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Mirator 2/24 (2025)

eISSN 1457-2362

Glossary - Keskiajan tutkimuksen seura / Sällskapet för medeltidsforskning /

Society for Medieval studies in Finland

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Revealing Medieval Books' Dirty Little Secrets: Tracing Late-Medieval Use of a Breviary in Turku diocese

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To cite this article:

Tuomas Heikkilä & Kirsi Vikman, 'Revealing Medieval Books' Dirty Little Secrets: Tracing Late-Medieval Use of a Breviary in Turku diocese', *Mirator* 2/24 (2025), 26–46.

Revealing the Dirty Little Secrets of Medieval Books: Tracing Late-Medieval Use of a Breviary in Turku diocese¹

TUOMAS HEIKKILÄ & KIRSI VIKMAN

This article examines the liturgical books used in the Turku diocese in the late 15th century, focusing on a Breviary printed by Anton Koberger in 1485. It argues that, based on the significant number of surviving copies in the Turku diocese, Koberger's Breviary—not the 1488 *Missale Aboense*—marked the initial step towards liturgical harmonisation in the region through the use of printed books. The article employs a method for quantifying the intensity of use of individual pages by assessing their levels of accumulated dirt. Applied to Koberger's Breviary, this method offers new insights into the most frequently consulted sections, thereby illuminating the practices surrounding the celebration of the liturgical office in the medieval Turku diocese.

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Christianity is a religion of the book. In the Middle Ages, the role of the Bible as the basis and paramount authority in religious matters was self-evident; however, it was the liturgical books that dictated the practices through which religion was manifested by the clergy to the faithful. The most important liturgical books were missals, needed for celebrating the mass, and breviaries, used to celebrate the divine office, i.e., the daily canonical hours. The local bishop was responsible for overseeing the liturgical practices within the diocese and for providing the parishes with the adequate, up-to-date books needed to celebrate the liturgy. Ideally, the liturgy within a bishopric was uniform; however, this standard was difficult to achieve during the era of hand-copied books. The development of the printing press in the mid-15th century promised a remedy for the disturbing diversity of liturgical books in use. It became possible to produce unprecedented amounts of affordable books with identical contents. Hence, the church embraced these novel possibilities enthusiastically.²

In this article, we focus on the earliest printed liturgical books used in the diocese of Turku (Åbo in Swedish). This area constituted the eastern part of the Swedish realm during the Middle

¹ We wish to thank especially Pentti Viluksela, D. Sc. (Tech.), (Metropolia University of Applied Sciences), Mika Hakkarainen, MA. and Marleena Vihakara, MA. (both from the National Library of Finland), Dr. Ilya Belevich and Dr. Eija Jokitalo (both from the Electron Spectroscopy Unit, University of Helsinki), Olli Saukko, MTh., Minna Vesa, MA., and Marta-Lovisa Bergman, MTh. We are deeply grateful to the two anonymous reviewers of this article for their invaluable comments.

² In general, see Natalia Nowakowska, 'From Strassburg to Trent: Bishops, Printing and Liturgical Reform in the Fifteenth Century', *Past & Present* 213:1 (2011), 3–39, <https://doi.org/10.1093/pastj/gtr012> (accessed 22.8.2024); Mary Kay Duggan, 'Politics and Text: Bringing the Liturgy to Print', *Gutenberg-Jahrbuch* 76 (2001), 104–117.

Ages, encompassing approximately the territory of present-day Finland. First, we bring a little-known literary monument into the scholarly spotlight by examining a breviary printed by Anton Koberger in 1485. Through the analysis of all ten surviving copies in Finland, we demonstrate that this work – rather than the 1488 *Missale Aboense*, as was commonly believed – marked the initial step in the liturgical harmonization project within the Diocese of Turku in the late 15th century.

Secondly, we quantify the intensity of use of the ten copies of Koberger's Breviary. Comparing the varying levels of dirtiness across the pages offers new insights into which contents of the book were most frequently consulted by readers. Our approach is an adaptation of Kathryn Rudy's method of studying the use of late medieval manuscripts.³ While Rudy has concentrated on the use of unique manuscripts, we apply the method to several copies of the same printed book. This sheds new light on the use of normative ecclesiastical books and the liturgical practices of the Turku diocese in the late 15th and early 16th centuries.

Harmonizing liturgical practices through printed books: *Missale Aboense*

In the late medieval diocese of Turku, the bishop and cathedral chapter sought to enhance liturgical uniformity through various means recognised throughout medieval Western Christianity. Most of the members of the local clergy received their liturgical training at the Turku cathedral, where they could also copy liturgical texts for their own and their parish's use. The best-known *liber ordinarius* of the medieval Swedish realm is probably the one from Linköping,⁴ but a multitude of fragments survive from a set of liturgical model books from Turku as well.⁵ Still, the outcome remained unsatisfactory, as parish priests frequently used liturgical books with varying content representing several liturgical traditions.⁶

In the Swedish realm, the diocese of Uppsala commissioned printed liturgical books first and most extensively, its book commissions including a missal, a psalter, a breviary, and a *manuale*. While none of the other six dioceses of the realm could boast such a variety of printed liturgical works, almost all of them ordered printed books for their liturgical use.

³ Kathryn M. Rudy, 'Dirty Books: Quantifying Patterns of Use in Medieval Manuscripts Using a Densitometer', *Journal of Historians of Netherlandish Art* 2:1–2 (2010), <http://doi.org/10.5092/jhna.2010.2.1.1>.

⁴ See Sven Helander, *Ordinarius Lincopensis c:a 1400 och dess liturgiska förebilder*, Bibliotheca theologicae practicae 4, Lund: Gleerup 1957. For an easy introduction to the liturgical books within the medieval Swedish realm, see Ingela Hedström, 'Religiös litteratur', in Jonas Nordin ed., *Kodex: Boken i medeltidens Sverige*, Mediehistoriskt arkiv: Lund 2022, 327–367, at 335–341.

⁵ E.g., remains of a 14th-century Parisian manuscript, probably commissioned by the Turku diocese: Helsinki, National library, F.m. VII.15 + Stockholm, National archives, Fr 25619 (Finska cameralia, 93:15 / Saköresregister 1564) = Kal 27, <https://fragmenta.kansalliskirjasto.fi/handle/10024/1460> (accessed 21.8.2024). On the other fragments possibly belonging to the same group, see Helsinki, National library, F.m. VII.67 (= Stockholm, National archives, MPO Codex 303 = CCM LeO 30, <https://fragmenta.kansalliskirjasto.fi/handle/10024/1512> (accessed 21.8.2024). See Tuomas Heikkilä, *Sankt Henrikslegenden*, Skrifter utgivna av Svenska litteratursällskapet i Finland 720, Svenska litteratursällskapet i Finland & Atlantis: Helsingfors & Stockholm 2009, 176–179 ("Ab"); Aarno Malin, *Der Heiligenkalender Finnlands Seine Zusammensetzung und Entwicklung*, Suomen kirkkohistoriallisen seuran toimituksia XX, Suomen kirkkohistoriallinen seura: Helsingfors 1925, 84–86. More generally, see, e.g., Tuomas Heikkilä, 'Tracing A Parisian Lectionary in Medieval Finland', in: M. Lennersand, Å. Karlsson, Å. & H. Klackenborg (eds.), *Fragment ur arkiven: Festskrift till Jan Brunius*, Skrifter utgivna av Riksarkivet 37), Svenska Riksarkivet: Stockholm 2013, 152–176.

⁶ Jesse Keskiäho, 'Liturginen järjestyminen', in Tuomas Heikkilä (ed.), *Kirjallinen kulttuuri keskiajan Suomessa*, Historiallisia Tutkimuksia 254, Suomalaisen Kirjallisuuden Seura: Helsinki 2010 (a), 92–104.

In 1488, the Bishop of Turku commissioned a printed missal for the needs of the diocese and its roughly 100 parishes. The work was entrusted to the hands of Bartholomeus Ghotan, a Lübeck-based printer, who had previously produced liturgical books for other Swedish dioceses. The short prologue of the missal elucidates the process of its commissioning and defines its contents. Conrad Bitz, the Bishop of Turku, explains that the missal manuscripts previously used in his diocese were too few and their contents too “corrupted”, i.e., too varied. The self-evident starting point for the contents of the printed missal was the *liber ordinarius* of Turku, but Daniel de Egher, a Dominican professor of theology in Paris, revised and corrected its text further. The liturgy of Turku diocese had followed a Dominican model since the early 14th century at the latest,⁷ and it was logical to entrust Daniel with the revision. He seems to have used the Dominican Missal printed in Venice in 1484 as an aid in correcting the text.⁸

The final product of the project is called *Missale Aboense*.⁹ It is a *missale plenum*, i.e., it contains all the texts needed to celebrate the mass, and was hence a practical book disseminated to the parishes. *Missale Aboense* has received much attention in Finnish scholarship as a landmark in Finnish literary history.¹⁰ However, the focus of later scholars on this earliest printed work, specifically commissioned to meet the needs of the Turku diocese, has diverted attention from its immediate predecessors – other printed liturgical texts that were imported into the diocese in substantial quantities and used similarly to harmonise liturgical practices across the parishes.

Focus on earlier liturgical incunabula

The first step in using printed works to make the liturgical practices more uniform was to order and disseminate books printed for other dioceses or with more general content, parts of which could be used directly or with minor changes as an aid to the liturgy of one’s own diocese. One such work that circulated in the diocese of Turku and more widely in Sweden was a psalter, *Psalterium latinum cum canticis*, printed by the same Bartholomeus Ghotan.¹¹ Numerous copies of its two

⁷ Keskiäho 2010 (a), 93; Malin 1925, 188–191.

