

# Paper Trails



## The history of watermarks in paper

The oldest archeological evidence of paper usage is from China in the 2nd century BCE. From there, papermaking made its way to the Middle-East and later to Europe through North-Africa in the 12th century.

The oldest watermarks in paper are from Italian manuscripts dated from 1282. Watermarks became general in European paper in the 15th century, and would be so until handmade paper was substituted for mass-produced wood paper in the 19th and 20th centuries.

In the 15th and 16th centuries watermarks indicated certain paper sizes and production places, but this was not always the case. Paper manufacturers copied watermarks of other known producers in the hope of respect and profit.

## Practical usage

Watermarks can be beneficial for the research of manuscripts, for example when it comes to establishing dates and provenance. Researchers must, however, carry out such tasks with great precision. Even though identical watermarks are found in two manuscripts it does not necessarily mean that the paper originated in the same time and place. Also, paper was often not used immediately after production, which can create difficulties for researchers.

In the past decades, significant progress has been made in the study of watermarks, with infrared and hyperspectral photography enabling researchers to capture watermarks with more precision. International online databases have also made comparison of watermarks much easier.

## How are watermarks made?

Two craftsmen with two paper moulds usually worked together on the paper making, with one dipping a mould into a vat with pulp thus filtering paper fibres from water and the other flipping the mould over onto a piece of woolen felt. When suitable blotting pile of alternating felt and paper had been build up the paper was pressed and laid out for drying. After drying, the paper was sized with gelatinous animal glue, polished and sorted by quality.

Paper watermarks were made with bent wire figures that were fixed on the paper mould. A mould would often have two marks, one on each side: a big main watermark, for example a coat of arms, and a smaller countermark, for example initials.



As the paper moulds were used, the wire figures could move and bend, and watermarks in paper from the same mould could therefore slightly change and be deformed with time.

The paper is thinner around the area where the wire figures were located, and thus a watermark emerges when the page is held against a light source.

Until the first decades of the 19th century European paper was mostly made by hand, nowadays machine made paper dominates the market.

## Paper in Iceland

The oldest extant Icelandic paper document is from the year 1437, AM Dipl. Isl. Fasc. X,6. There is, however, evidence of an even older paper document. A charter, AM Fasc. VII.5, was written in 1423 by the Norwegian priest Michael Jónsson in Möðruvellir. It is written on parchment but there are indications that the document was originally written on paper.

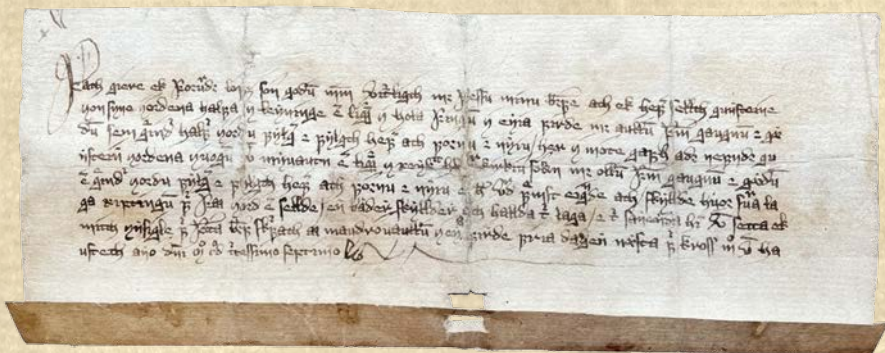
Very few paper documents from before 1550 are preserved, which suggests little usage of paper until that time. The charter from 1437 is the only extant paper document from the 15th century. Of all extant documents from the years 1501–1570 the percentage of paper documents is only around 12%. The oldest extant paper manuscript, AM 232 8vo, was written in 1540–1548. From the first half of the 16th century, only around 1,5% of extant manuscripts are written on paper. In the second half of the 16th century, there is a considerable increase in paper manuscripts, as they are around 33% of extant manuscripts from that time. Paper finally took over in the 1600's and around 95% of extant manuscripts from the 17th century are paper manuscripts.

A likely reason for the late takeover of paper in Iceland, is that there were no paper mills in the country. Icelanders had to rely on imported paper, which could be expensive. Parchment was produced locally, and was therefore a more reliable choice. At the end of the 16th century, however, importation of paper became regular and, as a result, paper took over parchment as the main writing material.

## A mysterious dragontail

The oldest extant Icelandic paper document is from the year 1437, AM Dipl. Isl. Fasc. X,6. It is a sales contract for a farm, written by chieftain Þorvarður Loftsson in Möðruvellir, Eyjafjörður in Northern Iceland.

The watermark in the charter is a dragon's tail and is a fragment of a larger watermark of a dragon. Dragon watermarks have been located in the region between Utrecht and Arnhem, close to the river Rhine in today's Netherlands, in the years 1351–1451, though mostly 1411–1431.



