The Paper Supply of a Printing House as a Mirror of the Paper Trade in the Early Modern Low Countries: the Case of Dirk Martens’ Workshop

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Introduction

Until now, historians of the early modern book have not paid much attention to the paper trade. In the field of early printing studies, the paper industry was mainly studied through the bibliographical angle. For example, the renowned Gaskell’s *New Introduction to Bibliography* contains only a few lines dedicated to the origin of the paper used by English printers in its chapter soberly entitled ‘paper’, none on the selling of paper to printers.[[1]](#footnote-1) As Gaskell’s *New Introduction to Bibliography*, scholars mainly focused on material characteristic of paper or its manufacture. Paper evidence contributed to a better understanding of press-working or to determine the number of presses running in a printing house. A cross study of quire structures and watermarks locations helped me, for instance, to determine that at least two presses were running in the firsts printing houses of Alost and Louvain (1473-1474).[[2]](#footnote-2) Identification of paper stocks through the study of watermarks also provides for undated edition a dating within a range of years rather than decades. This is very useful when you know that in the Low Countries around 800 of the about 2000 fifteenth-century editions printed on paper are dated. Gerard van Thienen’s research on the books printed by the Brethren of the Common Life in Brussels (1475-1486) helped to review their dating.[[3]](#footnote-3) This kind of research, after typeface research, is certainly worth the effort. Watermarks also helped bibliographers to locate incunabula without colophon. Alan Stevenson did it for the first book printed in Louvain around 1474.[[4]](#footnote-4)

Paper was essential in the economy of the book during the hand-press period. A hand-press working full-time absorbed about three reams of paper per day, which correspond to about one third or a half of the daily production of a paper mill.[[5]](#footnote-5) It is quite significant that Frédéric Barbier uses the analogy ‘paper valley’ to rename the Middle Rhine Valley, birthplace of the printing art.[[6]](#footnote-6) The supply of paper had great repercussions on the price of a book. Leon Voet showed that it accounted, in the *Officina Plantiniana*, for an average of 60-65 per cent of the cost of producing a book, this percentage rising to 75 per cent for some large printings.[[7]](#footnote-7) Its price fluctuated and could vary from year to year. Printers were very careful about this and the *Officina Plantiniana’* accounts still kept show that books were detailed according to the number of sheets used in their composition.[[8]](#footnote-8) They made it for the calculation of the cost of production and for fixing the selling price. These archives teach us that the paper supply for a printing house like the *Officina Plantiniana* was enormous. Jan Moretus i needed, between 1590 and 1610, less than 24,500 sheets of paper to print a copy of the around 700 editions that bear his name, which represents around 46,550 reams of paper to print all the copies of these 700 editions.[[9]](#footnote-9) The sheet of paper was also the basic unit of the daily wages of the workers. Pressmen were paid on the base of the sheets that they pressed. The norm was fixed at 1.250 sheets per day, excluding wastage.[[10]](#footnote-10) The printed sheet was thus an important economic entity in a printing house during the period of hand-operated presses.

As Daniel Bellingradt reminds it in one of its article dedicated to the paper trade: “the trade of paper was part and basis of both the printing and publishing culture and the book trade of early modern Europe”.[[11]](#footnote-11) Unfortunately, despite the importance of this economic sector, nothing has been published on the purchases of paper by 15th-century printers from the former Low Countries or on the ‘paper roads’ used for supplying them.[[12]](#footnote-12) This significant historiographical gap can be explained by the lack of data and in-depth research on this topic. In order to contribute to fill it, I’ve decided to work on Dirk Martens’ production.[[13]](#footnote-13) In 1473, this typographer founded with his *socius* (‘associate’) Johannes de Westphalia the first printing house of the Southern Low Countries in his hometown of Alost. Martens ended his career in 1529 after publishing around 270 books.[[14]](#footnote-14) He died five years later on 28 May 1534. He’s of great importance for the history of the spread of the art of printing in the Southern Low Countries. He introduced the use of three alphabets (Greek, Hebrew and italic) and generalized the use of Roman types. He also printed the first novel by an Italian humanist in the Low Countries—Aenas Silvius Piccolomini’s *De duobus amantibus* in 1473[[15]](#footnote-15)—and was close to Erasmus and the humanist networks of the Low Countries. The Alost printer is also known as the first editor of one of the most important philosophic works written during the Early Modern Period: Thomas More’s *Utopia* (1516).[[16]](#footnote-16)

Paper Supply of Dirk Martens’ Printing House

Reconstructing the business of paper trading in the Early Modern Low Countries was not easy because this topic has rarely caught the attention of book historians. I had to develop a new method for trying to approach this trade, which combines bibliographical approach and archival survey. I decided to study two books printed by Martens. The first dates of the year 1474, at the very beginnings of the typographical era of the Low Countries. It is a quarto edition of the *Logica vetus* by Aristotle.[[17]](#footnote-17) The second one was printed more than fifteen years later when the second generation of printers of the Low Countries arose. It is a 1490 folio edition of Angelus de Clavasio’s *Summa angelica de casibus conscientiae*.[[18]](#footnote-18) Identifying the watermarks of papers used to print these two books will contribute to discover where Martens obtained his paper supplies. My investigation lies on three renewed tools: Briquet’s *Filigranes*,Piccard’s *Wasserzeichenkartei*, and Gerard van Thienen’s *Watermarks in Incunabula printed in the Low* (WILC), a digital library of watermarks used by 15th-century printers of the Low Countries hosted by the Royal Library of the Netherlands.[[19]](#footnote-19) I have to limit myself for this survey to 15th-century books because the tools available for the following century are not exhaustive enough. The routes taken by paper from paper mills to merchants and then to Dirk Martens will be discussed in the fourth part of this chapter after a brief detour on the paper trade in the Low Countries.