⁸ *Missale Aboense*, Bartholomeus Ghotan: Lübeck 1488, fol. 1v; Martti Parvio (ed.), *Missale Aboense secundum ordinem fratrum praedicatorum 1488* [facsimile], WSOY: Helsinki 1971, facsimile page [1]. Martti Parvio, ‘Manuale Aboense 1522’, in *Manuale seu exequiale Aboense 1522. Editio stereotypa cum postscripto a Martti Parvio*, Suomen kirkkohistoriallisen seuran toimituksia 115, Suomen kirkkohistoriallinen seura: Helsinki 1980, 133–177, at 133; Martti Parvio, ‘Keskiäaikaisen messutraditiomme peruslähteet’, *Suomalaisen Tiedeakatemia esitelmät ja pöytäkirjat 1975*, Suomalainen Tiedeakatemia: Helsinki 1976, 173–183; Martti Parvio, ‘Missale Aboense tieteellisenä tutkimuskohteena’, *Turun historiallinen arkisto* 28 (1973), 113–130; Parvio 1971, 531–543; Aarno Malin, ‘Lisiä keskiaikamme historiaan III. Tietoja Daniel de Egher’istä, Suomen kirkon messuliturgian tarkistajasta 1480-luvulla’, *Historiallinen Arkisto XXXVI*, 1 (1928), 56–61. Explanations justifying the book project following the same lines can be found in a multitude of Nordic liturgical incunabula. See, e.g., Knut Peters (ed.), *Breviarium Lincopense*, Laurentius Petri sällskapets urkundsserie V:1–5, Laurentius Petri sällskapet: Lund 1950–1958, (2), 1–2; *Missale Lundense av år 1514*, Faksimiledition med efterskrift och register av Bengt Strömberg, Laurentius Petri sällskapets urkundsserie 4, Laurentius Petri sällskapet: Malmö 1946, fol. 1r; *Breviarium Scarense*, Nürnberg 1498, prologue.

⁹ ISTC im00644000; see <https://data.cerl.org/istc/im00644000> (accessed 2.9.2024) for further bibliography and codes in other incunabula catalogues.

¹⁰ E.g., Esko Häkli (ed.), *Kirja Suomessa*, Helsingin yliopiston kirjasto: Helsinki 1988.

¹¹ Edition printed in Magdeburg in 1481: ISTC ip01042400; see <https://data.cerl.org/istc/ip01042400> (accessed 2.9.2024) for further bibliography and other incunabula catalogues. Edition printed in Lübeck, not before 1485: ISTC ip01044700; see <https://data.cerl.org/istc/ip01044700> (accessed 2.9.2024) for further bibliography and other incunabula catalogues.

different editions have been preserved in Finland – in fact, more than anywhere else.¹²

Whereas both the printed missal and psalter were bought from Ghotan, a third printed liturgical work came from another source. Judging from the numerous extant copies of the work, a significant number of copies of a Dominican breviary printed by Anton Koberger in Nuremberg in 1485 was also systematically imported into the diocese.¹³ In equipping parish churches with essential printed liturgical books, a breviary complemented the broader liturgical framework. While the missal covered the texts for the mass, the breviary contained the texts for the divine office, or the daily liturgical hours.

There is evidence to suggest that the divine office was a longstanding weak point in the medieval liturgical life of Turku diocese. In spite of clear instructions emphasising the importance of the office, it is probable that the canonical hours were not celebrated regularly in the majority of parish churches in Turku diocese. The underlying reasons were probably practical difficulties due to the low number of clergy in the churches and therefore the preference for other liturgical genres when acquiring books.¹⁴ Importing a considerable number of Koberger's *Breviary* ended the era of irregularity in celebrating the divine office in Turku.

The significance of a breviary is underscored by its frequent status as the next printed book to be commissioned following the missal. Among the seven dioceses within the medieval Swedish realm, such was the case in Strängnäs (1495), Uppsala (1496), and Västerås (1513).¹⁵ In Linköping and Skara, in turn, the first commissioned printed work combined a missal and a breviary.¹⁶ Koberger's

¹² The information regarding the extant copies of the Psalter is incomplete in the ISTC. In Finland, there are four copies of the 1481 Magdeburg edition: Helsinki, National Library, C^o I 2, C^o I 3, C^o I 4, C^o I 14. Of the Lübeck non post 1485 edition, there are as many as 11 extant copies: Helsinki, National Library, C^o I 5, C^o I 7, C^o I 8, Ink. k. 121, Ink. k. 137, Ink. k. 138; and copies in the parish churches of Naantali, Piikkiö, Raisio and Vammala; as well as in the Åbo Akademi library. Cf. Wolfgang Undorf, *From Gutenberg to Luther: Transnational Print Cultures in Scandinavia 1450–1525*, Brill: Leiden 2014, 183. It should be noted that (unlike, e.g., ISTC) *Gesamtkatalog der Wiegendrucke, Stuttgart 1968–*, *GW Manuskript M36149*, <https://www.gesamtkatalogderwiegendrucke.de/docs/M36149.htm> (accessed 2.9.2024) states that the Lübeck edition was printed "um 1488". This has led Häkli (1988, 54) to think that the acquisition of the psalter was part of the commission of *Missale Aboense* in that year.

¹³ Incunabula short title catalogue (ISTC) ib01141300; see <https://data.cerl.org/istc/ib01141300> (accessed 28.8.2024) for further bibliography and codes in other incunabula catalogues.

¹⁴ On the use of old breviaries in Finland, cf. Tuomas Heikkilä, 'The Arrival and Development of Latin Literacy on the Edge of Europe: The Case Medieval Finland', in Lars Boje Mortensen and Tuomas M. S. Lehtonen, with Alexandra Bergholm (eds.) *The Performance of Christian and Pagan Storyworlds. Non-Canonical Chapters of the History of Nordic Medieval Literature*. Brepols: Turnhout 2013, 67–108, at 78–79.

¹⁵ See Joseph Freisen, *Manuale Lincopense, Breviarium Scarense, Manuale Aboense: Katholische Ritualbücher Schwedens und Finnlands im Mittelalter*, Verlag der Junfermannschen Buchhandlung: Paderborn 1904, XVII–XXXVIII. Isak Collijn, *Sveriges bibliografi intill år 1600*, Svenska litteratursällskapet: Uppsala 1934–1938, 128–132, 138–144, 148–154, 169–175, 221–226; G. E. Klemming, *Sveriges äldre liturgiska litteratur. Kungl. bibliotekets handlingar 1*. Kungliga biblioteket: Stockholm 1879, 20–27, 32–35; G. E. Klemming, *Sveriges bibliografi 1481–1600*, Svenska litteratursällskapet: Uppsala 1889, 51–64, 68–73, 105–108; Lauritz Nielsen, *Dansk bibliografi 1482–1550*, Det kongelige bibliotek: Kjøbenhavn 1919, 15–16.

¹⁶ Linköping: *Breviarium Lincopense*, Georg Stuchs: Nürnberg 1493; ISTC ib01164000; see <https://data.cerl.org/istc/ib01164000> (accessed 2.9.2024) for further bibliography and other incunabula catalogues; Collijn 1934–1938, 128–132; Freisen 1904, XVII–XXI; Helander 1957; Sven Helander, *Den medeltida Uppsalaliturgin: Studier i helgonlängd, tidegård och mässa*, Bibliotheca Theologiae Practicae 63. Arcus: Lund 2001; Klemming 1879, 20–22; Klemming 1889, 51–54; Aarno Maliniemi, 'Birgittalaisuudesta sekä katkemia Naantalin luostarin historiasta', in *Muistojulkaisu Naantalin 500-vuotisjuhlaan 1943*, Suomen kirja: Helsinki 1943, 13–120, at 57–58, 85–86; Hanns Bohatta, *Liturgische Bibliographie des XV. Jahrhunderts mit Ausnahme der Missale und Livres d'heures*, Wien 1911, 273. Skara: Breviarium Scarense, Georg Stuchs: Nürnberg 1498; ISTC ib01179000; see <https://data.cerl.org/istc/ib01179000> (accessed 2.9.2024) for further bibliography and other incunabula catalogues; Collijn 1934–1938, 169–174; Maliniemi 1943, 63, 91.

Breviary fulfilled this need for a uniform text in the Turku diocese.

In Finland – i.e., roughly in the area of the medieval diocese of Turku – Anton Koberger’s Dominican breviary survives in ten extant copies:

Shelf mark	Provenance
Helsinki, National Library, C IV 3	Unknown ¹⁷
Helsinki, National Library, C IV 4	Ilmajoki parish, medieval provenance Isokyrö parish (patron saint: Lawrence?) ¹⁸
Helsinki, National Library, C IV 6	Hollola parish (patron saint: Mary) ¹⁹
Helsinki, National Library, C IV 20	Kangasala parish (patron saint: Olaf?) ²⁰
Helsinki, National Library, C IV 21	Vesilahti parish (patron saints: Peter and Paul) ²¹
Helsinki, National Library, C IV 22	Unknown ²²
Helsinki, National Library, C IV 30	Unknown ²³
Helsinki, National Library, C ^o II 33	Loppi parish (part of Janakkala parish in the Middle Ages, patron saint: Lawrence) ²⁴
Porvoo, Borgå gymnasium library, s.s.	Unknown, possibly a parish in the eastern part of Turku diocese? ²⁵
Sastamala, Parish archives, s.s.	Tyrvää parish (patron saint: Olaf) ²⁶

In addition to these ten copies, the Finnish National Library incunabula C IV 5 and C IV 15 are almost identical, but originate from another edition of the Koberger Breviary.²⁷ It is possible that the needs of the diocese for a breviary were satisfied by supplying it with copies from two different editions of the work – just as was done with the Ghotan psalter mentioned above.

It is noteworthy that Finland clearly stands out in the provenances of the surviving copies of Koberger’s 1485 Breviary. In addition, two copies are known from elsewhere within the medieval

¹⁷ Wolfgang Undorf, *From Gutenberg to Luther: Transnational Print Cultures in Scandinavia 1450–1525* (Diss. Berlin), No. 624, <http://edoc.hu-berlin.de/dissertationen/undorf-wolfgang-2012-01-05/PDF/undorf.pdf> (accessed 28.8.2024); Heikkilä 2010, 352; Malin 1925, 59.

¹⁸ Undorf 2012, No. 618; Heikkilä 2010, 352.

