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# TRANSCRIPTION OF THE MEDIEVAL BIRCH-BARK MANUSCRIPT FROM TURKU

## Abstract

The paper focuses on the paleographical analysis of the first medieval birch-bark manuscript found in Finland. The object was C14-dated to the 14th century, and named after its finding spot as 'the birch-bark letter of the Turku Cathedral Square'. Firstly, the birch-bark document was scanned using microscope photography. Secondly, digital microphotographs were combined, and the contrasts on the script were amplified with digital image processing. The transcription of the whole script of the birch-bark manuscript of the Turku Cathedral Square written with gothic minuscules can be read *seu his qui ri[??] lybeus duxit kirrkunum auari quibus*. The text and message of the birch-bark manuscript from Turku is an extremely rare example of medieval non-formal language use in medieval Finland as it enlightens the thoughts of a medieval common citizen. The meticulous documentation and paleographical analysis of the find carried out leaves the opportunity for alternative interpretations and translations of the text in the future.

**Keywords:** birch-bark manuscript, paleography, Latin language, Middle Ages, Turku

**Asiasanat:** tuohikirje, paleografia, latina, keskiaika, Turku

## INTRODUCTION

The Museum Centre of Turku carried out archaeological excavation in the medieval town area next to the Turku Cathedral in 2005–2006.<sup>1</sup> At the excavation area 1, between the Old Academy building and the medieval cathedral (Fig. 1), a roll of birch-bark containing a single-line script was found (Fig. 2). The find layer was dated by dendrochronology and artefacts to the 15th century,<sup>2</sup> and the object was named after its finding spot as 'the birch-bark letter of the

Turku Cathedral Square', Fi. *Turun Tuomiokirkontorin tuohikirje*.<sup>3</sup> The birch-bark roll is stored flattened in cold and humid settings in the Museum Centre of Turku. It is the first and so far the only medieval birch-bark document found in Finland. The radiocarbon dating provided the age estimate of the birch-bark to the 14th century, probably to its first half or the middle of the century.<sup>4</sup> Thus, the find originates from the early phase of the town of Turku, founded ca. 1300.

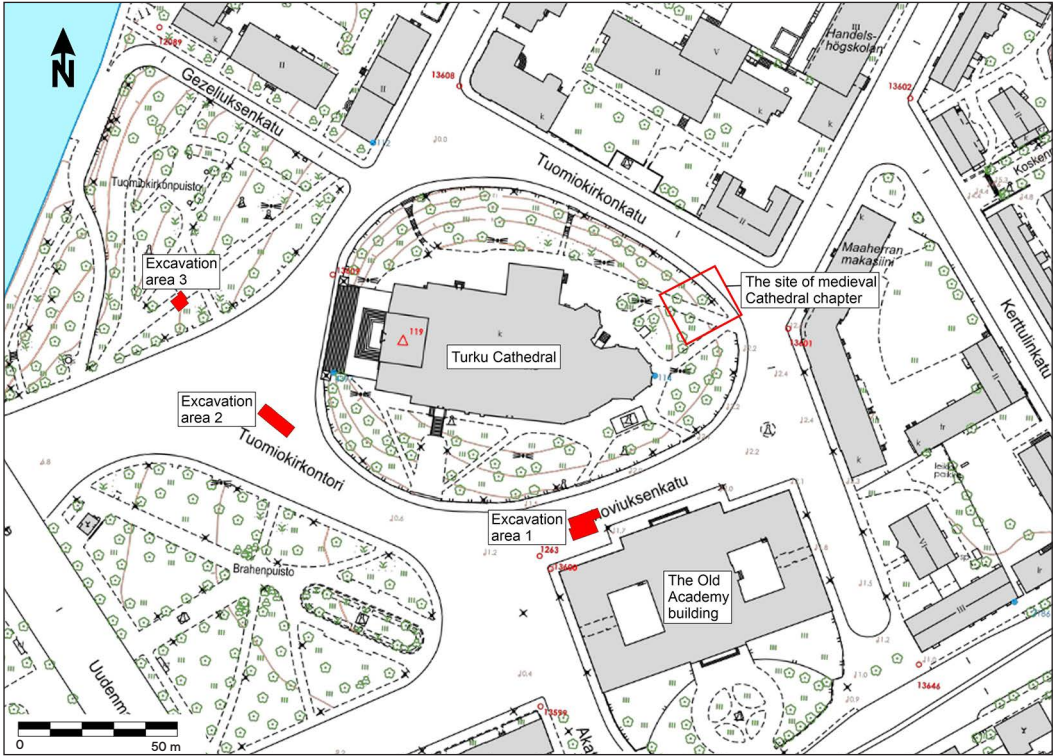


Figure 1. The find site, Excavation area 1, of the birch-bark document from the Turku Cathedral Square. Base map: Terrain map of Turku ktj (<https://opaskartta.turku.fi/IMS/en/Map>). GIS-mapping: Jussi Kinnunen.