The *Logica vetus* is the fourth book ever printed by the team Martens-Westphalia. It was issued on 4 May 1474 in Alost, located halfway between Brussels and Ghent and about 60 kilometres from the University of Louvain. This quarto edition contains 62 folios, which means that 15 and a half of sheets of paper were used to print one copy of this book. The average print runs for an edition printed in the 1470s was in the vicinity of 275 to 300 copies.[[20]](#footnote-20) This means that, in total, the impression of the *Logica vetus* required around 4,500 sheets of paper, which is the equivalent of 9 reams of paper. The *Logica vetus* has also the particularity of having been printed in half-sheets. It is in fact a method of primitive production where quarto editions are treated as small folio editions. This technique does not characterize the operation of Martens’ printing house. It stands out in many European workshops at the same time.[[21]](#footnote-21)

I worked on the copy kept at the Royal Library of Belgium in Brussels. This is the entire unique copy still preserved.[[22]](#footnote-22) The watermarks teach us that this book was printed with 10 sorts of paper.[[23]](#footnote-23) I have grouped them into five families within which appear some variants: a bull's head with a cross and a curved muzzle; a Gothic letter P surmounted by a quatrefoil; another gothic letter P surmounted by a trefoil and beneath, a cross; a shield lettered in gothic ‘lile’; another shield with three lilies surmounted by a crown and beneath, a Gothic letter T.[[24]](#footnote-24) The book was printed on Chancery paper (ca. 32x45 cm).[[25]](#footnote-25)

[INSERT FIG. 1. HERE]

Most of the papers entered into the composition of the *Logica Vetus* are contemporary of the printing. There was also paper already in circulation for twenty or thirty years. The paper supplies come mainly from Eastern France, from Champagne, Burgundy and Lorraine. These regions are well-known for their many paper mills. It was even possible to locate the production of some papers in Troyes and Lisle-en-Rigault near Bar-le-Duc.

The second book is thicker than the first one. The Angelus de Clavasio’s *Summa angelica de casibus conscientiae* isa 1490 folio edition, which contains 334 folios.[[26]](#footnote-26) Martens printed it with Chancery paper in Alost. At the end of the 15th century, print runs generally did not exceed 1,000 copies.[[27]](#footnote-27) So, as one copy of this edition requires 83,5 sheets of paper, and if 1,000 copies were to be printed, the total needed is 83,500 sheets, which represents 167 reams of paper. The copy studied is kept at the Royal Library of the Netherlands in The Hague.[[28]](#footnote-28) Its watermarks indicate that Martens printed it with 19 different sorts of paper. As for the *Logica vetus*, I have grouped them into eight families within which appear some variants: a goblet; a heart surmounted by a crown and beneath, the letters Ib; a heart surmounted by a Latin cross; a Gothic letter P; another Gothic letter P with a wide dash; a large pot with a double line ear; a shield with a sun and surmounted by a crown; and a small tower.[[29]](#footnote-29) Martens purchased his paper mainly from East France in Champagne and Lorraine as well as for the *Logica vetus*. One paper merchant could be identified thanks its watermarks: the letters Ib placed beneath the heart surmounted by a crown refer to the papermaker Jean Le Ber ii, the Younger, from Troyes.[[30]](#footnote-30)

[INSERT FIG. 2. HERE]

He died around 1488, two years before the printing of the *Summa angelica*. This illustrates that printers didn’t always use immediately the paper they bought. They held reserves that could keep the business going in times of emergency. The other papers are contemporary of the printing.

The paper used by Martens can also be found in books printed by his colleagues in other towns. For example, in Louvain, the Aristotle’s *Physica* issued by Conrad Bream around 1475 contains paper with bull's head with a cross and a curved muzzle also present in the *Logica vetus*.[[31]](#footnote-31) Similar papers used for the Clavasio’s *Summa angelica*—those with a goblet as watermark—entered in the composition of other books printed in Antwerp, Delft, Deventer, and Liège at the same time.[[32]](#footnote-32)

The Paper in the Low Countries

As we can see, the Low Countries did not have a domestic production sufficient to cover the needs of local printing houses. The oldest paper mill in this territory dates back to the late 14th century. It was located in Houpelines near Lille (county of Flanders) and founded in 1389.[[33]](#footnote-33) After that, paper mills multiplied mainly in Brabant, in the vicinity of Brussels, head of the administration of the Duchy. The oldest, settled in Linkebeek, was granted by the Duke Philip the Good in 1439.[[34]](#footnote-34) Inge Van Wegens have traced not less than 18 paper mills around Brussels, all founded in the second half of the 15th century. The centre of gravity for this production was located in the valley of the Woluwe to the southeast of Brussels. The production techniques seem to be imported from France.[[35]](#footnote-35)