¹⁹ Undorf 2012, No. 625; Heikkilä 2010, 352; Heikkilä 2009, 199–201; Malin 1925, 59.

²⁰ Undorf 2012, No. 621; Heikkilä 2010, 352; Heikkilä 2009, 206–208; Malin 1925, 59.

²¹ Undorf 2012, 184 ja No. 622; Heikkilä 2010, 352; Malin 1925, 59, 123. We would like to thank the staff of the National Library for the provenance information.

²² Undorf 2012, No. 623; Heikkilä 2010, 352; Malin 1925, 59.

²³ Undorf 2012, No. 620; Heikkilä 2010, 352; Malin 1925, 59.

²⁴ Undorf 2012, No. 619; Heikkilä 2010, 352; Malin 1925, 59.

²⁵ This previously unknown copy was identified by Marta-Lovisa Bergman in relation to our research project. According to Mr. Stefan Hagman, the librarian of the Borgå gymnasium library, the remains of this book were found in a trash bin of the school gym in the 1960s. The Breviary has no shelf mark, and it does not appear in the library catalogue (of 1906) or in the list of books donated to the library (ends in 1913). The copy lacks a considerable number of pages at both the beginning and the end, and its identification cannot have been easy prior to the digital ages. Since the 18th century, the clergy of Porvoo (Sw. Borgå) diocese were obliged to make donations to the Borgå gymnasium library, and it makes one wonder whether the provenance of the copy was one of the medieval parishes of eastern Finland.

²⁶ According to previous scholarship, the copy was in Tyrvää parish archives. See Undorf 2012, 362 No. 597; Heikkilä 2010, 352; Aarno Maliniemi, *Zur Kenntnis des Breviarium Aboense. Cod. Holm. A 56*, Documenta Historica 9, Academia scientiarum Fennica: Helsinki 1957, 16. The local medieval church accounts mention that the copy was bought in 1487; see Esko Häkli, ‘Ett nytt bokinstitut blir till?’, *Nordisk Tidskrift för Bok- och Bibliotekshistoria* 86:1 (2002), 120–122, at 120.

²⁷ See Parvio 1971, [531].

Swedish kingdom: Uppsala Universitetsbibliotek²⁸ and Kungliga Biblioteket in Stockholm.²⁹ The provenance of their use is unknown, and it is entirely possible that they were in use in the Turku diocese before the Reformation. In addition to these copies known from medieval Sweden, only a few copies or remains of them have been preserved, totalling 15.³⁰

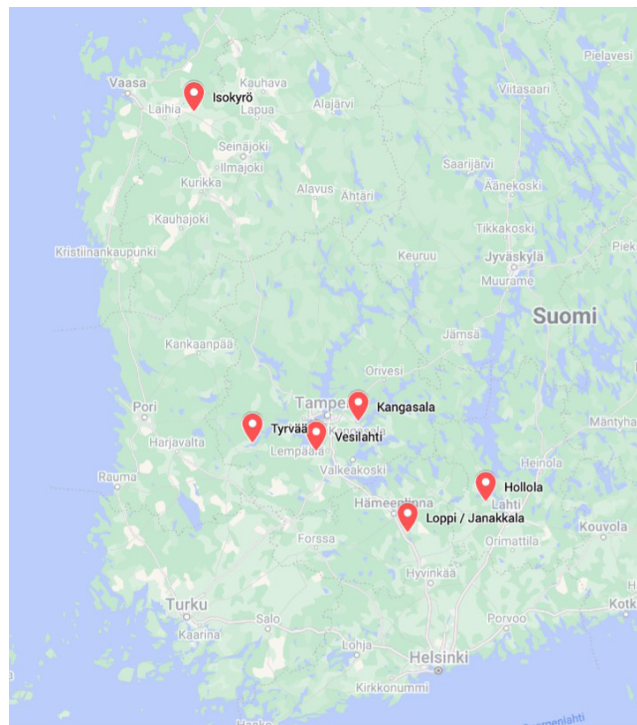
How many copies of the Breviary were brought to Turku diocese? The only known benchmark of an exact number of copies of a printed liturgical work commissioned by a Swedish bishopric in the late 15th century is the *Missale Strengnense*, the missal of the Strängnäs diocese. Its print-run of 170 copies, roughly 1.5 times the number of parishes within the bishopric,³¹ helps us estimate the approximate quantity of a liturgical book needed in a diocese of the size of Turku. While the number of copies surviving cannot be correlated with the number of Breviary copies printed or imported into Turku, the number of surviving copies indicates that the set of printed Koberger breviaries imported for use in the Turku diocese must have been substantial.

The known provenances of the copies of Koberger's Breviary are scattered across the medieval diocese of Turku, which also points to the deliberate distribution of the book as part of efforts to unify the liturgy and to stress episcopal authority.³²

How can the use of the Breviary be studied?

The study of the ten extant copies of Koberger's Breviary offers a hitherto unexplored insight into liturgical practices in the late medieval Turku diocese. By combining traditional historical research methods, book history and natural science, we are able to identify common usage patterns across all surviving copies of the Breviary in Finland. This allows us to understand how the book was actually used: which pages were consulted more frequently and which less so? Consequently, we can trace which parts of the Breviary were of particular importance to the clergy of the Turku Diocese and which were deemed less significant. As the Breviary was a liturgical work, analysing its usage patterns enhances our understanding of previously unknown late medieval liturgical practices in the Turku diocese.

Every reader browsing through the Breviary



Map 1. The known provenances of the Breviary within the medieval Turku diocese. Background map © 2024 Google.

²⁸ Uppsala, Universitetsbiblioteket, Ink. 35b:741

8:o. The copy was received from the Royal Library in Stockholm in 1958.

²⁹ Stockholm, Kungliga Biblioteket, Ink. 268.

³⁰ See data.cerl.org/istc/ib01141300 (accessed 28.8.2024). Most of the copies outside of Finland are in Germany.

³¹ Häkli 1991, 24; Ridderstad 1988, [18].

³² On the latter aspect, see Nowakowska 2011, 22–25.

left their mark on its pages (see Pic. 1), and these tiny traces are the key to understanding how the breviaries were read, and which contents were considered most important. The more important or interesting the contents of a leaf, the more frequently it was touched or turned, and the dirtier it became through the accumulation of microscopic dirt. And vice versa, the unimportant pages remained clean. Hence, the dirtier the leaf or page, the greater the likelihood that its contents were frequently used as a part of the liturgical practices of the office within the Turku diocese. While the results may not be entirely conclusive concerning the content of a single book, the consistent patterns observed across multiple books are likely to be reliable and yield new information.

This study owes a significant methodological debt to Kathryn M. Rudy, a pioneer of the modern multidisciplinary study of the use of medieval books. She employed a roughly similar approach over a decade ago, when she studied the practices of use of manuscript books of hours from c. 1460–1510.³³ Since then she has elaborated her methodology and moved towards a digital method.³⁴

In her work in 2010, Rudy used a densitometer – a device that measures the optical density, i.e., the degree of darkness, of a surface. The densitometer provided a way to quantify the dirtiness



Pic. 1. Visible traces of use on the pages of Helsinki, National Library, C IV 4.

³³ Rudy 2010.

³⁴ Kathryn M. Rudy, *Touching Parchment: How Medieval Users Rubbed, Handled, and Kissed Their Manuscripts*, Volume 1: Officials and their books, Open Book Publishers: Cambridge 2023, <https://doi.org/10.11647/OBP.0337>; Kathryn M. Rudy, *Touching Parchment: How Medieval Users Rubbed, Handled, and Kissed Their Manuscripts*, Volume 2: Social Encounters with the Book, Open Book Publishers: Cambridge 2024, <https://doi.org/10.11647/OBP.0379>. It should be noted that close collaboration between our group and Dr Ilya Belevich and Dr Eija Jokitalo from the Electron Microscopy Unit at the University of Helsinki is leading to the development of a more efficient, faster, and accurate method for quantifying traces of use. This method is based on the utilisation of the Microscopy Image Browser (MIB), a high-performance MATLAB-based software package designed for advanced image processing. The method will be detailed in Kirsi Vikman's forthcoming doctoral dissertation.

of certain parts of pages and thus how the books were held by their users, how they were browsed, which parts were read more frequently than others, and so on. Rudy's results show that the users could hold and read the books in different ways: in some works, the user's marks were clearly in the middle of the book, in others on the edges of the pages. Books were not read from cover to cover, some texts being used more than others.³⁵ For our study, in which all the copies studied are of the same format, the latter finding is of particular importance.

The method applied in this article follows roughly the same procedure as Rudy's previous studies. The main difference is the material considered: whereas Rudy has concentrated on different manuscript books and aimed to find various inadvertent and targeted traces of reading, we focus on ten copies of the same printed book to find a pattern that would reveal the most used contents. As the printed books were produced in multiples, they allow systematic comparison across a number of copies. By applying the method to Koberger's Breviary, we are tracing a shared way of using the book in order to reconstruct the normative liturgical practices underlying the use of its text.

To get objective comparable data from a large number of pages one needs specialized tools instead of the naked eye. Rudy used a densitometer in her studies, while we opted for a spectrophotometer.³⁶ While its operating principle is the reverse of a densitometer, there is no real difference between these tools from the viewpoint of reconstructing the usage pattern of a book.

It does not make sense to examine the dirtiness of the pages in relation to a single reference value, such as absolute white. On the one hand, different pages of the same book have been exposed to the ravages of time in different ways – for example due to mechanical wear or exposure to moisture, which is reflected in the varying dirtiness of the pages. On the other hand, the products of late medieval paper mills were not always of uniform quality, and several different batches of paper could be used for the same book.³⁷ As all pages of the Koberger Breviary are today dirtier than they were in 1485, we must content ourselves with examining as clean an area of the page as possible. Having made a number of series of multiple measurements, we can state that the dirtiest parts of the page were consistently located on the lower outer corners, while the cleanest values were to be found on the upper part of the inner margin.