Figure 2. The birch-bark document from the Turku Cathedral Square (TMK22367:TU1671:001). Measures 160 mm x 40 mm. Photo: Martti Puhakka / The Museum Centre of Turku 2007.

An introductory research article on the birch-bark manuscript from Turku was published in 2012.<sup>5</sup> In the paper, the find was discussed in a context of the Scandi-

navian and North European tradition of using birch-bark as raw material and especially as a writing surface. The preliminary conception was that the language used in

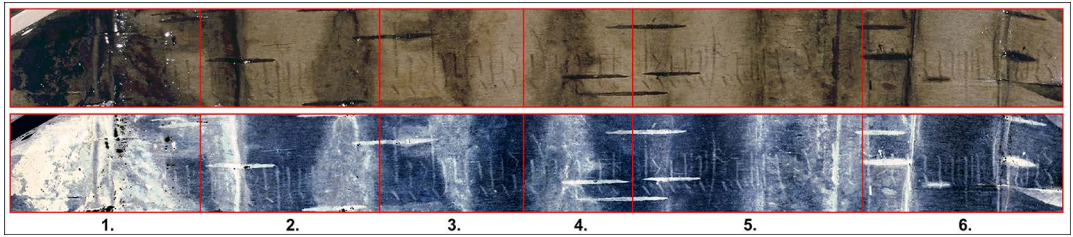


Figure 3. The text fields of the birch-bark document of the Turku Cathedral Square. The original microphotography compilation is on the upper line and on the lower line is digitally transformed negative of the original photo compilation. Photo compilation: Jussi Kinnunen 2018.

the birch-bark document is Latin. However, despite the efforts, the script has remained undeciphered until now.<sup>6</sup> In this paper, a paleographic analysis, and an attempt to decipher the script will be carried out.

## METHODS

Closer examination of the object and the script started in spring 2018, when new research methods such as micro-XRF and hyperspectral imaging (HSI) emerged. However, as the microscopic examination and microphotography imaging alone made deciphering of the text possible, XRF or HSI were not needed in the process after all. The infrared or x-ray photography had not brought any new data useful in research either.<sup>7</sup> For this paper, the birch-bark document was scanned using microscope photography. Secondly, digital microphotographs were combined, and the contrasts on the script were amplified with digital image processing. To ease the palaeographic interpretation and legibility the script was divided into six fields according to the blank spaces in text (Fig. 3). In our paper each text area will be analysed separately, and finally, an attempt at translating and interpreting the whole script will be made.

## PALEOGRAPHY OF THE BIRCH-BARK SCRIPT FROM TURKU

### Hand of the script

Before using it as a writing surface the birch-bark strip was possibly treated by making it thinner,<sup>8</sup> perhaps regarding its future purpose. The script of the birch-bark has been written with a broad nib quill or stylus. It is not known whether ink was used because no remains of ink have been noticed, and it is possible to inscribe birch-bark by pressuring pen nib without the ink.<sup>9</sup> The text is composed of Latin alphabet. Therefore, transliteration is not necessary, and the deciphering process can start from rendering of the handwriting – letters, characters and words – and continue to the translation and interpretation of the script.<sup>10</sup>

The letters are quite small in size. Their x-height is 5–6 mm. Both upper extensions (ascender) and lower extensions (descender) have been used. The letters seem for the most part separate from each other unlike in the so-called cursive hands where the letters are connected to each other, and the pen was not lifted from the writing surface between them. Loops typical of *cursiva*, cursive, are also missing.<sup>11</sup> The letters can be described as gothic minuscule of a formal *textualis* type used approximately from

1150 until the 17th century.<sup>12</sup> The characters of textualis are usually formatted separately and carefully. The use of textualis in manuscripts was basically reserved for formal texts. For example, Bibles and other liturgical works were usually written with this type of text.<sup>13</sup> Textualis was also common in monuments and phrase-like inscriptions in archaeological artefacts.<sup>14</sup> Private and commercial documents (notes, letters) mostly used cursive, which was an economic style in terms of writing speed. However, it is important to note that although the handwriting of the birch-bark document from Turku belongs to the categories of Gothic minuscule and textualis, it seems to differ somewhat in its implementation from the standard letters found in manuscripts or monuments,<sup>15</sup> containing cursive characters, too.