During the 15th century, as Dirk Martens, printers imported the majority of their paper from Eastern-France: Alsace, Burgundy, Lorraine, Vosges, and Champagne with Troyes as its most important centre.[[36]](#footnote-36) It seems that this situation has maintained at the beginning of the 16th century. The examination of the paper of a copy of a book printed by Henrick Eckert in 1512/13 in Antwerp and that of another edition published by Dirk Martens in 1511/12 reveals that these books were made with paper from the Troyes region and from mills located in Burgundy, Champagne and Lorraine.[[37]](#footnote-37)

There were, however, a few exceptions. For example, William Caxton printed his French translation of Jacobus de Cessolis’ *Play of chess* (Bruges, 1474) with paper coming from Basel.[[38]](#footnote-38) Papers manufactured in Germany or Italy were also available. Italian paper circulated since the beginnings of the 14th century. The oldest papers used in Bruges, Mons, Tournai or Malines came from the Peninsula.[[39]](#footnote-39) The paper could be shipped by sea. The sending of 11 bales of paper to Bruges by a Florentine merchant in 1370 is recorded in the notarial archives of Genoa.[[40]](#footnote-40) Italian paper could also transit through the Rhine Valley. Cologne was certainly the main point of entry for this sort of paper. The municipal archives of Antwerp preserve traces of commercial exchanges between merchants from Antwerp and Cologne at the end of the 15th century. For example, Jan van Hackenbroek, a citizen of Cologne, claims that 2 packets of paper and a half, which the valet Jan Buys transported to Cologne, belong to him (22 September 1490).[[41]](#footnote-41) In fact, Antwerp played a major role in the redistribution of foreign papers. At the beginning of the 15th century, for example, the city of Louvain was supplied in paper from Lombardy and Troyes by Antwerp traders.[[42]](#footnote-42) Bales of paper produced in Burgundy, Champagne, and Lorraine were also shipped to England from Antwerp.[[43]](#footnote-43) Books could also be found on vessels carrying these goods. England is a prime market for the typographers of the Southern Low Countries. A significant share of their merchandise was sold there, mainly due to the inability of the local industry to meet the constant demand for printed books.[[44]](#footnote-44)

The first printer who had his own paper mill was Pieter de Keyser, active in Ghent from 1511 to 1559.[[45]](#footnote-45) In 1527 he received permission from the municipality to build a paper mill ‘buten der Keyserpoorte’ (behind the Emperor door).[[46]](#footnote-46) This possession assures him the control of almost all the different stages of the realization of a book and its putting on sale. Pieter de Keyser was also a bookseller and a book binder. De Keyser sold his mill in 1545 to Marten Snouckaert, a lawyer who wanted to get into the business of book printing, but without success.[[47]](#footnote-47) Snouckaert allegedly brought from Troyes workers specialized in the manufacture of paper. He finally ceded the mill to the son of Pieter de Keysere, Daniel de Keysere, in 1552.

The ‘Paper Roads’ in the Low Countries

Before conclude, it is necessary to go back to Dirk Martens and the supply of his workshop. Very few data have been published on the purchases of paper by 15th-century printers from the Low Countries. However, some information is available. Thus, Frans de Potter and Jan Broeckaert, two local historians, quote in their history of Alost an archival record indicating the purchase by Dirk Martens of 2 reams of paper in 1489 to a trader from Cambrai, named Jacquemart Castelain.[[48]](#footnote-48) The identify of this merchant remains unknown. Anyway, this document is very useful: this is an indication that some connecting roads with French paper mills run through Cambrai.

From this information, an attempt of reconstruction of ‘paper routes’ between Eastern-France and the printing house of Dirk Martens will be possible. As we have seen, Martens imported the majority of his paper from Champagne and Lorraine. Three cases will be studied here: firstly, the transportation of paper purchased in Troyes; secondly, from the area of Bar-le-Duc; and, finally, the paper produced in Lorraine.

This city of Troyes was one of the most important centres for the production of paper in Champagne.[[49]](#footnote-49) The quality of its paper made the city famous. For example, in 1517, a contract between the chapter of the Bruges’ Church of Saint Donatian and Dirk Martens specifies that the typographer should use for printing breviaries a paper manufactured in Troyes (*in papiro troyano*), of higher quality (*de primo*), with a Bourbon shield mark (*signo videlicet scute de borbonio*) (= a shield with three lilies).[[50]](#footnote-50)

The paper manufactured in Troyes could be shipped to Paris by the Seine and, then, be brought to Cambrai by waggoners via Senlis, Roye and Péronne.[[51]](#footnote-51) There is also another possibility: the road. The paper could be carted from Troyes to Chalons-sur-Marne and, then, reach the main route to Cambrai through Reims and Quiévrain.[[52]](#footnote-52) My preference is for the first option. During the Middle Ages and the Renaissance, rivers were frequently used for the transportation of paper.[[53]](#footnote-53) From Cambrai, the paper could be put on a barge and send to Alost by the Scheldt via Antwerp. They were small vessels (20-25 m long and between 1.75 and 3 m wide) with a depth not exceeding 1 m.[[54]](#footnote-54) Some paper could also be transported from Cambrai by road to Brussels and, after, shipped to Antwerp. Archival records are available in Antwerp for 15th-century paper shipped from Brussels to Antwerp. For example, on 14 July 1492, Merten Bosscot received more than 300 packets of paper from the Brussels boatmen Bertel Barchman and Mathys vander Heyden.[[55]](#footnote-55)

