp.*[46] The later one was named 'Three-book computus' with the German equivalent '3-Bücher-Computus', whereas Borst in his edition employed the German title 'Die Salzburger Enzyklopädie von 818' (while he earlier preferred 'Salzburger Kompilation') and the Latin *Liber calculationis* with the corresponding abbreviation *Lib. calc.*[47]

45 *Annalis libellus*: Borst, *Plinius*, 138–9, 375, 428; idem, *Kalenderreform*, 317 (but with the abbreviation *Lib. ann.*); Kühnel, *End of time*, 105–6; Springsfeld, *Alkuins Einfluß*, 12, 409. Borst's titles: Borst, *Computus*, 50, 154; idem, 'Alkuin', 61–2; idem, *Plinius*, 138, 144, 375, 428; idem, *Streit*, 41, 173; idem, *Schriften*, XLI, 660, 679. *Libellus computisticus*: Machielsen, *CCSL Clavis Patristica* 3A, 207. Untitled: Krusch, 'Lehrbuch', 233; Thorndike & Kibre, *Catalogue of incipits*, 1311. Rose, in his catalogue of the Phillipps MSS in the Berlin library (Rose, *Handschriften-Verzeichnisse*, 283), describes it as 'Werk kurzer Belehrungen über den Computus (Zeitrechnung), verfasst i. J. 793 (bzw. 776)'. Stevens, 'Present sense', 19 refers to it as *Liber annalis*.

46 'Astronomisch-komputistisches Lehrbuch': Köhler, *Karolingische Miniaturen* 3, 119–27; Mütherich, 'Buchmalerei', 50; idem, 'Erneuerung', 18; idem, 'Leidener Aratus', 150, and more often; Mütherich & Gaehde, *Buchmalerei*, 8, 12, 89. 'Astronomisch-komputistisches Werk von 809': Boschen, *Annales Prumiensis*, 13, 17–8, 24, 242–6. 'Seven-book computus': King, *Excerpts*, 3–27 (cited from Borst, *Plinius*, 171); Eastwood, 'Astronomy in Christian Latin Europe', 251; idem, 'Plinian astronomy', 201; idem, 'Plinian astronomical diagrams', 148, and more often; idem, 'Astronomies of Pliny', 164, and more often; Butzer, 'Scholars', 50 (confusing it with *Lib. calc.*); Butzer & Butzer, 'Mathematics', 80. '7-Bücher-Computus': Springsfeld, *Alkuins Einfluß*, 12, 409. 'Une grande compilation d'astronomie et de comput de l'an 809': Cordoliani, 'Encyclopédie carolingienne', 237; idem, 'Contribution', 174. 'Aix-la-Chapelle encyclopedia': Kühnel, *End of time*, 103, 107–10. 'Aachen encyclopaedia of 809': Wallis, *Bede*, xci–ii (with wrong manuscript ascriptions, since the Munich and Vienna MSS rather contain *Lib. calc.*); Butzer & Butzer, 'Mathematics', 80. Borst's titles: Borst, 'Alkuin', 71; idem, *Plinius*, 156, 382, 389; idem, *Kalenderreform*, 319; idem, *Streit*, 16, 173; idem, *Schriften*, XLI, 1054, 1056, 1087. Wilmart, *Codices*, 160, in his very detailed description of one of the MSS of this work, terms this text *De temporum ratione atque de rerum natura libri septem, seu chronologica et astronomica syllogia*. Untitled: Neuß, 'Kopie', 113–40. For the problem of terminology for this and the following work cf. also Germann, *De temporum ratione*, 30–1, 88–90.

47 'Three-book computus': Eastwood, 'Plinian astronomy', 201; idem, 'Plinian astronomical diagrams', 144, and more often; idem, 'Astronomies of Pliny', 163, and more often; Butzer, 'Scholars', 50 (confusing it with *Lib. comp.*); Butzer & Butzer, 'Mathematics', 80. '3-Bücher-Computus': Springsfeld, *Alkuins Einfluß*, 12, 409. Borst's titles: Borst, 'Alkuin', 73; idem, *Plinius*, 171, 381–2, 421; idem, *Kalenderreform*, 321; idem, *Streit*, 36, 173; idem, *Schriften*, XLI, 1367, 1369–70, 1383; Kühnel, *End of time*, 110. 'Salzburger Kompilation': Borst, *Plinius*, 171, 381–2, 421; Kühnel, *End of time*, 110. Cordoliani, 'Traités', 58; idem, 'Manuscrit de comput ecclesiastique', 26 merges the MSS of this Frankish encyclopaedia

