WATER AND WIRE; A SURVEY OF WATERMARKS FOUND IN MANUSCRIPTS FROM THE OTTOMAN EMPIRE AND THE PAPER TRAIL BETWEEN EUROPE AND THE EMPIRE BETWEEN THE SIXTEENTH AND NINETEENTH CENTURIES

by

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ABSTRACT

The main topic of this research is the study of watermarks and paper in Ottoman manuscripts from the sixteenth to nineteenth centuries. The purpose of the project is to discover what types of papers were used by Ottoman merchants and high-ranking officials in the central government and provinces, which countries the papers were imported from and how a study of the trends in paper-use can correlate with cultural, economic and political contexts. An additional objective of this project was to explore the potential of the topic for further doctoral research. The project was conducted in archives in the United Kingdom, and consisted of surveying a select number of manuscripts, recording the watermarks in the paper and collecting data on specific paper characteristics. The most significant findings from this small exploratory study was that investigating paper and watermark evidence in Ottoman manuscripts can reveal patterns and trends of paper use. The results indicate that the Ottomans were concerned with what types of paper they used for specific purposes, particularly preferring a specific type of surface finish. The project highlights the potential of this study for future research and recommends avenues for further research that would be beneficial for the field of paper analysis, filigranology and Ottoman economic studies.

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NOTE ON TRANSLITERATION

Ottoman Turkish, modern Turkish, Arabic and Italian words are used in this dissertation and these words have been italicised. As far as possible, the English form of Ottoman Turkish, modern Turkish, Arabic and Italian words are used: if there is no equivalent, the original word is used followed by an explanation of the meaning of the term. For terms that have been anglicised, such as vizier or firman, these have not been italicised and I have used the form accepted in English. Ottoman Turkish words have been transliterated using modern Turkish orthography. Throughout the text, I have referred to place names according to the general international usage. If there is no accepted English version of the name, the original is used. For the Ottoman capital, I use the word Istanbul throughout, except when referring specifically to the events of the conquest of Constantinople. When referring to names, the original has been used throughout, except when in common usage in English.

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CHAPTER 1

INTRODUCTION

1. The aim of the research

For more than four centuries, The Ottoman Empire sat in the cradle of one of the world's greatest trade routes. A myriad of networks, connections and tributaries facilitated the movement of commodities such as spices, silk, cotton, fur, iron, wool, wine, tin, steel and paper. However, little is known about the paper trade in the Ottoman Empire. It is the use of paper within a great empire that forms the basis for this project.

This research project redresses the lack of knowledge about the paper trade between Europe and the Ottoman Empire between the sixteenth and nineteenth centuries. The current literature on the subject indicates that paper was imported into the Levant from various European nations during this period, however fails to delve deeper into the intricacies of this trade such as where the majority of the paper came from, what kinds of papers were imported and used in the Empire and how the use of paper reflected cultural preferences.

The main aims of this project are to discuss whether or not we can identify paper provenance and patterns of paper use in the Ottoman Empire, by the physical analysis of a selection of

manuscripts from the period: the project will discuss (i) what kinds of papers the Ottomans[1] used between the sixteenth and nineteenth centuries and (ii) which countries they preferred to import their papers from. The project also asks whether specific patterns of paper-use correlated with the social, economic and political context of the time. The project specifically focuses on the use of paper in Istanbul, as opposed to paper circulated in the provincial centres.

This project found that paper evidence in Ottoman manuscripts did highlight how much significance the Ottoman government placed upon the types and quality of papers they chose for specific purposes. Looking at whether the Ottomans preferred one watermark over another, French paper over Venetian paper, or paper from their own mills, and how this changed over time, provided more knowledge about how the Ottomans felt regarding cultural and trade ties with Europe. For example, in a similar manner, the musicologist Douglas Johnson studied the work of Ludwig van Beethoven and used watermark evidence to ascertain which works were produced during his European trips and the connections the works had with the circumstances and cultural milieu surrounding them.[2]

The evidence leads to a discussion about whether or not paper was as important to the Ottomans as other tradable commodities and not just something to write on: did the Ottomans choose their paper supplies as judiciously as other imported materials? Studying

[1] When I refer to "The Ottomans" in this study, I specifically refer to members of the Ottoman government, high and lower classes of officials, merchants, businessmen, members of the ruling class and other officials residing and working in the Ottoman Empire between the sixteenth and nineteenth centuries.
[2] Douglas Johnson, 'Music for Prague and Berlin: Beethoven's Concert Tour of 1796', in Robert Winter and Bruce Carr (eds.), *Beethoven, Performers and Critics* (Detroit: Wayne State University Press, 1980). pp. 24-40.

patterns of paper use enables us to draw conclusions about the habits and preferences of the Ottomans, at the same time as understanding these threads of thought in the wider context of the political and social environment.

The additional aim of this project is to investigate the potential of this topic for doctoral research; this project is an exploratory study, probing the theories and practices of paper analysis as a quantitative research tool. This project will assess whether or not the project could be expanded for future study, and how this research could be approached.

2. What is the impact of this study?

Paper is everywhere. We use it almost every day of our lives, our hands are stained black from receipt ink, it holds our most precious thoughts and our most dastardly deeds. Paper is a bearer of news, a medium of communication, a form of entertainment, a tool to aid learning, a commodity and even a weapon both in the metaphorical and literal sense (the humble paper cut being a fine example). Paper has thousands of different uses and it is this multi-functionality nature of paper that makes the study of its journey through history as important as the words that it carries.