The dirtiness observed in the lower outer margins of the pages reveals how the late medieval readers interacted with their books. When a book was read from the beginning to the end, i.e., from left to right, it was natural for a right-handed reader to turn the page so that their thumb touched the lower outer corner of the right-hand page of an opening – and thereby leaving a mark on it. As a

³⁵ Rudy 2010, 1–4, *passim*. On the various ways of and motives for touching books, see, e.g., Rudy 2024, 29–43. She gives a number of examples of traces of use in Rudy 2023; Rudy 2024.

³⁶ A spectrophotometer measures the reflectivity of light from the surface of a material. The more light the surface reflects, the lighter the human eye perceives it, while the more light a surface absorbs, the darker it appears. The spectrophotometer converts this observation into comparable numbers relative to absolute white. In practice, spectrophotometer reading L^* (lightness): 100.00 means absolute white, smaller readings are the ratio to it. We used a GretagMacbeth SpectroEye spectrophotometer. This was thanks to the invaluable advice from Dr Pentti Viluksela from the Metropolia University of Applied Sciences (Helsinki), for which we are very grateful.

³⁷ Keeping this caveat in mind, we determined the standard deviation of the “clean reference value” of the pages. It turned out to be rather small, typically 1.1–1.8% (the highest value of 2.06% was in the Hollola copy). A small standard deviation clearly correlates with low usage, while a larger standard deviation correlates with greater usage. This is logical, as usage exposed the pages to dirt elsewhere than on the outer lower corners.

result, the lower outer corner of the recto side of the leaf is practically always dirtier than the corresponding area on the *verso* side of the leaf. In fact, the dirtiness of the right-hand page of an opening can indicate the use of either the entire opening or the texts on the left or right page of the opening.

During the next phase of our study, we measured both “dirty” and “clean” values for each page. By subtracting the latter value from the former, we were able to calculate a relative value for the dirtiness, i.e., the intensity of use of the page:³⁸

$$V_c - V_d = V_u$$

Consequently, the dirtier pages – indicative of more frequent browsing and use – yield higher values than those with a lower intensity of use. It should be mentioned that we made notes of all handwritten additions, damage through wear and tear, and later restorations on the pages of the Breviary, as they often affect the observed dirtiness of the pages. In many cases, they testify to the interest in the text and to the intensive use of the page in question and are thus of interest in their own right. However, we tried to avoid taking measurements in areas with obvious stains and restorations, as they would have resulted in uncertain and non-comparable values.

The measurements described here concentrated on the *sanctorale* section of the ten copies of the Koberger Breviary, covering the entire liturgical year. As Anton Koberger put the 1485 Breviary together from various parts, it does not have a coherent numbering of pages or folia. To address this issue, we refer to the image numbers of the digitised copy of the Breviary in the Bayerische Staatsbibliothek (BSB).³⁹ Consequently, the measured passage covers pictures / “pages” 419–752 of the work. In all, the passage covers 334 pages, and we measured them in all copies, when applicable (which was not always the case, since several copies contain *lacunae*).⁴⁰

Since the *sanctorale* contains texts of the feasts of saints of the liturgical year, studying it can contribute to a better understanding of how the offices of the saints were celebrated in the late medieval Turku diocese. This selection allows a comparison with the extant liturgical calendars from various parishes of the bishopric, not the least with that of the *Missale Aboense* from 1488. The texts themselves are not only linked with the study of liturgy but also more broadly with the cults of saints, making the results of wider interest.

We entered the results of the V_c (clean value) and V_d (dirty value) measurements for each page into a digital spreadsheet, after which it was easy to calculate V_u (usage value) showing the intensity of page use. For clarity, the V_u values of each page can be represented in a graph visualizing the changing dirtiness and use of the pages of a copy of the Breviary (for an example, see Fig. 2). Based

³⁸ V_c = “clean” value from the upper inner margin of the page; V_d = “dirty” value from lower outer margin; V_u = the value indicating the intensity of use of the page.

³⁹ München, Bayerische Staatsbibliothek, Inc. c.a. 23, <https://app.digitale-sammlungen.de/bookshelf/bsb00043318/> (accessed 19.12.2024). It should be noted that the sequence of pages [676]–[690] is incorrect in the BSB copy. The correct sequence of the passage is as follows: [680]–[683], [676]–[678], [687]–[690], [684]–[686].

⁴⁰ C IV 30 includes pages / pictures [419]–[672]; C IV 3 contains [419]–[692], [695]–[722], [727]–[752]; C IV 20 includes pp. [419]–[426], [429]–[530], [533]–[702], [705]–[752]; C IV 21 has pp. [419]–[704], [707]–[750]; C IV 6 includes pp. [431]–[752]; Cö II 33 has pp. [419]–[420], [433]–[436], [439]–[446], [451]–[750]; C IV 22 contains pp. [419]–[510], [517]–[666], [671]–[684], [687]–[720], [723]–[752]; C IV 4 has pp. [419]–[656], [661]–[690], [695]–[718], [725]–[728]; the Porvoo copy contains pp. [421]–[430], [437]–[594]; the Sastamala copy has pp. [419]–[688]. In some isolated cases, individual pages were so heavily restored that measuring their use would provide no information value whatsoever and were thus left out of our material.



Pic. 2. A pair of pictures showing the striking difference of use on two consecutive spreads of the same copy: Helsinki, National Library, C^o II 33, pp. [542]–[543] and [544]–[545].

on the V_u values of all copies, we also calculated a page-by-page value showcasing the average use of each page across all copies. The graph based on these average values (see Fig. 6) visualizes the overall usage pattern of the Breviary, as evidenced by the ten extant copies.

Before proceeding to interpret the results, the central question of the period of time the dirt on the pages came from had to be addressed. Are we dealing with medieval or post-medieval use of the copies? As the dirt cannot be precisely dated, the question is highly relevant for the usefulness of this kind of research approach as a whole. Still, in our case it is safe to state that the traces of use are almost entirely medieval. The Protestant Reformation that began in the Swedish realm officially in 1527 meant that the Latin breviaries soon fell out of use and remained in the parish libraries as antiquarian books with no practical purpose. Undoubtedly, they may have been browsed from time to time, and some individual traces of use may date from post-medieval period, but they do not distort the overall picture based on the comparison of the patterns of use of all ten copies of the Breviary. As we shall see, the usage pattern is similar from one copy to another, which shows that the dirt mainly comes from medieval readers and not later random browsers of the leaves.

The Use of the Breviary: Insight into the Liturgy of the Office

A breviary is a liturgical book containing the texts used in the daily office of the hours. Taking the local circumstances of Turku diocese – in which there were roughly one hundred parishes and perhaps as few as 150 clergymen – into account, it is obvious that the parishes did not celebrate the liturgical office in its entirety. In practice, the office celebrated must have been a limited selection from possible feasts and texts, probably read and sung by the local clergy more or less for themselves in order to be qualified to celebrate the mass.⁴¹ Performing every office of every feast would just have been impossible for the clergy of a parish, often just a single priest.

Selecting the feasts to celebrate took place within the framework of the liturgy of the whole diocese, and it is reasonable to assume that the Koberger Breviary was read, and offices celebrated approximately the same way from one parish to another. A glance at the usage patterns of individual copies of the breviary confirms the hypothesis that the most frequently used and the least handled pages remained practically the same from one copy to another. One good example appears across three consecutive spreads: pages [540]–[541], [542]–[543], and [544]–[545] (see Figs. 1–2). Pages [536]–[543] contain texts on St Vincent Ferrer, who was not a prominent saint in the liturgy of the Turku diocese, as evidenced by his omission in the *Missale Aboense* calendar and the limited use of these pages in Koberger Breviary. In contrast, pages [544]–[545] contain liturgical instructions for the Easter season, which were frequently consulted. As highlighted in Fig. 2, all copies of the Breviary share these features.

As highlighted below (Figs. 1–2), not all copies of the Breviary were used with the same intensity. This is reflected in the varying average dirtiness of the pages (see Fig. 3). The dirtiest can be found on C^o II 33, C IV 6, C IV 4 and C IV 22, whereas the cleaner pages of Porvoo copy, Sastamala, C IV 21 and C IV 3 testify to a less intensive local use.⁴² The varying degree of dirti-

⁴¹ See Jesse Keskiäho, 'Seurakuntien ja seurakuntapappien kirjat', in Tuomas Heikkilä (ed.), *Kirjallinen kulttuuri keskiajan Suomessa*, Historiallisia Tutkimuksia 254, Suomalaisen Kirjallisuuden Seura: Helsinki 2010 (b), 256–267, at 256–257.

⁴² The average V_u of individual copies: 20,47 (C^o II 33), 19,52 (C IV 6), 19,44 (C IV 4), 18,50 (C IV 22) 13,88 (C IV 30), 12,40 (C IV 20), 9,97 (C IV 3), 9,61 (C IV 21), 6,97 (Sastamala), 6,77 (Porvoo).

Page	536	537	538	539	540	541	542	543	544	545
C IV 30	7,01	7,91	9,17	11,48	9,36	9,02	8,7	15,32	28,49	27,14
C IV 3	8,56	7,57	5,23	6,45	8,16	8,18	8,82	9,44	17	20,76
C IV 20	4,18	5,33	2,04	2,7	3,68	3,76	4,08	6,44	14,58	26,03
C IV 21	1,62	1,05	1,01	0,21	0,73	0,94	0,09	2,77	12,91	10,69
C IV 6	16,89	19,72	16,58	18,93	17,17	18,8	17,24	22,48	34,25	34,27
Cö II 33	11,84	10,4	7,93	7,59	7,6	6,73	8,58	12,47	35,44	35,35
C IV 22	9,87	6,42	7,18	5,85	6,26	4,59	6,17	9,14	30,49	32,14
C IV 4	12,49	10,73	11,18	8,56	9,26	12,48	14,61	15,91	35,13	36,12
Porvoo	2,65	1,74	0,46	0,75	0,87	2,3	1,72	3,15	21,27	16,28
Sastamala	9,84	8,99	10,72	7,81	8,39	10,18	12,89	12,76	13,86	19,84

Fig. 1. V_u values of all ten copies across pages [536]–[545]. Colour has been added to illustrate differences in dirtiness / usage. The deeper the red, the less the page has been used; the deeper the green, the more extensively the page has been used.