All the letters are in lowercase. In the text areas two, three and six the final letter in words appears to be sharp-s (das Eszett, s + z), ß.<sup>16</sup> The ß-character is used

only in the German language at present but in the Middle Ages, it was a common ligature in Northern Europe in manuscripts of most languages written with gothic minuscules.<sup>17</sup>

#### Decipherment of the text area 1

The script was written on the outer surface of the birch-bark.<sup>18</sup> Due to the natural curling of the birch-bark, the script ended up inside the bark roll. When found, the end of the text line was in the inmost part and the beginning of the text line in the outermost part of the roll. That is why the beginning of the text is so poorly preserved and very difficult to interpret. It seems that there is a three-letter word, which begins from the halfway of the text area 1. The upper part of the last letter consists of two vertical strokes. Image processed photographs reveal that in the lower part of the last letter a downward arc closes the vertical strokes. The right-side

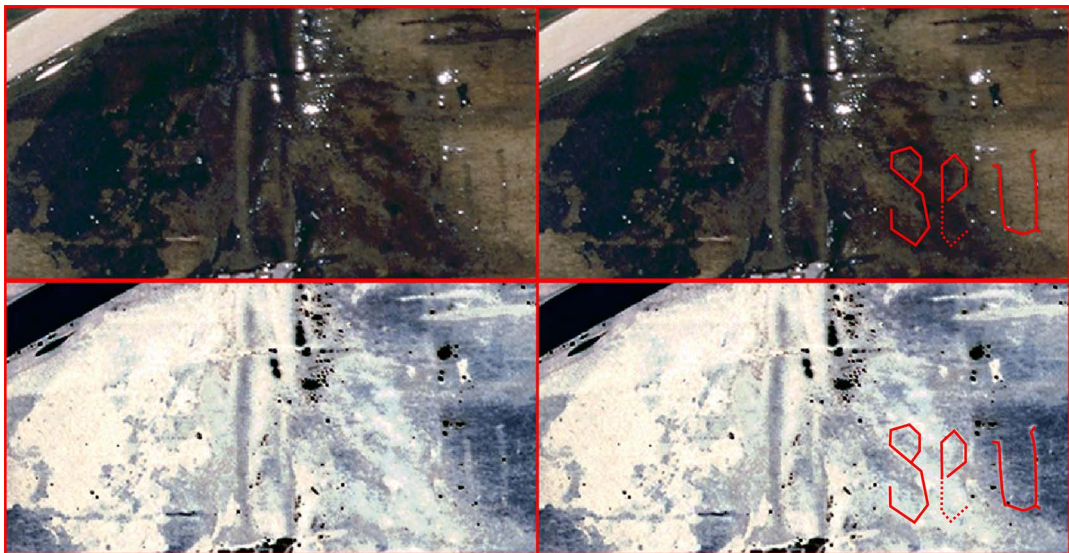


Figure 4. Text area 1. The original microphotography compilation is on the upper line and on the lower line is digitally transformed negative of the original photo compilation. Deciphered text is marked with red lines on the right-side photograph pair. Photo compilation: Jussi Kinnunen 2021.

stroke rises a bit above the mean line, and the upper terminals of both strokes are angled. This also concerns a few other letters in the script, interpreted as the same alphabet. The last letter is therefore deciphered as **u**. Preceding letters are not so easily decipherable, but in the letter preceding **u**, a loop in the upper part of the letter is faintly visible. Such a loop can only exist in a letter **e**. The first letter is **s**, and only faintly visible in the negative image (Fig. 4). Three letters could be as **S/s - e - u**.

#### Decipherment of the text area 2

The first letter on the text area 2 is interpreted as **h**, and the third as letter **ß** (sharp-s, s + z). In the narrow space between these, there is one foot of a letter (*pedibus*), most probably of letter **i**, as **h - i - ß**. Next, there follows the first abbreviation, composed of letters **q** and **i**, with a vertical stroke be-

tween. The stroke starts from the middle of the baseline and ascends well over the headline. On the top, there are two dots and an upwards opening half-arc, which connects the dots and the top of the vertical stroke. In Latin texts, a vertical stroke with dots is a common abbreviation for letter **u** after letter **q**.<sup>19</sup> The abbreviation is therefore **q - u - i**. In the script, four specific **r**-letters of the cursive style can be found, and the next letter, following **q - u - i**, is the first of them. The last decipherable stroke is some vowel letter **i** or **u**, as **r - i/u - [+1-3 letters]**. (Fig. 5). All letters in the text area two would be **h - i - ß - q - u - i - r - i + 1-3 letters**.

#### Decipherment of the text area 3

The next word on the text area 3 is readable as a whole. Letters in this area are **l - y - b - e** or **u - u** or **z+i** and **ß** (sharp-s, s + z) (Fig. 6).



Figure 5. Text area 2. The original microphotography compilation is on the upper line and on the lower line is digitally transformed negative of the original photo compilation. Deciphered text is marked with red lines on the right-side photograph pair. Photo compilation: Jussi Kinnunen 2021.