These are only the most prominent examples of the widespread tendency of renaming anonymous computistical texts whenever previous titles appear inappropriate. Such a situation could be avoided for the Munich Computus by adopting the title unanimously given to this text in previous studies in English, though at the cost of a more suggestive and appropriate title. In German literature, however, the titles attributed to this text vary. Docen referred to it by its rather lengthy heading, *Compotus sancti Augustini, sancti Hieronimi, sancti Ysidori, sancti Dyonisii, sancti Quirilli Greciae, et ceterorum*, as do almost all catalogue entries.[48] Krusch did the same when introducing this text in his 1880 analysis, but in the following discussion he used the shorter 'Münchener Computus', which is the origin of the terminology applied in English studies of this text.[49] This terminology was adopted by Schwartz, and then in turn by Schäferdiek, who based his study on Schwartz's results.[50] Yet, in the summary of his article, Schäferdiek calls this text very precisely 'ein durch eine Münchener Handschrift überlieferter irischer Komputus aus dem Jahre 719'.[51] This phrase appears to rely on Krusch's one page note on this computus published shortly before his death, where, after Mac Carthy and Schwartz had demonstrated the Irish origin of this text, Krusch decided to coin it 'Der große irische Computus vom Jahre 719 n. Chr.'.[52] This then led Borst to the Latin title *Computus Hibernicus*, abbreviated as *Comp. Hib.*[53] Even though this terminology is more adequate, it is nevertheless more confusing than 'Munich Computus': In modern literature, only one text has been termed 'Munich Computus', namely the text edited here (Munich, Bayerische Staatsbibliothek, Clm. 14456, fol. 8r–46r), and

of AD 818 with those of the earlier encyclopaedia of AD 809, and terms the text 'Compilation d'astronomie et de comput (809)' (Cordoliani is more correct in other studies; cf. previous note); presumably based on Cordoliani's confused entry, Stevens, 'Present sense', 23–4, calls this text quite mistakenly *Compilatio computistica et astronomica AD DCCCVIIII* (he terms it simply *Compilatio DCCCVIIII* in idem, 'Karolingische Renovatio', 674), apparently inverting the dates and thus the chronological order of *Lib. comp.* and *Lib. calc.* (cf. Borst, *Schriften*, 1086); Stevens's terminology and mistakes were copied in Machielsen, *CCSL Clavis Patristica* 3A, 196–8, which is generally useless, since it appears not to be based on first-hand manuscript research; consequently, relying on secondary literature, it uncritically includes almost all of the numerous mistakes of previous scholars without qualifying them; McCluskey, 'Astronomies in the Latin West', 153 refers to this and the previous text as 'astronomical and computistical anthologies that emerged around the year 809', while in *Astronomies*, 135–9 he inverts the titles (and manuscript witnesses) of these two texts by referring to the earlier one as 'three-book computus', to the later one as 'seven-book computus'. Similar confusion in Butzer & Butzer, 'Mathematics', 50. Untitled: Neuß, 'Kopie', 118–40; Mütherich, 'Buchmalerei', 50; Stevens, 'Rabani', 170.

48 Docen, 'Notizen', 516. For the catalogue entries cf. Halm et al., *Catalogus*, 175; Cordoliani, 'Traités', 59; Thorndike & Kibre, *Catalogue of incipits*, 244; Machielsen, *CCSL Clavis Patristica* 3A, 188–9. Under this title also McGinty, 'Irish Augustine', 78; Stevens, 'Rabani', 170 (wrongly described as a collection of *argumenta*).

49 Krusch, *Studien* I, 10–6.

50 Schwartz, 'Ostertafeln', 89–102, especially 89; Schäferdiek, 'Osterzyklus', 360–77.

51 Schäferdiek, 'Osterzyklus', 378.

52 Krusch, *Studien* II, 58.

53 Cf. especially Borst, *Schriften*, XXVIII, 1.

therefore this title is unambiguous.[54] The same cannot be said about the title
Computus Hibernicus (*Comp. Hib.*), since this term was already used by Jones
in a different context, referring to a hypothetical, now lost 'Irish Computus'.[55]

54 Note, however, that Ó Cróinín, in some of his studies, applies the term 'Munich Compu-
    tus' to the entire MS rather than specifically to the text on folios 8r–46r, although his ar-
    gument is exclusively based on that text: Ó Cróinín, 'A seventh-century Irish computus',
    102; idem, 'Virgilius Maro Grammaticus', 197; Walsh & Ó Cróinín, *Cummian's letter*,
    258. Unfortunately, this transfer of title subsequently led, in some instances, to the transfer
    of the characteristics of the text on folios 8r to 46r to the entire MS, so that it is argued,
    quite mistakenly, that the whole MS is a copy of an Irish exemplar of 718: Ó Cróinín, 'Old
    Irish gloss', 131–2; idem, 'Earliest Old Irish glosses', 16; similarly Ohashi, 'Sexta aetas',
    59. In only one of the studies dealing with material of this MS other than the text on folios
    8r to 46r is the term 'Munich Computus' explicitly employed for the entire MS: Graff,
    'Thirteenth figure', 321, 329. Concerning the extent of the text, only Thorndike & Kibre,
    Catalogue of incipits, 244 disagree with common opinion; they appear to regard the ps-
    Dionysiac *Argumentum XIV* which immediately follows the Munich Computus in the
    manuscript as part of that text, since they argue that this computus extends from fol. 8r to
    47v rather than 46r; from the MS it is, however, perfectly clear that the ps-Dionysiac *ar-
    gumentum* constitutes a separate treatise, because the last quarter of fol. 46r is left blank so
    that this independent text could start at the beginning of the following page.