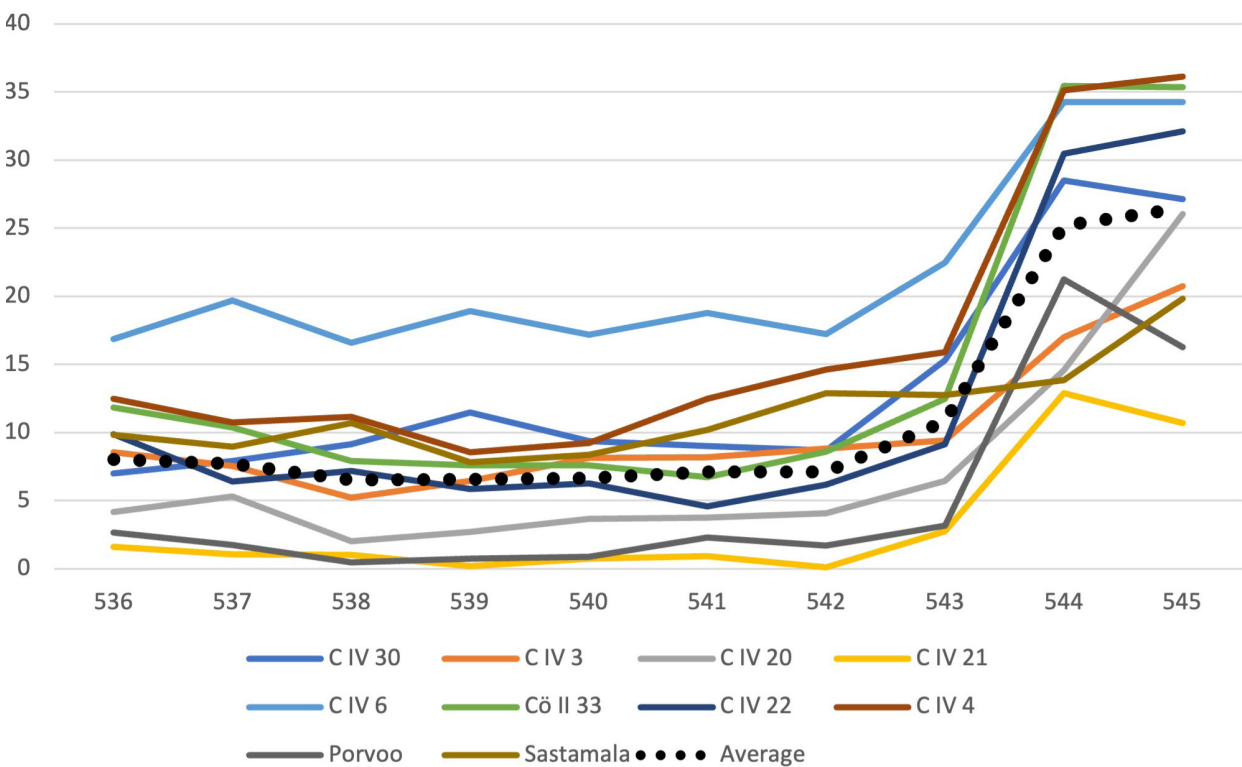


Fig. 2. A graph depicting the dirtiness / usage of pages based on the V_u values in Fig 1. Along with the lines representing the use of individual copies, an average value calculated from the V_u values of all copies is shown as a dotted line.

ness between the copies may, of course, depend on both the overall use of the copy over the course of the decades before the Reformation and on the practices of individual users of the books. We cannot know if the priests of one parish washed their hands consistently before every mass, or if one priest’s hands were always dirty. Luckily, such factors do not affect our results, as all copies

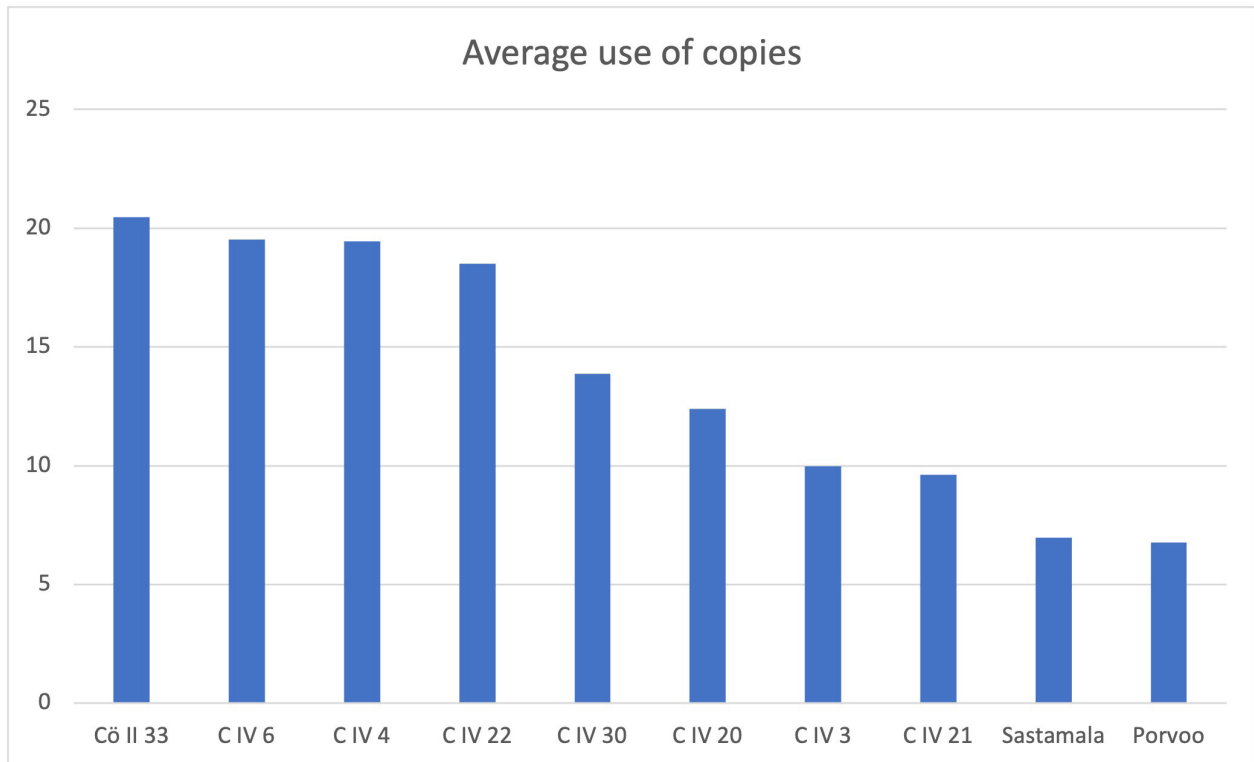


Fig. 3. The average intensity of use of individual copies. The numbers show the average V_u values of each copy.

reveal quite similar patterns of usage.

The similarity in usage across all copies can be analysed statistically. In Fig. 4, we calculated the Pearson correlation coefficient (r), a measure that quantifies the correlation between two data sets, for all ten copies.⁴³ The value of r ranges from -1 to +1, where -1 indicates perfect negative correlation and +1 represents perfect positive correlation. Higher r values between two copies of the Breviary indicate greater similarity in usage patterns.

All values of r are positive and thus testify to at least moderate positive correlation between all pairs of copies.⁴⁴ In fact, most pairs imply strong positive correlation: if a page is frequently used in one copy, it is bound to be used in another, and the same applies vice versa to the least used parts of the book. There are several pairs in which the positive correlation is obvious. For instance, the use of copy C IV 4 (from Isokyrö) correlates strongly or very strongly with that of other copies, and the same applies to Sastamala and C IV 30 (provenance unknown) copies. At the other end of the scale, copy C IV 6 (from Hollola parish) shows least positive correlation with the other copies, but even in this case the positive correlation is moderate. In other words, all ten copies of the Breviary testify to a shared way of using the book and concentrating on certain parts of it, thus representing a new piece of evidence in deciphering the liturgical practices in late medieval Turku diocese.

This study uses the *sanctorale* cycle of the Koberger Breviary as its testbed and thus focuses

⁴³ As noted above, several copies contain lacunae. In such cases, the correlation was calculated using only data points where corresponding values in both datasets (i.e., the two copies being compared) were available. Given that the number of available data points far exceeds the missing ones, the calculation remains both valid and representative.

⁴⁴ While there cannot be exact numeric thresholds for positive correlation within a humanities study like this, we loosely follow these widely used definitions: weak ($r=0.1$ to 0.2), moderate ($r=0.3$ to 0.4), strong ($r=0.5$ to 0.7), and very strong correlation ($r=0.7$ to 1.0).

C IV 3	x										
C IV 4	0,70	x									
C IV 6	0,56	0,48	x								
C IV 20	0,59	0,79	0,50	x							
C IV 22	0,54	0,66	0,37	0,59	x						
C IV 30	0,67	0,77	0,48	0,72	0,65	x					
Cö II 33	0,60	0,66	0,57	0,56	0,63	0,62	x				
Porvoo	0,64	0,72	0,47	0,63	0,61	0,70	0,72	x			
Sastamala	0,64	0,76	0,37	0,73	0,66	0,69	0,64	0,62	x		
C IV 21	0,58	0,66	0,35	0,55	0,62	0,67	0,62	0,54	0,70	x	
	C IV 3	C IV 4	C IV 6	C IV 20	C IV 22	C IV 30	Cö II 33	Porvoo	Sastamala	C IV 21	

Fig. 4. Pearson correlation coefficient between the usage patterns of pairs of Breviary copies.

on the celebration of non-movable feasts of the ecclesiastical calendar. Due to the varying degree of use of individual copies, the numeric values describing the use are not comparable as such. Our answer to this challenge is twofold. On the one hand, we calculate four categories of use in individual copies of the Breviary; most used 10%, most used 20%, least used 20%, and least used 10% of the pages. This allows us to compare the most and least popular feasts across the copies. On the other hand, we monitor the same categories in the calculated average of the values across all ten copies, which offers insight into the most and least popular feasts overall. The outcomes of these two approaches are nearly identical.