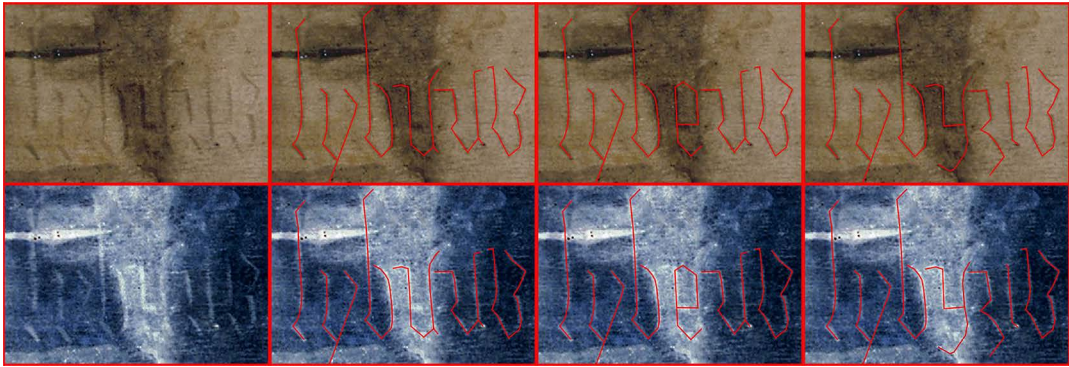


Figure 6. Text area 3. The original microphotography compilation is on the upper line and on the lower line is digitally transformed negative of the original photo compilation. Deciphered text is marked with red lines. Photo compilation: Jussi Kinnunen 2021.

#### Decipherment of the text area 4

The word in the fourth area is also easy to decipher. The letters are **d - u - x - i - t** (Fig. 7).

#### Decipherment of the text area 5

Letters on the fifth area are also quite well readable, namely **k - i - r - r - k - u - n - u - m** (Fig. 8). Here we have also two sequential specific r-letters.

#### Decipherment of the text area 6

On the text area six, the first three letters are barely discernible, but with careful microscopy and image processing the letters can be deciphered as **a - u - a -**. Letters **- r -** and **- i -** follow next. After those letters, abbreviation **q - u - i**, similar with the text area two follows, but without the dot-connecting arc. There are no dots over **i**-letters anywhere in the text, and therefore the dots definitely belong to an abbreviation. The last three letters are readable as **b - u - ß** (sharp-s, s + z) (Fig. 9).

#### TRANSCRIPTION OF THE SCRIPT

Several Latin components can be picked from the text. These are the distinct Latin verb *duxit*, Latin suffixes *-um* and *-ibus*, and a common abbreviation for a Latin word *qui*. These examples show that the language used in the birch-bark is for the most part Latin. However, there are two obvious

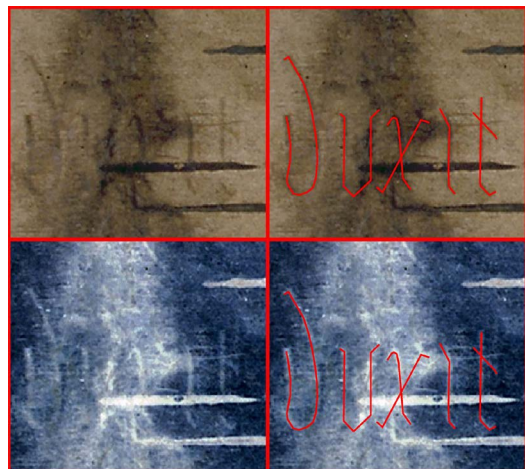


Figure 7. Text area 4. The original microphotography compilation is on the upper line and on the lower line is digitally transformed negative of the original photo compilation. Deciphered text is marked with red lines on the right-side photograph pair. Photo compilation: Jussi Kinnunen 2021.



Figure 8. Text area 5. The original microphotography compilation is on the upper line and on the lower line is digitally transformed negative of the original photo compilation. Deciphered text is marked with red lines on the right-side photograph pair. Photo compilation: Jussi Kinnunen 2021.