[INSERT FIG. 3. HERE]

Martens also used paper manufactured near Bar-le-Duc, as testifies the presence in the *Logica vetus* of paper with a shield lettered in gothic ‘lile’ which stands for mills located in Lisle-en-Rigault (see fig. 1).[[56]](#footnote-56) Paper made there could be sent to Paris by the Marne and, then, could follow the same itinerary for paper produced in Troyes. The other option is to transport the paper to a harbour on the Meuse and, then, to ship it to Namur. Traffic on the Meuse was carried out by means of flat-bottomed boats whose tonnage was equivalent to the load of the two small caravels of Christopher Columbus.[[57]](#footnote-57) From Namur, the paper could be carried by carters to Brussels, where boatmen could take over to Antwerp and, after, to Alost.

The Meuse was also used as a means of dispersal for paper manufactured in Lorraine. Paper could be brought to Namur and, then, be cart across the printing houses located in the duchy of Brabant, such as Louvain, Brussels and Antwerp, or those located in the county of Flanders, such as Alost, Ghent or Audenarde.

Conclusion

This survey, a first and quite a small one, showed the importance of Eastern France for the paper supply of the first printing houses settled in the former Low Countries. Other investigations should be conducted in archive material and on books printed in this landscape. It could give us a better view of the paper trade, this essential activity of the book industry. Until now, we have only information regarding the purchases of paper made by Christoph Plantin's printing house. The archives of his firm indicate that he mainly did business with traders from Antwerp, Troyes and also from Paris, Rouen and La Rochelle. His accounts also give precious information on the fluctuation of the price of paper. Maybe unexploited archives could help us to reconstruct the socio-economic aspect and the networks of actors of the paper business during the Early Modern Period. To finish, maybe, we have to reconsider the first waves of settlements of the printing houses of the Low Countries in the light of the ‘paper roads’. In the Southern Low Countries, the first towns that entered in the typographical era are located on a river, as for example Ghent, Audenarde and Antwerp in the Scheldt Valley, or on an affluent like Brussels or Louvain. This model should maybe be tested for the whole 15th-century European industry of the printed book.