Unpopular Feasts

Let us first concentrate on the least frequently used pages of the copies and find out what kinds of text or which feasts can be found on them. Among the least used 10% of the pages of the *sanctorale* we find following content and liturgical feasts (see Fig. 6):

- general instructions about celebrating various feasts
- the *translatio* of Thomas Aquinas (28.1.)
- the *translatio* of Mark the Evangelist (31.1.)
- Vincent Ferrer (5.4.)
- Catherine of Siena (29.4.)
- Peter the Martyr (29.4.)
- the *translatio* of Dominic (24.5.)
- Barnabas (11.6.)
- Sebastian (19.6.)
- Dominic (5.8.).⁴⁵

When we broaden our scope to cover the least used 20% of the pages, the list of apparently unimportant feasts grows with the feasts of:

⁴⁵ It should be noted that the neglect of these texts alone undermines Parvio's theory (1971, 539–541), which posits that all the texts included in the *Missale Aboense* were important and used in the local liturgy. Of the 9 least used feasts of the Koberger Breviary, *Missale Aboense* contains its own *officia* for 6 of them (the *translatio* of Thomas Aquinas (28.1.), Vincent Ferrer (5.4.), Peter the Martyr (29.4.), the *translatio* of Dominic (24.5.), Barnabas (11.6.), and Dominic (5.8.)).

- the Sanctification of the Virgin Mary (8.12.)
- Anthony the Abbot (17.1.)
- Vincent (22.1.)
- Agatha (5.2.)
- Benedict (17.2.)
- the Annunciation of the Virgin Mary (25.3.)
- Margaret (20.7.)
- Mary Magdalene (22.7.)
- Jacob the Apostle (25.7.)
- Felix (29.7.).

The breviary has long sections, which have naturally been used but infrequently. For instance, the instructions for performing the liturgy of saints' feasts seem not to have been read often.⁴⁶ Moreover, the book was originally prepared for the use of the Dominican order, and not all its sections were of interest in Turku. On the least used pages there are saints' feasts which were clearly not celebrated with special enthusiasm in the diocese, if at all. Interestingly, in light of the traces of use, the least used section falls on the translation feast of Saint Dominic, the founder of the Dominicans (24.5.).⁴⁷ In fact, this feast is not found in the 1488 *Missale Aboense* calendar either.

Considering the traditional view of scholars that Turku medieval liturgy was markedly Dominican,⁴⁸ it is striking that the list of the *least celebrated contents* includes the most important Dominican feasts: both feasts of St Dominic himself, those of Thomas Aquinas, Catherine of Siena (canonized only in 1461) and Peter the Martyr, and that of the younger Dominican saint Vincent Ferrer (canonized only in 1455). Naturally, there are differences between the use of single copies, and the readers of C IV 6 (from Hollola) and C^o II 33 (from Loppi/Janakkala) have eagerly browsed the pages containing the feast of St Dominic (see Fig. 5) – but not those containing the Dominican liturgy for Thomas Aquinas or Catherine of Siena, for instance.

This overall neglect of markedly Dominican liturgical feasts of the late medieval Finnish readers highlights that of the many printed liturgical works of the incunabula era, the dioceses bought liturgical books that were put together from parts originally designed for use elsewhere. Hence, the parish clergy only used a selection of texts suitable for local liturgical needs. The Koberger Breviary of 1485 was originally printed for the use of the Dominican order, and its contents were therefore “too Dominican” for the Finnish parishes. In one of our copies, this is demonstrated in a very literal way: In C IV 21 from Vesilahti parish, most typically Dominican feasts have been crossed out in the calendar.⁴⁹

A look at the calendar of *Missale Aboense*, printed for the use of Turku diocese in 1488, confirms the hypothesis about the big picture further. The feasts of Thomas Aquinas, Vincent Ferrer, Catherine of Siena, and the *translatio* of Dominic are not included in its calendar at all, that of Peter the Martyr has a lowly liturgical grade of *simplex*, and the feast of Dominic is celebrated

⁴⁶ E.g., pages [420]–[429].

⁴⁷ Page [572].

⁴⁸ See, e.g., Keskiäho 2010a, 93–95; Parvio 1971, 544; Malin 1925, 188–191.

⁴⁹ See Malin 1925, 123.

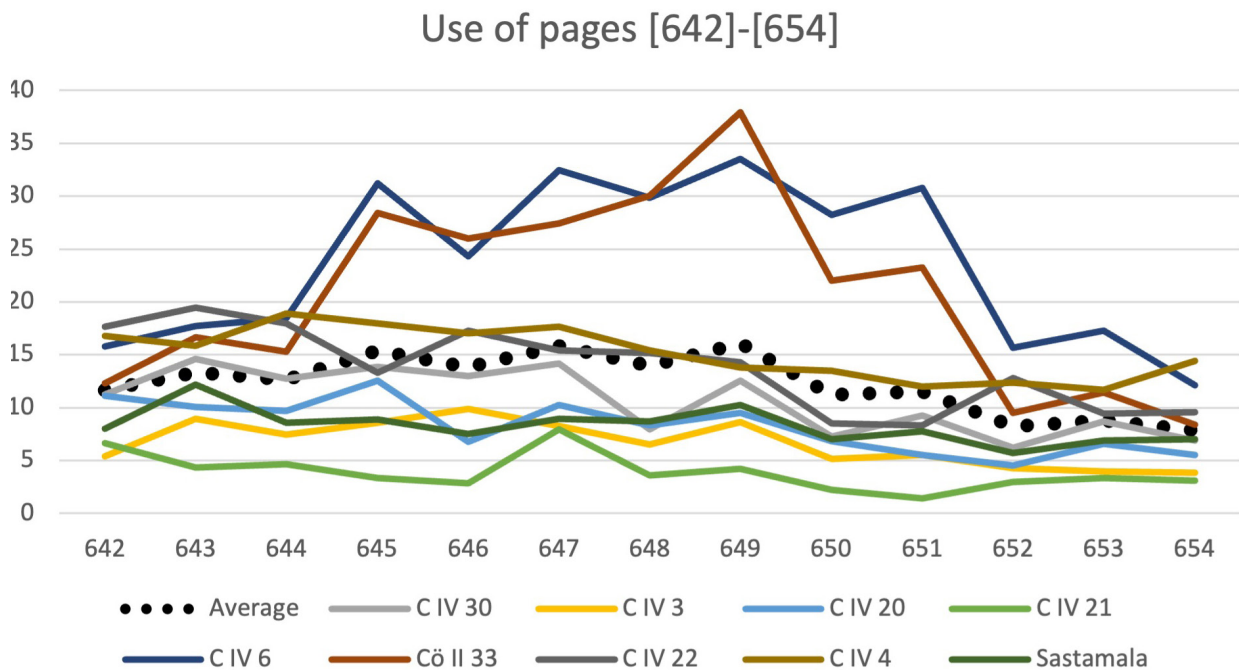


Fig. 5. The graph of page usage ([642]–[654]) across individual copies reveals that the texts for the feast of St Dominic ([645]–[651]) were significantly more popular among the readers of C IV 6 and C^s II 33 than those of other copies.

according to *duplex*, the second-highest grade.⁵⁰ Hence, the Turku liturgy of the late 15th century may not have been as Dominican as has traditionally been claimed.

The Most Popular Feasts

What, then, were the contents of the Koberger Breviary that were of most interest to the readers in the Turku diocese? Among the top 10% of the texts (see Fig. 6), we find many feasts that were celebrated throughout Latin Europe in the late Middle Ages:

- John, Apostle and Evangelist (27.12.)
- the Innocents (28.12.)
- Thomas (Becket) of Canterbury (29.12.)
- John the Baptist (24.6.)
- the Visitation of Mary (2.7.)
- Lawrence (10.8.)
- the Assumption of Mary (15.8.)
- Augustine (28.8.)
- the Nativity of Mary (8.9.)
- Michael (29.9.) – the most used text of the whole *sanctorale*
- Francis (4.10.)
- All saints (1.11.)
- Martin (11.11.)
- Cecilia (22.11.)
- Catherine of Alexandria (25.11.).

⁵⁰ For a quick look at the calendar of *Missale Aboense*, see the facsimile edition: Martti Parvio (ed.), *Missale Aboense secundum ordinem fratrum praedicatorum 1488*, WSOY: Helsinki 1971.

Broadening the focus to 20% of the most browsed pages introduces some more feasts: Andrew (30.11.), the purification of Mary (2.2.), the decollation of John the Baptist (29.8.), *exaltatio crucis* (14.9.), Jerome (30.9.), and a feast around 19.–20.11. The latter may be the feast of St Elisabet (19.11.) or more probably the *missa votiva de omnibus sanctis* (20.11.), a late 15th century local addition to the liturgical calendar.⁵¹

The comparison of our finding to the charters dated by saints’ feasts in late medieval Turku diocese, or to the known patron saints of the local churches reveals no great surprises either. In all, the most popular patron saints of the Finnish medieval churches were saints Olaf (at least 14 churches dedicated to him), Mary (12), Michael (9), Lawrence (6), and Birgitta (5). Tracing the trends in local veneration of saints roughly in the period of our Breviary, we may conclude that during the latter part of the 15th century churches were dedicated to two of the saints of the most popular feasts: Lawrence, and Catherine of Alexandria, one for each saint. St Birgitta was more popular as a new patron saint of churches (3 churches dedicated to her), but the Koberger *Breviary* does not contain her office.