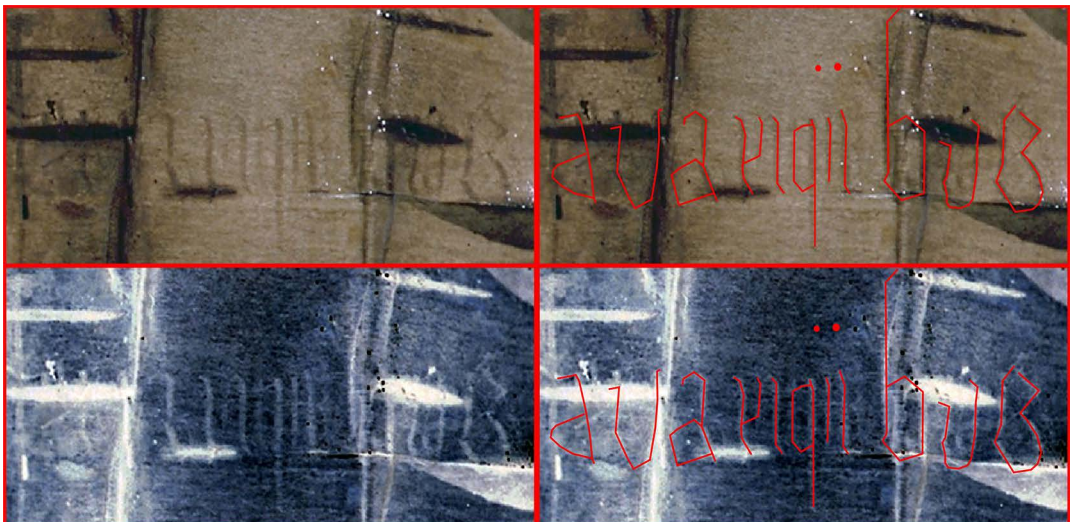


Figure 9. Text area 6. The original microphotography compilation is on the upper line and on the lower line is digitally transformed negative of the original photo compilation. Deciphered text is marked with red lines on the right-side photograph pair. Photo compilation: Jussi Kinnunen 2021.

k-letters, which occurs only in few Latin words<sup>20</sup>, which cannot be associated to the birch bark text.

It was discovered that in the first text area the letters of the first word are **s**, **e** and **u**. Latin three-letter word *seu* derives from a word *sive* written before a consonant. In Latin, 'seu' is a conjunction that means 'or

if' or 'whether.' It is used to introduce an alternative or to present a choice. This first word is in most damaged area on the birch bark and it can be possible that there are letters before **s**, **e** and **u**.

In the second text area the letters can be allocated to two or three words, *his*, *qui* and *ri[---]*. *His* is the plural dative for Latin

demonstrative pronouns *hic, haec, hoc* and the word can be translated as ‘for these’. The space between the second and third area letters is so wide that approximately three or four last characters are unreadable. A Latin word, starting as *quiri[??]* can only be some form of the conjugation I of the verb *quirito*, scream (for help, in agony), make a public outcry, or protest.<sup>21</sup> Still between letters **q** – **u** – **i** and **r** – **i** or **u** there is a slight gap and words could be rather *qui* ‘what? which?’ and *ri[---]* or *ru[---]*. Last word could be verb.

The word *lybeus/lybuus* is written with an initial small letter. It should also be a singular word preceding verb *duxit*. The form of the word *lybeus* or *lybuus* is curious, but could it refer to a known or random person from the German Hanseatic town Lübeck (Ger. Lübecker)? Existing Latin medieval (13th–14th C.) forms for ‘a person from Lübeck’ found in documents are *Lubicensis, Lubecensis, Lybicensis* or *Lybycensis*.<sup>22</sup> If the transcription is *lybezis/lybyzis*, there exists an equivalent form in medieval text *Vitæ Pontificum Platinae historici liber de vita Christi ac omnium pontificum qui hactenus ducenti fuere et XX* by Bartolomeo Sacci (il Platina) 1481: “*Is praeterea cum Lybezis mundatore plurima rome verasset edificia tum preuata tum publica : sua impensa cives in restituenda vzbe liberalissime inuit*” But who were ‘*Lybezis mundator*’ (cleaners)? Alternatively, if the context of the word *lybeus* is not the town of Lübeck, it could be a form of a common medieval man’s proper name *Lybeus*, fin. ‘*Lyypetti*’. *Lybuus* > *Lybeus* is also a forename in the Arthurian tradition, e.g. in the Middle English Romance *Libeaus Desconus* composed c. 1325–1350.<sup>23</sup> Online search for words *lybuus, lybeus, and libeaus* in Finnish and Swedish digital medieval da-

tabases was not productive.<sup>24</sup> No names beginning *Lyb-* or *Lib-* could be found in the catalogues of burghers or magistrates of Turku, or the register of the members of the medieval Cathedral chapter (*Domus capituli*).<sup>25</sup>

Next word on the text area four is a predicate *duxit*, active indicative perfect singular 3rd for a common Latin conjugation III verb *duco*, to lead, to conduct, to guide, to take. Translation for *duxit* is ‘(has) led, conducted.’ *Duxit* also defines that the preceding subject *lybeus* is a singular word, because in the case of plural, there should read *duxerunt*.

In the fifth text area, there is a curious word *kirrkunum*. As already mentioned, letter **k** does not commonly appear in Latin. Only Finnish word which resembles *kirrkunum* is *Kirkkonummi*, proper noun of southern Finland municipality, mentioned in written texts first time in 1330 AD, although in Swedish (*Kyrkioslæth*).<sup>26</sup> The suffix *-um* could also refer to Latin accusative object, and the root of the word could be *kir(r)kuius* or *kir(r)ku*, which resembles the Finnish word *kirkko* - church. The oldest forms of *kirkko* in a Finnish printed text are from the 16th century: *kircko, kirko* or *kyrko*. In Estonian, church is *kirik*, gen. *kirikku* or *kirk*, gen. *kirgu*.<sup>27</sup> The proper word for church as an institution in Latin is I declension feminine word *ecclesia, -ae*.