1. Philip Gaskell, *A New Introduction to Bibliography* (2nd ed., Oxford: The Clarendon Press,1974), p. 60. [↑](#footnote-ref-1)
2. Renaud Adam, *Vivre et imprimer dans les Pays-Bas méridionaux (des origines à la Réforme)* (2 vols., Turnhout: Brepols, 2018), I. pp. 78-79. The Hellingas and Gerard van Thienen came to the same conclusions with an identical method for the first workshops of Bruges and Brussels. See Wytze and Lotte Hellinga, ‘Caxton in the Low Countries’, *Journal of the Printing Historical Society*, 11 (1976), pp. 20-22; Gerard van Thienen, ‘Papieronderzoek en de drukpers van de Broeders des gemenen levens in Brussel (1475-1485)’, in Chris Coppens etc. (eds), *E codicibus impressisque. Opstellen over het boek in de Lage Landen voor Elly Cockx-Indestege* (3 vols., Louvain: Peeters, 2004), I. 431-443. [↑](#footnote-ref-2)
3. Van Thienen, ‘Papieronderzoek’, pp. 431-443. [↑](#footnote-ref-3)
4. Allan Stevenson, ‘The First Book Printed at Louvain’, in Dennis E. Rhodes (ed.), *Essay in Honour of Victor Scholderer* (Mainz: Karl Pressler, 1970), pp. 402-406. I also use the analysis of watermark to locate the binding workshop of Felix de Hont in Louvain active in the 1470s. See Renaud Adam, ‘Deux découvertes à la Bibliothèque royale de Belgique: une pronostication inconnue imprimée à Anvers en 1498 et un second «relieur au rébus» (Louvain, dernier tiers du xve siècle)’, *Gutenberg Jahrbuch*, 87 (2012), pp. 157-164. [↑](#footnote-ref-4)
5. Jeanne Veyrin-Forrer, ‘Fabriquer un livre au xvie siècle’, in Henri-Jean Martin etc. (ed.), *Histoire de l’édition française* (4 vols., Paris: Promodis, 1982-1986), I. 280. [↑](#footnote-ref-5)
6. Frédéric Barbier, *L’Europe de Gutenberg. Le livre et l’invention de la modernité occidentale* (Paris: Belin, 2006), pp. 192-195. [↑](#footnote-ref-6)
7. Leon Voet, *The Golden Compasses. A History and Evaluation of the Printing and Publishing Activities of the Officina Plantiniana at Antwerp* (2 vols., Amsterdam: Vangendt – London: Routledge & Kegan Paul – New York: Abner Schram, 1969-1972), II. 19 (see also pp. 379-385). On the pricing policy of the Plantin-Moretus’ firm in Early Modern Period see Goran Proot, ‘The Pricing Policy of the Officina Plantiniana, 1580-1655’, in Dirk Imhof (ed.), *Balthasar Moretus and the Passion of Publishing* (Antwerp: Museum Plantin-Moretus, 2018), pp. 32-44. [↑](#footnote-ref-7)
8. Voet, *The Golden Compasses*, II. 20. [↑](#footnote-ref-8)
9. Dirk Imhof, *Jan Moretus and the Continuation of the Plantin Press. A Bibliography of the Works published and printed by Jan Moretus I in Antwerp (1589-1610)* (2 vols., Leiden: Brill, 2014), I. xli-xlii. [↑](#footnote-ref-9)
10. Voet, *The Golden Compasses*, II. 325-326. [↑](#footnote-ref-10)
11. Daniel Bellingradt, ‘Trading Paper in Early Modern Europe. On Distribution Logistics, Traders, and Trade Volumes between Amsterdam and Hamburg in the Mid-Late Eighteenth Century’, *Jaarboek voor Nederlandse boekgeschiedenis*, 21 (2014), p. 117. [↑](#footnote-ref-11)
12. Leon Voet gives some details on the purchase of paper made by the *Officina Plantiniana* and the names of its suppliers. Paper was mainly delivered from France, Germany, and from the domestic market. At the end of the seventeenth century, the paper manufactured in the Dutch Republic had largely replaced the French. See Voet, *The Golden Compasses*, II. 25-35. [↑](#footnote-ref-12)
13. On this printer see Anne Rouzet, *Dictionnaire des imprimeurs, libraires et éditeurs belges des xve et xvie siècles dans les limites géographiques de la Belgique actuelle* (Nieuwkoop: De Graaf, 1975), pp. 140-143;Renaud Adam and Alexandre Vanautgaerden, *Thierry Martens et la figure de l’imprimeur humaniste (une nouvelle biographie)* (Turnhout: Brepols, 2009); Adam, *Vivre et imprimer*, II. 175-176 (and I-II. *passim*). [↑](#footnote-ref-13)
14. A list is available in Adam and Vanautgaerden, *Thierry Martens*, pp. 200-234. [↑](#footnote-ref-14)
15. ISTC ip00671700; USTC 435207. [↑](#footnote-ref-15)
16. USTC 400360. [↑](#footnote-ref-16)
17. ISTC ia01014400; USTC 435221. [↑](#footnote-ref-17)
18. ISTC ia00720000, USTC 436014. A digital copy of the copy kept by the University of Ghent is available through this link <https://books.google.be/books?vid=GENT900000176872>. [↑](#footnote-ref-18)
19. Charles-Moïse Briquet, *Les Filigranes. Dictionnaire historique des marques du papier dès leur apparition vers 1282 jusqu’en 1600* (4 vols., 2nd ed., Leipzig: Karl W. Hiersemann, 1923) (on-line edition: <http://www.ksbm.oeaw.ac.at/_scripts/php/BR.php>); (Gerhard Piccard), *Die Wasserzeichenkartei Piccard im Hauptstaatarchiv Stuttgart* (17 vols., Stuttgart: W. Kohlhammer, 1961-1997) (on-line edition: <https://www.piccard-online.de>); WILC = Gerard van Thienen, *Watermarks in Incunabula printed in the Low Countries* (<http://watermark.kb.nl>). [↑](#footnote-ref-19)