As to dating charters by a saint’s feast in Turku diocese in 1455–1530, the most popular days were those of Henry of Uppsala (20.1.), Margaret, Martin, Eric of Sweden, Olaf of Norway, Michael, and John the Baptist.⁵² The absence of the popular Henry, Eric, and Olaf in the most read contents of the Breviary is explained by them being local Nordic saints who were not venerated much outside of the Nordic realms. Hence, they were not included in the generally Dominican contents of the Koberger Breviary, but their texts were rather added as a separate annex to the whole (see below). However, it is interesting that the feast of the apparently quite popular Margaret (13.7.) does not seem to have been read enthusiastically by the users of the Breviary. Still, the frequency with which documents were dated on a specific day was always influenced by various factors, among which the popularity of the day’s saint was only one.

The Missal printed for Turku bishopric, *Missale Aboense*, is an obvious point of comparison

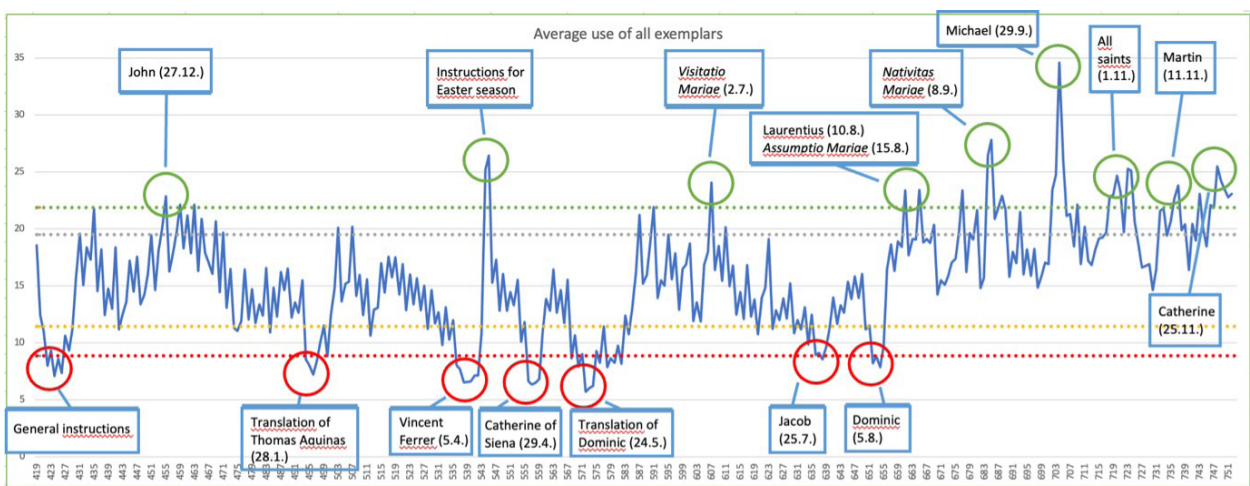


Fig. 6. Average use of all copies. Dotted lines indicate the level of use. Green = most used 10%; grey = most used 20%; yellow = least used 20%; red = least used 10% of pages.

⁵¹ Cf. Keskiäho 2010a, 97–98.

⁵² The information is based on the analysis of *Diplomatarium Fennicum* database (<http://df.narc.fi>, accessed 16.8.2024). There are (at least) 22 charters dated on the feast of St Henry, 21 on Margaret’s, and 15 on Martin’s feast. Michael has 14 hits, Eric, and Olaf 13 each, and John the Baptist 12.

to the just slightly older Breviary. Although the comparison does not yield significant new results as such, the clear similarities between the findings of our Breviary analysis and the content of the *Missale Aboense* demonstrate that our results are credible.

All the above-mentioned feasts – with the exception of that of Elisabet – are included in the calendar of *Missale Aboense*, and the *proprium de sanctis* of the missal contains *officia* for all of them.⁵³ Interestingly, not all feasts marked with the highest liturgical degree (*totum duplex*) in the missal were among the most used content of the Breviary. These include Epiphany (6.1.), Thomas Aquinas (7.3.), the Annunciation of Mary (25.3.), and Peter and Paul (29.6.).⁵⁴

In his seminal study about *Missale Aboense*, Martti Parvio compared the contents of the calendar and *proprium de sanctis* of the missal, showing that the actual text of the missal contained 17 liturgical feasts that were not included in the calendrical material that represented previous local tradition.⁵⁵ His conclusion was that these were to a large degree relatively new feasts that the leaders of the bishopric tried to introduce into local use through including them in the missal.⁵⁶ Be that as it may, looking at the use of slightly older Koberger Breviary makes it evident that the feasts lacked almost any previous tradition in Turku, almost all texts related to them being among the least used of all.⁵⁷ As none of the feasts mentioned attained more popularity in Turku later on, it is more probable that their inclusion in the *Missale Aboense* had to do with the practice of its printer Bartholomeus Ghotan putting the missal together from various parts that had been printed before. This inevitably resulted in including texts that were of little relevance to the Turku diocese.⁵⁸

Looking at the Koberger Breviary alone does not yield a full picture of celebrating the office in the late medieval Turku diocese. As we have seen, there is not much local flavour in the most read content of the Breviary, as it was originally intended for more general Dominican use. In fact, a comparison between the most important feasts of the local calendrical tradition and that of the Breviary reveals striking differences. Of the 27 feasts marked with the highest liturgical grade (*totum duplex*) in the *Missale Aboense* calendar, only 11 seem to have been generally celebrated with a liturgical office by the users of the Breviary. On the other hand, the most popular feasts of the Breviary do not directly correspond to any of the medieval calendars from Turku diocese as

⁵³ Parvio 1971, [533]–[538].

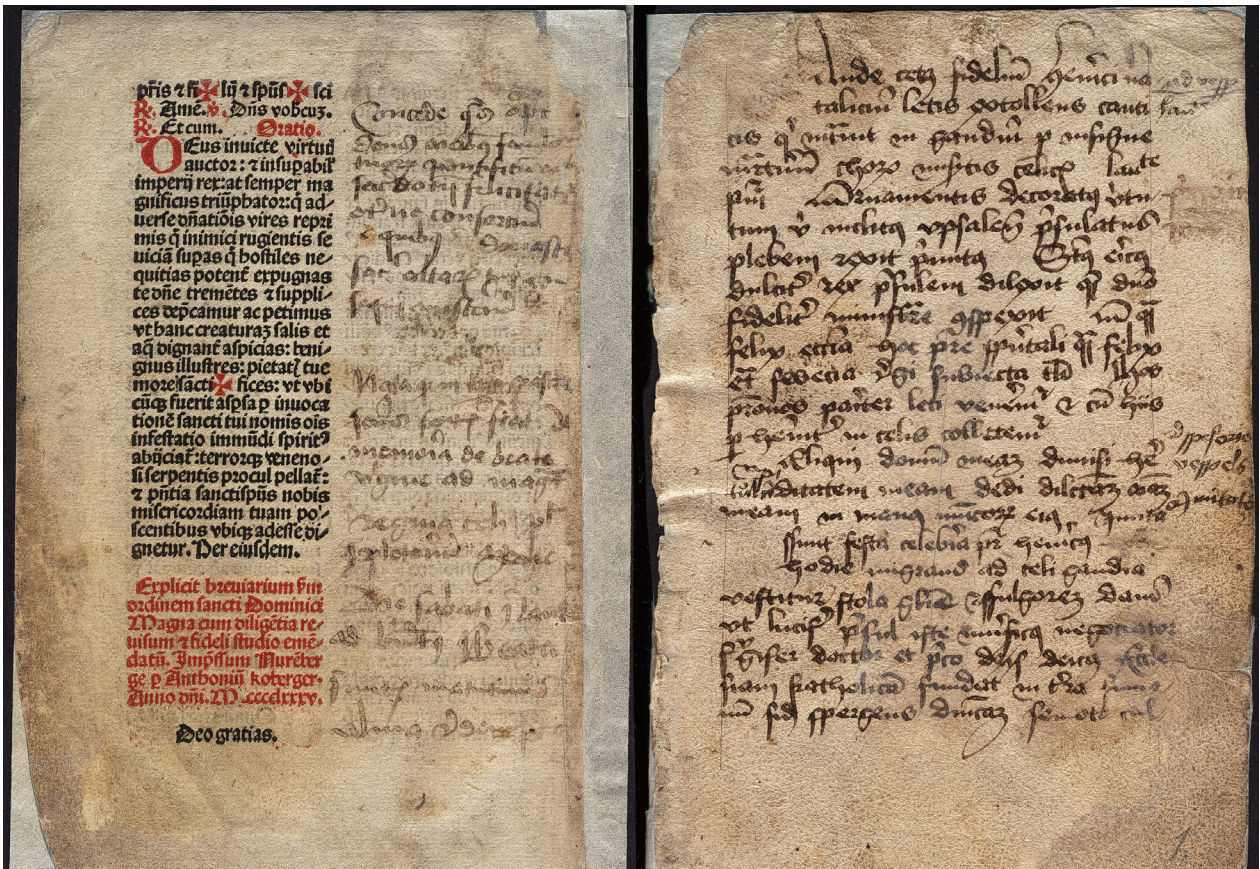
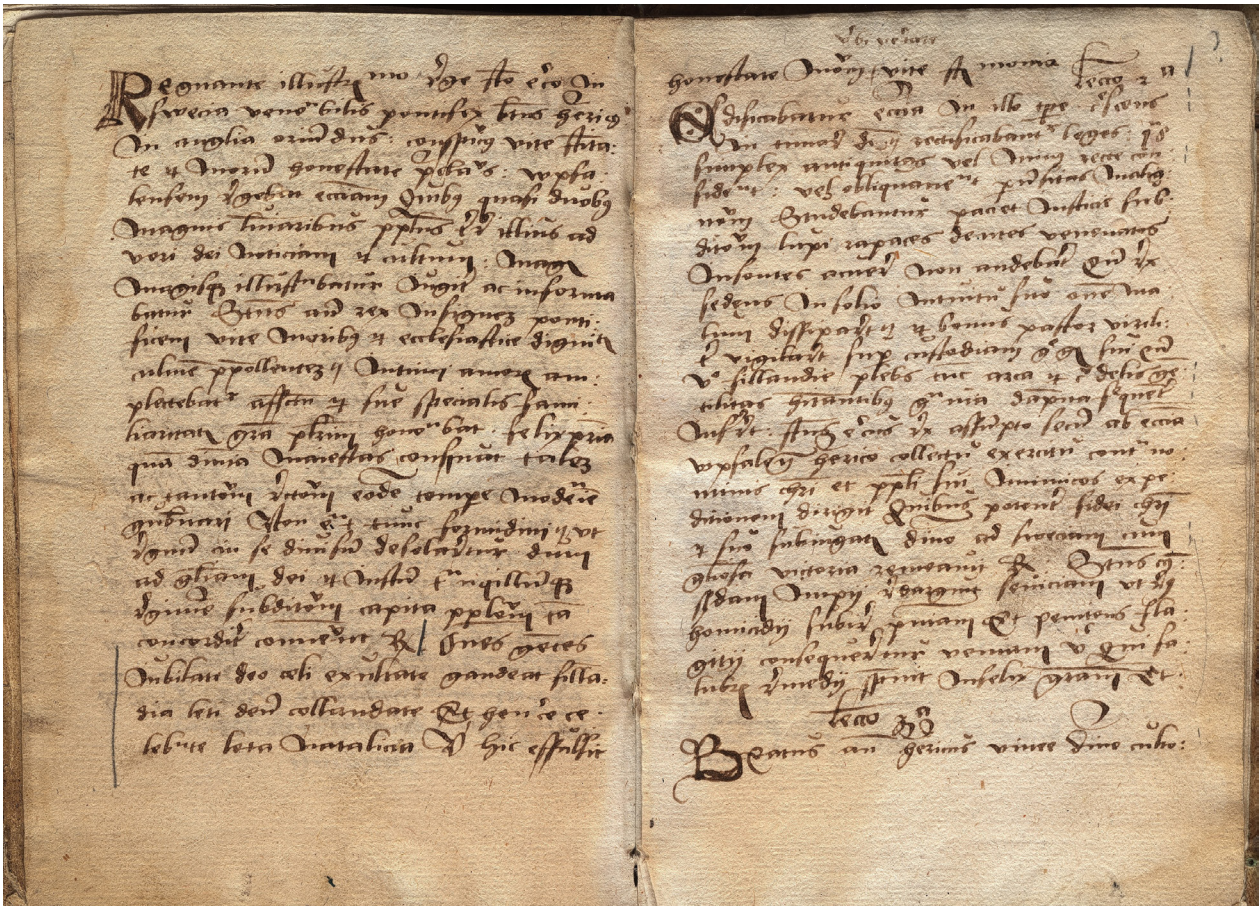
⁵⁴ See the facsimile edition of the missal: Parvio 1971, [3], [5], [8].