In the sixth and the last text area, two Latin words can be noticed: *auari* = *avari* and *quibus*. *Avari* is the masculine singular genitive (*genetivus qualitatis*) form of the Latin II declension masculine noun *avarus*, ‘greedy or stingy’. *Quibus* as the plural dative of indefinite pronoun *quis* is ‘to whom, to which’ or as the plural ablative is ‘by whom’.

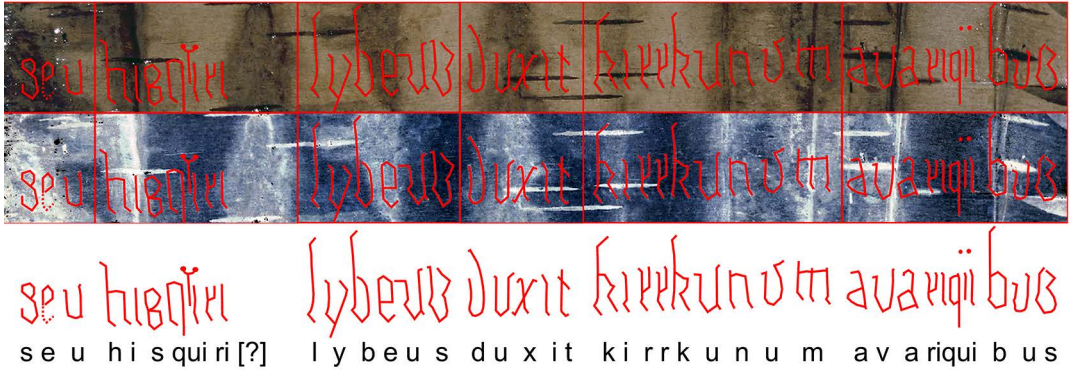


Figure 10. The summary of the transcription of the birch-bark letter of the Turku Cathedral Square. Photo compilation: Jussi Kinnunen 2021.

The transcription of the whole script of the birch-bark manuscript of the Turku Cathedral Square is:

**seu his qui ri[??] lybeus duxit  
kirrkunum avariibus**

The proposed translation could be: ‘Whether for these which ??? lybeus/lybezis (has) led church greedy’ (Fig. 10).

DISCUSSION: THE BIRCH BARK LETTER OF THE TURKU CATHEDRAL SQUARE IN THE CONTEXT OF MEDIEVAL LITERACY

Written culture in Finland began to take shape in the 11th to 13th centuries. People of the Late Iron Age, presumably illiterate for the most part, had contacts to tradesmen, dealing with coinage and sword blades containing scripts. Scandinavian runic scripts, although on imported artefacts, were not completely unknown in Finnish prehistory.<sup>28</sup> Finally, at the dawn of the Middle Ages, early Christianity brought the Latin language and alphabet.<sup>29</sup> Medieval Finland was the eastern administrative region of Sweden (Österlandet) and Swedish

language was used in administrative and legislative documents. Middle Low German (ca. 1150–1500) was spoken by German and Dutch Hanseatic sailors, merchants and burghers as a *lingua franca* in the towns of the Baltic Sea trade area. Latin was the language of clergy and ecclesiastic education and it was used in the communication within the Roman Catholic Church.<sup>30</sup> Finnish language was only marginally used in written documents, and proper Standard Finnish was not established until the 16th century.<sup>31</sup>

In the early 14th century urban centre of Turku, four main languages were spoken. These were Finnish, Old Swedish (ca. 1225–1350), Middle Low German and Latin.<sup>32</sup> Finnish was the native language of the original land cultivating rural people and local craftsmen. The development of literacy in Turku was not limited by the settlement’s relatively small size or its location on the periphery of medieval *Latinitas*.<sup>33</sup> On the contrary, some of the same patterns of literary behaviour can be detected in Turku as in larger urban centres, and here the town follows the development in the Nordic countries closely. After all, Turku was an episcopal town with essential secular, ecclesiastical

and commercial institutions. Together, these institutions produced a significant number of documents of which only a very small percentage has preserved. Besides the administrative literacy of the church, the castle and the town council, the intense activity of craftsmen and merchants is reflected in written documents and in the rich archaeological record that yields examples of more personal use of writing, for example, the use of runic scripts produced locally.<sup>34</sup> Literalisation among the wider social strata of the Nordic countries was based on an urban educational and commercial environment and the advancement of note-making technologies.<sup>35</sup>

The preliminary conception that the language of the birch-bark document from Turku is Latin seems to be correct. Still, the manuscript seems not to have been written by an experienced scribe or professional Latinist. The characters seem to be in quite good alignment with each other. However, the small discrepancy between the characters and the baseline indicate that the writer has not used typical ruler guides of parchment manuscripts to support the writing line, but has relied on visual assessment. Placing the text on one line gives the impression that the whole text has been drafted at the same time and the author has been the same hand (person). However, the weakening of careful handwriting towards the end of the text indicates a slackening of concentration or a sudden rush.<sup>36</sup>

Two of the words, *lybuus* and *kirrkuiium* appear as Latinised forms of Finnish or Estonian words. Considering the hand, there are *cursiva*-form letters (**r**) among the text, otherwise following the *textualis* form. Furthermore, dots of letters **i** are missing, the size of the letters varies circa 50 percent, and the word and letter spaces vary.