55 Jones uses the term *Computus Hibernicus* (*Comp. Hib.*) only in his 1980 *CCSL* edition of
    Bede's computistical works, not in his earlier 1943 edition. In this 1980 *CCSL* edition he
    does not clearly define this term, neither in the *index auctorum* (Jones, *CCSL* 123C, 735),
    nor anywhere else in this edition. From the general introduction to this work it is, however,
    immediately apparent that the Munich Computus is certainly not meant by this term, since
    Jones mentions it without referring to it as *Computus Hibernicus* (Jones, *CCSL* 123A,
    XIII). An analysis of all source references to *Comp. Hib.* then shed light on what Jones as-
    sociated with this title. Six of the eight references listed in the *index auctorum* of the 1980
    CCSL edition correspond to cross-references to the appendix in the 1943 edition (Jones,
    CCSL 123B, 299–303; *CCSL* 123C, 587 versus Jones, *Bedae opera*, 195–7, 296). In this
    appendix, Jones published 'excerpts from the Irish computus', namely the preface and ta-
    ble of contents of a now lost computus from the Sirmond MS (Oxford, Bodleian Library,
    Bodley 309, fol. 62r–v) and a chapter of that computus headed *De Hebdomadibus* from
    Bern, Burgerbibliothek, 417, fol. 52v–53v. It is therefore clear that Jones denoted a hypo-
    thetical pre-Bedan Irish Computus (for which see also Jones, *Bedae opera*, 112) with the
    term *Computus Hibernicus*, parts of which survive in the Sirmond group of manuscripts.
    The exact contents of this lost computus obviously cannot be established, but it is apparent
    from Jones' two further references to *Comp. Hib.* (Jones, *CCSL* 123B, 310, 351) that he
    regarded an excerpt from the Sirmond MS (Oxford, Bodleian Library, Bodley 309, 73v)
    and the Anatolian (?) table for calculating the number of days from 1 January to any given
    Julian calendar date as part of it (his reference here is to Munich, Bayerische Staatsbiblio-
    thek, Clm 14456, 65v–67r, but it should only be to fol. 66v; cf. the table of contents of this
    MS p. CCXIII–CCXXI below; already in *Bedae opera*, 110, Jones argued that this MS
    contains parts of the Irish computus). For further clarification of Jones' *Comp. Hib.* refer-
    ences see Wallis, *Bede*, 32. Two problems with Jones' Irish computus need to be pointed
    out here: First, a distinction between the *Comp. Hib.* and *De divisionibus temporum* (which
    is repeated in Machielsen, *CCSL Clavis Patristica* 3A, 192–5, 236–8) appears not to be
    justified; a version of *DDT* apparently was, according to the table of contents published by
    Jones, part of the *Comp. Hib.*, and Jones should have included the *DDT* references among
    the *Comp. Hib.* ones (cf. Wallis, *Bede*, 34, where she identifies *DDT* as an 'Irish computus
    tract'). Second, the table of contents published by Jones from the Sirmond MS quite cer-

Accordingly, the term 'Munich Computus' is used in the present study for its unambiguity and for the sake of consistency with English literature on the subject, as well as the two authoritative German studies; the author of this text is consequently referred to as the 'Munich computist'.

tainly refers to a late eighth-century Frankish Computus based on Irish material rather than a pre-Bedan Irish text: If this table of contents is compared to the three pre-Bedan Irish computistical textbooks, it becomes immediately apparent that certain chapters listed in that table of contents were not part of Irish computistical teaching of ca. AD 700, namely the chapters dealing with the incarnation year, the indiction, the *cyclus lunaris*, the calculation of the lunar age and weekday of any given day of a year, the time of the day of the kindling of the moon, the length of moonlight per day, the rogation, as well as the astronomical chapters. In accordance with this, some scholars regard Jones' *Comp. Hib.* rather as a later Frankish compilation based on Irish material, called *Sententiae s. Augustini et Isidori in laude computi* (short *Sententiae*), which appears to have survived in numerous differing versions. Cf. especially Cordoliani, 'Encyclopédie carolingienne', 237–43; idem, 'Traités', 66; Borst, *Plinius*, 118–9; idem, *Kalenderreform*, 187–8; the references in the index of Borst, *Schriften*, 1487; and furthermore Frede, *Kirchenschriftsteller*, 91; Stevens, 'Rabani', 170–1, 179–80; Dekkers & Gaar, *Clavis patrum latinorum*, 735–6; Machielsen, *CCSL Clavis Patristica* 3A, 192–5; Springsfeld, *Alkuins Einfluß*, 77. It is, however, quite problematic that neither Jones' *Comp. Hib.*, nor the *Sententiae* are anywhere clearly defined, and in the end do not appear to be identical. The task of future studies will be to precisely define both texts and to identify the Irish kernel, as well as the Frankish additions. Cf. note 115.