20. One can find an overview of 15th-century print runs with an useful introduction in Eric White’s *A Census of Print Runs for Fifteenth-Century Books*, published on the CERL’ website [https://www.cerl.org/resources/links\_to\_other\_resources/bibliographical\_data#researching\_print\_runs](https://www.cerl.org/resources/links_to_other_resources/bibliographical_data" \l "researching_print_runs) (accessed on 8 April 2019). See also Konard Haebler, *The Study of Incunabula* (New York: the Grolier Club, 1933), pp. 171-175; Hirsch, *Printing, Selling and Reading 1450-1550* (Wiesbaden: Otto Harrassowitz, 1967), pp. 61-77; Lucien Febvre, Henri-Jean Martin, *L’apparition du livre* (3e ed., Paris: Albin Michel, 1999), pp. 307-309; Angela Nuovo, *The Book Trade in the Italian Renaissance* (Leiden-Boston: Brill, 2013), pp. 99-116; Adam, *Vivre et imprimer*, I. 110-112. [↑](#footnote-ref-20)
21. Lotte Hellinga, ‘Press and Text in the First Decades of Printing’, in Lotte Hellinga, *Texts in Transit. Manuscript to Proof and Print in the Fifteenth Century* (Leiden-Boston: Brill, 2014), pp. 8-36. [↑](#footnote-ref-21)
22. Brussels, Royal Library of Belgium, Inc A 2.343. A digital copy can be found here: <http://uurl.kbr.be/1065321> (accessed on 8 April 2019). I published a facsimile version, accompanied by a study of the first workshop of Martens and de Westphalia in Alost, in: Renaud Adam, *Jean de Westphalie et Thierry Martens: la découverte de la ‘Logica Vetus (1474)’ et les débuts de l’imprimerie dans les Pays-Bas méridionaux (avec un fac-similé)* (Turnhout, Brepols, 2009). Paul Needham was the first to study the 8-leaves fragments of this edition discovered at the beginnings of 1980s. See Paul Needham, ‘Fragments of an Unrecorded Edition of the First Alost Press’, *Quaerendo. A Quarterly Journal from the Low Countries devoted to Manuscripts and Printed Books*, 12 (1982), pp. 6-21. [↑](#footnote-ref-22)
23. This was unusual at that time. The phenomenon is also found in other workshops. The only preserved copy of the second edition of the *Logica Vetus* printed in Louvain by Conrad Braem (1475) was made using 14 different papers (ISTC ia01014500; USTC 435255; The Hague, Royal Library of the Netherlands, 169 G 30). See Adam, *Jean de Westphalie et Thierry Martens*, p. 45. [↑](#footnote-ref-23)
24. List of watermarks with references to WILC (WM), Briquet, and Piccard (P); the type of paper; the location of production and the dates of circulation [when it is known]: 1.1. *Bull’s head, cross, curved muzzle*: WM I 59159; Briquet 14179; Chancery; East France (Champagne, Troyes) (1442-1450). 1.2. *Bull’s head, cross, curved muzzle*: WM I 59161; Briquet 14179; Chancery; East France (Champagne, Troyes) (1442-1450). 1.3. *Bull’s head, cross, curved muzzle*: WM I 59158; Briquet 14182; Chancery; East France (Champagne, Troyes) (1453-1461). 1.4. *Bull’s head, cross, curved muzzle*: WM I 59160; Briquet 14182; Chancery; East France (Champagne, Troyes) (1453-1461). 1.5. *Bull’s head, cross, curved muzzle*: WM I 59157; PII/IX.8; Chancery; East France (Champagne, Troyes) (1451-1459). 2.1. *Letter p, quatrefoil, to right*: WM I 52789; Briquet 8687; Chancery; East France (Lorraine, Burgundy, Rhine superior) (1470-1472). 2.2. *Letter p, quatrefoil, to right*: WM I 52790; Briquet 8687; Chancery; East France (Lorraine, Burgundy, Rhine superior) (1468-1471). 3. *Shield, crosier to left, letters ‘lile’*: WM I 52848; Briquet 1885; Chancery; East France (Bourgogne, Bar-le-Duc [Lisle-en-Rigault]) (1469-1473). 4. *Shield, three lilies, crown, on t to right*: WM I 52848; P XIII/III.1560; Chancery; North East France (1455-1463). 5. *Letter p, trefoil, cross, to left*: WM I 59166; Briquet 8789; Chancery; East France (Lorraine, Burgundy, Rhine superior) (1474-1476). [↑](#footnote-ref-24)
25. During the fifteenth and sixteenth centuries, three other sizes were available for typographers: Imperial (ca. 49x74 cm), Royal (ca. 43x62 cm), and Median (ca. 35x51 cm). The Chancery paper was commonly used by 15th-century printers of the Low Countries. There are only three editions printed on Median paper and twelve on Royal paper. See Paul Needham, ‘ISTC as Tool for Analytical Bibliography’, in Lotte Hellinga and John Goldfinch (eds.), *Bibliography and the Study of 15th-Century Civilisation. Papers presented at a Colloquium at the British Library 26-28 September 1984* (London: British Library, 1987), pp. 41-47; Paul Needham, ‘*Res papirae*: Sizes and Formats of the Late Medieval Book’, *Rationalisierung der Buchherstellung im Mittelalter und in der frühen Neuzeit. Ergebnisse eines buchgeschichtlichen Seminars, Wolfenbüttel 12-14 November1990* (Marburg: Institut für Historische Hilfswissenschaften, 1994), pp. 123-145; Gerard van Thienen, ‘Paper (including Production, Watermarks, Paper Trade)’, in Marieke van Delft and Clement de Wolf (eds.), *Bibliopolis. History of the Printed Book in the Netherlands* (The Hague: Royal Library of the Netherlands, 2003), p. 18. [↑](#footnote-ref-25)
26. ISTC ia00720000; USTC 436014. A digital copy can be found here: <https://books.google.be/books?vid=GENT900000176872> (accessed on 8 April 2019). [↑](#footnote-ref-26)