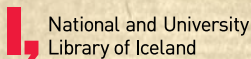
AM Dipl. Isl. Fasc. X,6. Preserved at the Árni Magnússon Institute for Icelandic Studies.

# Paper Trails: A Material History of 16th and 17th Century Icelandic Books from Paper Production to Library Collection

The three-year project Paper Trails was funded by the Icelandic Research Council, Rannís. The aim of the project was to examine the provenance of paper used in 16th and 17th century Icelandic charters, manuscripts and books by means of watermark analysis, but also to identify the agents of Icelandic paper trade. Amongst the questions we tried to answer were where and when the paper, used in Icelandic books and manuscripts, was produced and whether there are differences in the use of paper for specific purposes. Was there, for example, a difference between the paper used for manuscripts and printed books?

In the project, a corpus of over 140 charters, 350 manuscripts and 36 printed books was researched and watermarks in them analysed. In addition, 480 watermarks in 98 charters, 61 manuscripts and one book were captured.

The project was carried out by scholars at the Árni Magnússon Institute for Icelandic Studies, in collaboration with The National and University Library of Iceland.



THE ÁRNI MAGNÚSSON INSTITUTE  
for Icelandic Studies



Curators: Halldóra Kristinsdóttir,  
Jón Kristinn Einarsson and Rannver H. Hannesson.  
Designer: Ólafur J. Engilbertsson.  
5 May 2022.

# Bibliography

- Arna Björk Stefánsdóttir (2008), *Pappír sem ritfang. Yfirtaka pappírs á Íslandi á 16. og 17. öld*, BA Thesis, University of Iceland.
- Allison, Robert W., (2010) “Current techniques and developments in the study of water marks and paper”, *The Legacy of Bernard Montfaucon : three hundred years of studies on Greek handwriting : proceedings of the Seventh International Colloquium of Greek Palaeography*, Brepols Publishers, Turnhout, pp. 301–313.
- Bernstein: *Memory of Paper*, [https://www.memoryofpaper.eu/BernsteinPortal/app\\_start.disp](https://www.memoryofpaper.eu/BernsteinPortal/app_start.disp)
- Briquet, C.M. (1985), *Les filigranes. Dictionnaire historique des marques du papier dès leur apparition vers 1282 jusqu'en 1600*, Hacker Art Books, New York.
- Churchill, W.A. (1935), *Watermarks in paper in Holland, England, France, ect., in the XVII and XVIII centuries and their interconnection*, Menno Hertzberger & Co, Amsterdam.
- Gaudriault, Raymond (1995), *Filigranes et autres caractéristiques des papiers fabriqués en France aux XVIIe et XVIIIe siècles*, CRNS Éditions, J. Telford, Paris.
- Heawood, Edward (1969), *Watermarks, mainly of the 17th and 18th centuries*, The Paper Publication Society, Amsterdam.
- Hunter, Dard (1978), *Papermaking. The History and Technique of an Ancient Craft*, Dover, New York.
- Hufnagel, Silvia (2021), “The Paper Trails of Guðbrandur Þorláksson. A Case Study of the Official and Private Paths Used for Purchasing Paper by the Sixteenth-Century Bishop of Hólar, Iceland”, in: Daniel Bellingradt and Anna Reynolds (eds.), *The Paper Trade in Early Modern Europe. Practices, Materials, Networks*, Leiden, Boston, pp. 302–324.
- International Standard for the Registration of Papers with or without Watermarks* (2013), version 2.1.1.
- Laurentius, Theo and Frans (2008), *Watermarks 1650–1700 Found in the Zeeland Archives*, GH Houten, Netherlands.
- Lindberg, Nils J (1998), *Paper Comes to the North. Sources and Trade Routes of Paper in the Baltic Sea Region 1350–1700*. Monograph 2.
- Oddur Einarsson (1971), *Íslandsþýsing. Qualiscunque descriptio Islandiae*, transl. by Sveinn Pálsson, Reykjavík.
- Rottensten, Birte and Ebba Waaben (1986), *Dansk Vandmærker & Papirmøller 1570–1695*, Bind 1, Vandmærker, Copenhagen.
- Rottensten, Birte and Ebba Waaben (1987), *Dansk Vandmærker & Papirmøller 1570–1695*, Bind 2, Papirmøller, Copenhagen.
- Rückert, Peter, Sandra Hodeček and Emanuel Wenger (eds.) (2009), *Bull's Head and Mermaid. The History of Paper and Watermarks from the Middle Ages to the Modern Period*, Stuttgart and Vienna.
- Wasserzeichen Informationssystem*, <https://www.wasserzeichen-online.de/wzis/index.php>