⁵⁵ Parvio 1971, [8]. The feasts are: the *translatio* of Thomas Aquinas (28.1.), Vincent Ferrer (5.4.), Catherine of Siena (29.4./1.5.), the apparition of Michael (8.5.), Servatius (13.5.), Helena (22.5.), Martialis (16.6.), Ladislaus (27.6.), Procopius (11.7.), the *transfiguratio Domini* (6.8.), Rochus (16.8.), Stephanus rex (20.8.), Sergius et al. (7.10.), Emericus (5.11.), the *consecratio* of Ambrosius (7.12.), and Anastasia (25.12.).

⁵⁶ Parvio 1971, [9].

⁵⁷ As has been mentioned above, the Dominican feasts of Thomas Aquinas, Vincent Ferrer, and Catherine of Siena seem to have been celebrated very seldom, as they are among the least used 20% of pages of the Breviary, and the same applies to *apparitio s. Michaelis*, Servatius, Helena, and Martialis. Texts on Procopius received no extra attention, either. Ladislaus', Rochus', king Stephanus', Emericus' texts, and those of the *transfiguratio domini*, the consecration of Bartholomeus and Anastasia are not included in the Breviary. The texts on Sergius et al. are among the most used 20% of pages, but this probably has to do with the texts on Francis ending on the previous page.

⁵⁸ In our view, this also applies to the list of 56 feasts included in the *proprium de sanctis* of the *Missale Aboense* but absent from its calendar. According to Parvio (1988, 551), these feasts were regarded as part of the official liturgy of the diocese—an interpretation which we consider too bold, as many of the feasts of the list are among the least used in the Breviary.



Pic. 3. Handwritten quires added to the end of the Koberger Breviary. They contain texts for important local feasts missing in the printed Breviary. Helsinki, National Library, C IV 6 (above) and C IV 20 (below).

reconstructed by Aarno Malin in 1925.⁵⁹ While these findings encourage caution in interpreting a late medieval ecclesiastical calendar as a true reflection of liturgical reality in general, some of the feasts lacking in the Breviary are easy to explain. The feast of the alleged local apostle, St Henry (20.1.), and that of the Swedish King Eric (18.5), the dedication of Turku cathedral (17.6.), the translation of the relics of Henry (18.6.), and the feast of St Birgitta (7.10.) were of great local importance but not such pan-Christian feasts as to be included in the Koberger Breviary.

As had been the custom in manuscript liturgical works, the most important local feasts were added to printed books as separate handwritten quires. In fact, such additions appear in three of the Finnish copies of the Koberger Breviary: C^o II 33, C IV 6 and C IV 20 (see Pic. 3). They contain texts of local importance and try to imitate the appearance of the printed Breviary.⁶⁰ Another interesting manuscript is A56 of the Swedish Royal Library in Stockholm, traditionally dated to c. 1485. It contains 18 offices of mostly local Swedish and Nordic saints, 17 being in the printed Breviary. Hence, it is possible that it was written to be used together with the Koberger Breviary and to complement the breviary with local feast days.⁶¹

Tracing Local Liturgical Practices

While the usage pattern of the ten copies is quite similar from one to another, some copies testify to varying use and individual or local interest in certain saints, feasts, or texts. Here, we highlight three examples: C IV 4, C IV 6, and C^o II 33.

C IV 4 has been preserved from Ilmajoki. However, its medieval provenance is likely the church of Isokyrö, which has traditionally been assumed to be dedicated to St Lawrence. Indeed, a closer examination of this copy's usage reveals that St Lawrence held particular significance for its readers. The pages recounting his story (fol. 316r–318r, pages / pictures [657]–[661]) were so eagerly read that some of them (fol. 316–317) have become detached and lost. The adjacent pages, fol. 315v and 318r (pages / pictures [656] and [662]), show significantly more wear than those in other copies of the Breviary, making the cause of the missing pages clear: the detached pages were in poor condition due to extensive use and gradually fell out over the centuries. Thus, their absence indicates the heavy use that led to their destruction.

C IV 6 from Hollola has been subject to particularly frequent use. Notably, there are significant signs of use and wear on folios 309v–313r (pages / pictures [645]–[651]), which contain the texts for the feast of St Dominic, the founder of the Dominican Order, celebrated on 5 August. The hand-written calendar attached to C IV 6 includes both a number of feasts typical of the Turku diocese and a connection to the Dominican calendrical tradition (*Translatio Thome ab Aquino* (28.1.) and *Translatio Marci* (31.1.)), but unfortunately May–August and thus the part relevant to the feast of St Dominic are missing from the calendar.⁶² Still, the intensive use of the liturgy of St Dominic in the Breviary makes it credible that he was celebrated with a high feast grade (maybe *totum duplex?*) in the lost part of the late medieval Hollola calendar.

⁵⁹ Cf. Malin 1925, 153–173.

⁶⁰ The addition to C IV 6 contains the office of St Henry, the manuscript addition to C IV 20 the offices of Henry and Eric. See Heikkilä 2009, 199–201, 206–208.

⁶¹ Heikkilä 2009, 228–231; Maliniemi 1957; Malin 1925, 134–138.

⁶² Malin 1925, 122.

Among other copies of the Breviary, only C^o II 33 from Loppi/Janakkala similarly indicates that its users celebrated the feast of St Dominic with great fervour. St Dominic is not known to have been the patron saint of either church;⁶³ perhaps the local clergy had a special connection to him or to the order he founded. Although many Dominican features have been identified in the medieval liturgy of the Diocese of Turku, St Dominic's day does not appear—apart from these two exceptions—to have been a significant feast in ordinary parishes.⁶⁴ In C^o II 33, a handwritten calendar from the turn of the 15th and 16th centuries has been appended to the beginning of the book. While offering insights into local liturgical practices, the calendar unfortunately only contains the months of January to late April and late August to December. It thus omits the feast of St Dominic and the Dominican feast of St Catherine of Siena, for example, and cannot therefore shed further light on the distinctly Dominican influences in the area. Nevertheless, the feasts marked as most significant in the calendar and the sections most frequently used in the Breviary correspond closely.

Towards a Nuanced Understanding of Liturgy

The findings in this article show some of the potential of studying the traces of use of medieval books. The analysis of usage patterns in the extant copies of the Koberger Breviary provides valuable insights into the late medieval liturgical practices of the Turku diocese. The Breviary, a central text for the daily office, reveals through its wear and tear how the clergy selectively engaged with liturgical content. Given the relatively small number of clergy and the practical limitations in the parishes, the office was likely celebrated in a condensed form, focusing on particular feasts and texts. By examining the most and least used sections of various copies of the Breviary, we contribute to reconstructing a picture of which feasts were of greatest significance in the diocese. The strong correlation in usage patterns across multiple copies suggests that, despite some regional variations, there was a consistent approach to liturgical practice within the diocese, reflecting a shared liturgical culture.

However, the study also reveals notable differences in how individual copies of the Breviary were used, indicating local practices or particular devotions. These variations, when considered alongside the broader patterns of use, contribute to a more nuanced understanding of the liturgical life in late medieval Turku, highlighting both the shared and the distinctive elements of religious practice across the diocese

⁶³ The patron of Hollola church was probably the Virgin Mary, and that of Janakkala St Lawrence. St Dominic is not known as a patron saint of a church in the medieval Turku diocese.

⁶⁴ Interestingly, the feast of St Dominic is celebrated only with the second-highest grade *duplex* in the calendar of *Missale Aboense*.