27. White, *A Census of Print Runs for Fifteenth-Century Books*, *passim*; Adam, *Vivre et imprimer*, I. 110-112. [↑](#footnote-ref-27)
28. The Hague, Royal Library of the Netherlands, 168 E 34. [↑](#footnote-ref-28)
29. 1. *Goblet*: WM I 00710; Briquet 4585-4589; Chancery; France (1468?-1492). 2. *Heart, crown, letters Ib*: WM I 00708; Briquet 4324; Chancery; East France (Champagne, Troyes) (1482). 3.1. *Heart, Latin cross*: WM I 00477; Briquet 4233; Chancery (1491). 3.2. *Heart, Latin cross*: WM I 00478; Briquet 4233; Chancery; East France (Champagne, Lorraine) (1491). 3.3. *Heart, Latin cross*: WM I 00707; Briquet 4233; Chancery; East France (Champagne, Lorraine) (1491). 3.4. *Heart, Latin cross*: WM I 00712; Briquet 4233; Chancery; East France (Champagne, Lorraine) (1491). 3.5. *Heart, Latin cross*: WM I 61720; Briquet 4233; Chancery; East France (Champagne, Lorraine) (1491). 4.1. *Letter p to right*: WM I 00473; Chancery; East France (Lorraine, Burgundy; Rhine superior). 4.2. *Letter p to right*: WM I 00475; Chancery; East France (Lorraine, Burgundy; Rhine superior). 4.3. *Letter p, wide dash, to right*: WM I 00474; Chancery; East France (Lorraine, Burgundy; Rhine superior). 4.4. *Letter p, wide dash, to right*: WM I 00709; PIV/IV.421 (1493); Chancery; East France (Lorraine, Burgundy; Rhine superior) (1493). 5.1. *Pot, large, double line ear left*: WM I 00711; Briquet 12480; Chancery; East France (Champagne) (1491). 5.2. *Pot, large, double line ear right*: WM I 00476; Briquet 12480; Chancery; East France (Champagne) (1491). 5.3. *Pot, large, double line ear right*: WM I 00479; Briquet 12480; Chancery; East France (Champagne) (1491). 6.1. *Shield, sun, crown*: WM I 00713; Briquet 13977; Chancery; France (1487). 6.2. *Shield, sun, crown*: WM I 00865; Briquet 13977; Chancery France (1487). 7. *Sun, circle*: WM I 00472; Briquet 13929; Chancery; France (1486). 8.1. *Tower, small*: WM I 00866; Chancery; ?. 8.2. *Tower, small, trefoil*: WM I 00714; Briquet 15900; Chancery; East France (Vosges) (1491). [↑](#footnote-ref-29)
30. Louis Le Clert, *Le papier. Recherches et notes pour servir à l’histoire du papier, principalement à Troyes et aux environs depuis le quatorzième siècle* (2 vols., Paris: A l’enseigne du Pégase, 1926), II. 357-358; Briquet, *Filigranes*, II. 260. [↑](#footnote-ref-30)
31. WM I 59159. Reference of the edition: ISTC ia01020000; USTC 435256. [↑](#footnote-ref-31)
32. Examples: WM I 02390 in Antwerp: Claes Leeu, 20 November 1488 (ISTC il00355000; USTC 435971); WM I 51136 in Delft: Christiaen Snellaert, 29 March 1490 (ISTC ic00978600; USTC 438312); WM I 53196 in Deventer: Richardus Pafraet, [between 12 March 1492 and 6 June 1500] (ISTC ia00445530; USTC 438496]; WM I 60033 in Liège: Cornelius de Delft, [after 1499] (ISTC is00470400; not recorded in USTC). For more results see <http://watermark.kb.nl/search/list/> (accessed on 8 April 2019). [↑](#footnote-ref-32)
33. Maurice-A. Arnould, ‘Quand sont apparus les premiers moulins à papier dans les anciens Pays-Bas?’, in *Villes d’imprimerie et moulins à papier du xive au xvie siècle. Aspects économiques et sociaux* (Brussels: Crédit communal de Belgique, 1976), pp. 269-273; Inge Van Wegens, ‘Paper Consumption and the Foundation of the First Paper Mills in the Low Countries, 13th-15th Century’, in Carla Meyer, Sandra Schultz, and Bernd Schneidmüller (eds.), *Papier im mittelalterlichen Europa: Herstellung und Gebrauch* (Berlin-Munich-Boston: Walter de Gruyter, 2015), pp. 77-78. [↑](#footnote-ref-33)
34. Van Wegens, ‘Paper Consumption’, pp. 78-80. [↑](#footnote-ref-34)
35. Van Wegens, ‘Paper Consumption’, pp. 84-85. [↑](#footnote-ref-35)
36. Van Thienen, ‘Paper (including Production, Watermarks, Paper Trade)’, p. 18. On these centres of production see Le Clert, *Le papier*, *passim*; Jean-Marie Janot, *Les moulins à papier de la région vosgienne* (2 vols., Nancy: Berger-Levrault, 1952); Maria Zaar-Görgens, *Champagne – Bar – Lothringen. Papierproduktion und Papierabsatz vom 14. bis zum Ende des 16. Jahrhunderts* (Trier: Porta-Alba-Verlag, 2004). [↑](#footnote-ref-36)
37. Adam, *Vivre et imprimer*, I. 88. [↑](#footnote-ref-37)
38. Copy examined: Brussels, Royal Library of Belgium, Inc B 1.722 (ISTC ic00413000; USTC 438841). List of papers: *bull’s head, cross, eyes, nostrils* (WM I 51687; WM I 00867) and *bull’s head, eyes, nostrils, butterfly* (WM I 51689-51692). On production of paper in Basel see Hans Kälin, *Papier in Basel bis 1500* (Basel: H. Kälin, 1974); Pierre L. Van der Haegen, *Der frühe Basler Buchdruck. Ökonomische, sozio-politische und informationssystematische Standortfaktoren und Rahmenbedingungen* (Basel: Schwabe, 200), pp. 85-92. [↑](#footnote-ref-38)
39. Arnould, ‘Quand sont apparus les premiers moulins à papier?’, p. 284, n. 85; Martin Wittek, ‘Observations sur les papiers utilisés par la ville de Malines aux xive et xve siècles’, in André Toureux (ed.), *Liber amicorum Raphaël de Smedt* (4 vols., Louvain: Peeters, 2001), IV. 1-12.