The archaeological context of the birch-bark letter of the Turku Cathedral Square is ecclesiastical and educational. The first Finnish educational system, the Cathedral School of Turku, was established in the turn of the 13th and 14th centuries and was situated somewhere in the immediacy of the excavation area.<sup>37</sup> From the same excavation site, other artefacts belonging to the context of literacy, e.g. a large number of wooden wax tablets and styli, were found.<sup>38</sup> An impression one gets from interpreting the hand and language of the script is that it seems to be composed by a literate, although linguistically rather inexperienced person, perhaps a young novice pupil of the Cathedral School in Turku, who practises the Latin language. It is of course possible that the text is consisting separate words, but a whole reflects rather a sentence. Writing is decreasing towards the end and sentence can be incomplete. Still there would be room on the birch bark for a second line of the text but perhaps writer gave up for some reason?

## CONCLUSIONS

The preserved medieval birch-bark documents in the Nordic countries are extremely rare, although the use of birch-bark as an occasional writing surface from the 15th century until the 19th century has been documented in historical sources.<sup>39</sup> As a writing surface, birch-bark was cost-free and accessible. Birch-bark was also excellent as tinder and it was probably better to burn especially the messages of delicate matters after reading, than to just throw them away.<sup>40</sup> The two medieval examples preserved are from Sweden and have been written in Latin, using cursive style. Their con-

text is ecclesiastical.<sup>41</sup> Regarding the over 1000 examples of birch-bark documents found in Russia, only one of them has been inscribed using Latin alphabet. The hand is cursive and the language Latin. The content is ecclesiastical.<sup>42</sup>

The birch-bark manuscript from Turku is a unique archaeological object in a Finnish context. It is the only concrete example of the use of birch-bark as a writing material in medieval Finland. Even if the find is extremely rare also in Scandinavian context, it fits well to the Nordic birch-bark tradition.<sup>43</sup> The parallels for the Turku script are the birch-bark documents written in Latin, using Latin alphabet. Their context is typically ecclesiastical and the same concerns the document from Turku. Although the Turku script was written on birch-bark and possibly without ink, the possible use of quill and especially the hand using textualis, ties the script to the world of paper or parchment manuscripts. By this means, the script differs from the world of runes and maker's marks, executed mostly on wooden artefacts.<sup>44</sup>

The text and the message of the birch-bark manuscript of the Turku Cathedral Square is an extremely rare example of medieval non-formal language use in medieval Finland as it enlightens the thoughts of a medieval common citizen. In this respect, the find can be related, for example, to the paper and parchment finds in the debris gathered under the choir stalls, and found when a renovation was carried out in the Lund Cathedral in the 1830s. These included the diversity of letters, aphorisms, charms and spells, written mostly in Latin, but also in Danish.<sup>45</sup>

The birch-bark document from Turku is an excellent example of the possibility of finding new textual documents by archaeological excavation. Their analysis and in-

terpretation has to be a multidisciplinary process where modern methodology of rendering is combined with classic paleography and linguistics. In our paper, we have presented a possible interpretation of the birch-bark manuscript from Turku. The meticulous documentation carried out leaves the opportunity for alternative interpretations in the future.

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## NOTES

- <sup>1</sup> On the excavation and its results, see the articles in Söderström 2010.
- <sup>2</sup> Pihlman, Ainasoja, Ratilainen & Saloranta 2007: 12.
- <sup>3</sup> As the only birch-bark letter from Turku and the whole of Finland, the item in question is also called the birch-bark letter / manuscript / document / from Turku in this article.
- <sup>4</sup>  $600 \pm 30$  BP (Ua-43865) (Possnert 2012). When calibrated, the result with a 68.2% ( $2\sigma$ ) probability is 1305AD–1365AD (55.1%) and 1385AD–1400AD (13.1%). Calibration according to Reimer et al. 2009 using OxCal v. 3.10 (Bronk Ramsey 2005); Harjula 2012a: 3, 12.
- <sup>5</sup> Harjula 2012a.
- <sup>6</sup> Several scholars have been consulted during the long research and interpretation process of the birch-bark manuscript from Turku. The following persons will be warmly acknowledged, although they are not by any means responsible for the interpretations and the possible faults in the final paper: Prof. Tuomas Heikkilä (Uni. of Helsinki), Prof. Kaisa Häkkinen (Uni. of Turku), Prof. Erik Kwakkel (Uni. of Lei-

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7 Hirvilammi 2012, pers. comm.