    Pieter Santy, ‘Een papieren revolutie? De introductie van het papier te Brugge (13de-14de eeuw)’, *Handelingen van het Genootschap voor Geschiedenis te Brugge*, 140 (2003), pp. 202-268. [↑](#footnote-ref-39)
40. Léone Liagre-de Sturler, *Les relations commerciales entre Gênes, la Belgique et l’Oultremont d’après les archives notariales génoises aux xiiie et xive siècles* (3 vols., Brussels-Rome: Institut historique belge de Rome, 1969), III. 409-410. [↑](#footnote-ref-40)
41. Renée Doehaerd, *Études anversoises. Documents sur le commerce international à Anvers 1488-1514* (3 vols., Paris: SEVPEN, 1962-1963), II. 43, no. 269 (see also nos. 177, 180, 269, 626, 965). [↑](#footnote-ref-41)
42. René van Uytven, *Stadsfinanciën en stadsekonomie te Leuven van de xiie tot het einde der xvie eeuw* (Brussels: Paleis der Academiën, 1961), p. 432. [↑](#footnote-ref-42)
43. Gustaaf Asaert, *De Antwerpse scheepvaart in de xve eeuw (1394-1480)* (Brussels: Paleis der Academiën, 1973), pp. 278-281. [↑](#footnote-ref-43)
44. Paul Needham, ‘Continental Printed Books sold in Oxford, c. 1480-3. Two Trade Records’, in Martin Davies (ed.), *Incunabula. Studies in Fifteenth Century Printed Books Presented to Lotte Hellinga* (London: Oak Knoll Press, 1999), pp. 243-270; Id., ‘The Custom Rolls as Documents for the Printed-Book Trade in England’, in Lotte Hellinga and Joseph Burney Trapp (eds.), *The Cambridge History of the Book in Britain* (Cambridge: Cambridge University Press, 1999), pp. 148-163; Margaret Lane Ford, ‘Importation of printed books into England and Scotland’, in *The Cambridge History of the Book in Britain*, pp. 179-201; Adam, *Vivre et imprimer*, I. 129-130. [↑](#footnote-ref-44)
45. Rouzet, *Dictionnaire des imprimeurs*, pp. 113-114; Maurits Vandecasteele, ‘De Gentse papiermolen in de 16de eeuw’, *Stadsarcheologie, bodem en monument in Gent*, 15 (1991), pp. 5-15; Adam, *Vivre et imprimer*, II. 164. [↑](#footnote-ref-45)
46. Adam, *Vivre et imprimer*, I. 70. [↑](#footnote-ref-46)
47. Victor vander Haeghen, ‘Snouckaert van Schauwenberg (Martin)’, in *Biographie nationale [de Belgique]* (43 vols, Brussels: Bruylant, 1866-1986), XXIII. 58-60; Rouzet, *Dictionnaire des imprimeurs*, p. 205. [↑](#footnote-ref-47)
48. Frans de Potter and Jan Broeckaert, *Geschiedenis der stad Aalst. Voorgegaan van eene historische schets van ‘t voormalige land van Aalst* (4 vols., Ghent: Annoot-Braeckman, 1876), IV. 292. I have not yet found the document referred by the two historians. The verbatim citation of the archive leads me to believe that the two historians saw this document well: “Jan Casier heeft belooft te rechte te bringhene jeghen Diericke Martens, Jacquemart Castelain, van Camerijcke, ter somme van IIe riemen papiers”. They also give the reference of the archive: Alost, Stadsarchief, Wettelijke passeringen, no. 1186, 1489-1490, fol. 187. I would also like to thank Lieve Arnouts, curator of the Stadsarchief of Alost, for her help in this research. [↑](#footnote-ref-48)
49. See note 36. [↑](#footnote-ref-49)
50. The document is edited in Kamiel Heireman, *Tentoonstelling Dirk Martens 1473-1973. Tentoonstelling over het werk, de persoon en het milieu van Dirk Martens, ingericht bij de herdenking van het verschijnen te Aalst in 1473 van het eerste gedrukte boek in de Zuidelijke Nederlanden* (Alost: Stadsbestuur, 1973), p. 232. Negotiations apparently failed: no copies were found. On the other hand, an agreement was probably reached with the Parisian Antoine Bonnemere who published, three years later, an octavo *Breviarum ad usum ecclesie Sancti Donatiani* (USTC 437070). [↑](#footnote-ref-50)
51. This road is described in Charles Estienne, *La guide des chemins de France* (Paris: Charles Estienne, 1553), pp. 31-35 (USTC 41018). See also Émile Coornaert, *Les Français et le commerce international à Anvers fin du xve-xvie siècle* (2 vols.,Paris: Marcel Rivière et Cie, 1961), II. 204-202. [↑](#footnote-ref-51)
52. Fernand Braudel and Ernest Labrousse (eds.), *Histoire économique et sociale de la France* (8 vols., Paris: Presses Universitaires de France, 1970-1982), I. 384. [↑](#footnote-ref-52)
53. Stevenson, ‘The First Book Printed at Louvain’, p. 405. [↑](#footnote-ref-53)
54. Marc Suttor, ‘La navigation fluviale, des origines à 1850’, in Robert Halleux etc. (eds), *Histoires des techniques en Belgique. La période préindustrielle* (3 vols., Liège: Les éditions de la Province de Liège, 2015), III. 882-885 (on the navigation on the Scheldt see pp. 879-887). [↑](#footnote-ref-54)
55. Doehaerd, *Études anversoises*, II. 100, no. 670 (see also nos. 507, 617). [↑](#footnote-ref-55)
56. WM I 52848; Briquet 1885. On this town see also Briquet, *Les Filigranes*, I. 139-140. [↑](#footnote-ref-56)
57. Suttor, ‘La navigation fluviale, des origines à 1850’, p. 874 (on the navigation on the Meuse see pp. 868-879). [↑](#footnote-ref-57)