8 Saarinen 2012, pers. comm.

9 In the XRF-analysis, carried out in 2012, no remains of ink were noticed, see Harjula 2012a: 12, endnote 10.

10 The research phase is typical of all those manuscripts that have been physically damaged to such an extent that it is difficult to reproduce (transcribe) the text. This usually also applies to archaeological finds containing texts. In theory, the script can be transcribed repeatedly, starting from the first stage. The fact, however, even in the case of the birch-bark letter from Turku, is that regardless of the method of storage, the visibility of the text will deteriorate. Already at some points in the text, we rely on photographs taken of the object as soon as it was found (Harjula 2012a: 13, endnote 11).

11 Harjula 2012a: 13.

12 Harjula 2012a: 13; Derolez 2003: 72–101; Bischoff 2017: 127–136; Marcos 2024: 51–63.

13 Heikkilä 2009: 104.

14 Harjula 2008: 16, Figure 3.

15 Harjula 2012a: 14.

16 Harjula 2012a: 14, endnote 14.

17 Marcos 2024: 57, 70.

18 In Russian birch-bark letters, mostly inscribed with styli, the texts are mainly made on the inner surface of the birch-bark, so that they appear without opening the rolls. The choice of writing surface is likely to be influenced by the fact that the writing made by engraving is better done on the inner surface than on the outer surface, which flakes more easily when working it. Both the outer and inner surfaces, on the other hand, are well suited for writing in ink (Westlund 1994: 124).

19 Cappelli 1901: 275–290.

20 Glare 2016: 1088.

21 Streng 1975 [1933]: 630; Glare 2016: 1716.

22 Hakamies 1958: 100; Odelman 1982: 34–36.  
23 Mills 1969.

24 DF; Riksarkivet.

25 Matinolli 1976: 3–45; Kallioinen 2000: 289–308.

26 DF 377.

27 Toivonen 1955: 199.

28 Harjula 2016: 124.

29 Heikkilä 2010: 11.

30 Cordes & Möhn 1983: 119; Schildhauer 1988: 214–216; Bentlin 2008: 35–45; Heikkilä 2010: 127–146; Tarkiainen 2010: 155–156, 215–220; Harjula et al. 2021; Salonen et al. 2021.

31 Häkkinen 1994: 79–86; 2015.

32 Heikkilä 2010: 14; Harjula et al. 2021; Salonen et al. 2021.

33 According to Adamska (2013: 327) *Latinitas* can be understood as ‘an area of the spread of a cultural model that was carried by the Latin alphabet and the Latin language dominating written communication.’

34 Harjula 2016; Harjula et al. 2021; Salonen et al. 2021.

35 Nedkvitne 2004: 179; Salminen 2003.

36 Harjula 2012a: 16.

37 Harjula 2012b: 154–155.

38 Harjula 2012a: 3; 2012b: 157–174; 2015: 22–29.

39 Strelow 1633: 218–219; Odenius 1960: 164; Olaus Magnus 1555: 1:36; Rääf 1861: 36.

40 Strelow 1633: 218–219; Odenius 1960: 164.

41 The two Scandinavian birch-bark documents published are both from Sweden. The first is an archaeological find from the centre of medieval Stockholm, found in 1989. It has been inscribed with Latin alphabet, using cursive script. Only one word has been deciphered, Latin *iustus*. ‘justice’. The find is dated to the 14<sup>th</sup> century and the context is ecclesiastical (Gunneng 1991; Söderlund 1991: 59–61; 2002: 165–166). The other birch-bark document is a loose-leaf found inside a Vadstena monastery manuscript, dated to the late 15<sup>th</sup> century. It has been written in cursive, using ink and Latin language. It is an addition to a sermon and therefore the context is ecclesiastical (Odenius 1960).

- <sup>42</sup> The find from Novgorod is dated to the late 14th century or early 15th century. The content is about psalms and hymns (<http://gramoty.ru/birchbark/document/show/novgorod/488/>).
- <sup>43</sup> It is interesting that the oldest known written document in Finnic language has been inscribed on the birch-bark. This document, birch-bark letter no. 292, has been found in the Nerevsky excavation in Novgorod and is dated to the mid-13th century (Haavio 1964; Laakso 1999). The document proves that there was already a tradition to use birch-bark for writing media, when the birch-bark document of Turku was written.
- <sup>44</sup> In the light of the current source material, writing on a birch bark cannot be categorized only as ‘cheap and popular form of writing’ (Heikkilä 2010: caption in p. 227). Solely the example of the Vadstena manuscript with its loose-leaf of birch-bark, connects the use of birch-bark to the ‘high culture’ of writing manuscripts. As Olaus-Magnus (1:36) writes, Nordic people used birch-bark when paper or parchment were not available. Birch-bark probably functioned well as a surface for drafts before writing them on parchment with ink. In this sense, the material can be compared to the frequent use of wax tablets for this purpose.
- <sup>45</sup> Brunius 1854: 419–432; Piltz 2002: 218–242; Manhag 2021.

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