Across the world, paper means different things to different people; one person´s junk is another person's treasure. For instance, the Japanese have a very special and almost spiritual relationship with paper, which is beautifully described by Junichirō Tanizaki in his book *In Praise of Shadows:*

> Paper, I understand, was invented by the Chinese, but Western Paper to us is no more than something to be used, while the texture of Chinese paper and Japanese paper gives us a certain feeling of warmth, of calm and repose.[3]

To Tanizaki, the feeling of paper is more important that the function of paper; the sense of touch and the impact that touch has, renders the paper more significant to a person´s wellbeing, than the words written on the paper. By contrast, Western paper is perceived as utilitarian and serves only one purpose: as an object to be used and discarded, and something that does not promote feelings of tranquillity. Tanizaki´s attitudes towards different types of paper highlights the fact that mundane objects can hold different meanings to different cultures and nations. This is the reason why studying the use of paper in the Ottoman Empire is so significant and alters the way modern historians view Ottoman culture. Tanizaki goes on to describe how Japanese paper reacts to light:

> Western paper turns away the light, while our paper seems to take it in, to envelop it gently, like the soft surface of a first snowfall. It gives off no sound when it is crumpled or folded, it is quiet and pliant to the touch as the leaf of a tree.[4]

Emphasising the senses of the human body (touch, sight and sound) when describing the effect of paper, can reveal things about a sheet of paper that were not apparent upon initial examination of the document. By focussing on the ordinary and quantifiable qualities of Ottoman manuscripts, a new sense of understanding could be developed about the Ottoman Empire. Daniel Miller highlights this further when he states:

> …by dwelling on the more mundane sensual and material qualities of the object, we are able to unpick the more subtle connections with cultural lives and values that are

[3] Junichirō Tanizaki, *In Praise of Shadows* (London: Vintage Books, 2001), p. 17.
[4] Tanizaki, p. 17-18.

> objectified through these forms, in part because of the particular quality they possess.[5]

In addition, paper is a `memory bearer´: it can hold within its fibres a wealth of knowledge about the history of cultures and can assist in the identification of archival documents.[6] For instance, a watermark in an historical document can reveal where the paper was manufactured; if we survey a group of archival documents with the same subject matter, on a similar style and quality of paper and with similar watermarks then we can construct a narrative based on why a particular type of paper may have been used for a particular document and in turn discuss the social, political and environmental conditions of that culture. All this can be achieved simply based upon the analysis of a few sheets of paper.

Furthermore, the revenue that paper imports generated for the Empire render paper trade studies as valuable as the trade in other materials; in the eighteenth century, paper ranked as one of the most valuable materials that was imported into the Middle East, and the profits generated equalled those from the sale of European manufactured products.[7] The Ottoman Empire was a state that was run on a high level of bureaucracy and required a large volume of paper to keep the administration running; the fact that this volume of administrative records have not been studied in a manner similar to this project makes this endeavour worthwhile.

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[5] Daniel Miller, ´Why Some Things Matter`, in *Material Cultures: Why Some Things Matter*, Ed. Daniel Miller (London: UCL Press, 1988), p. 9.
[6] Bernstein – The Memory of Papers, *Project Presentation*, (leaflet). <http://www.bernstein.oeaw.ac.at/papers/Bernstein_Project_Short_Presentation.pdf > [accessed 6 March 2015].
[7] Terence Walz, 'The Paper Trade of Egypt and the Sudan in the Eighteenth and Nineteenth Centuries', in *The Trans-Saharan Book Trade*, Volume 8 (Leiden: Brill, 2010), p. 1.

To conclude, I believe that this topic is worth pursuing because archival documents were not just mediums in which to convey official state business, but the chroniclers of time and the narrators for the genesis and dissolution of a great Empire. I wish to bend the lens through which we view this period and highlight the importance of the history of paper in the Ottoman Empire.

3. The study of paper in the wider field

The earliest analysis of watermarks, the provenance of paper and the paper trade are in the field of diplomatics. The object of the field is to critically analyse, decipher and authenticate historical documents and arose as a result of the need to ascertain original documents from forgeries.[8] Benedictine monk Domni Johannis Mabillon published what is considered the first work on diplomatics and palaeography in 1681 called *Re Diplomatica Libri VI*, in which he examined two hundred documents and listed all of the features that could be analysed from ink and seals to script and punctuation.[9]

One of the first filigranologists (researchers working on the history of watermarks in paper) was a Swiss national called Charles Moïse Briquet, who produced a four-volume work in 1907 on watermarks, which to this day is a valuable reference tool for paper and watermark historians.[10] Many other volumes containing images of watermarks taken from collections

[8] Luciana Duranti, ´Diplomatics: New Uses for an Old Science´ in *Archivaria* 28, (Summer 1989), p. 12.
[9] Ibid., p. 13.
[10] Charles Moïse Briquet, *Les Filigranes, Dictionnaire historique des marques du papier dès leur apparition vers 1282 jusqu'en 1600, avec 39 figures dans le texte et 16,112 fac-similés de filigranes* (Paris: Alphonse Picard et fils, 1907).

located across the world followed Briquet's opus, but today most of these volumes have been digitised and are available online and for free.[11]

The Bernstein Consortium has taken the digitisation of watermarks one step further, and aims to incorporate watermark databases with resources on cartography and the bibliographical study of paper into one website. To date, the website has links to forty-two watermark databases and more than 200,000 watermarks. The sentiment of the Consortium: `tracing the movement, usage and accidents in time and space of a sheet of paper provides a thread of captured events that is the basis for historical research and exploration of cultural heritage´ closely mirrors the aim of this project which is to examine watermarks and the characteristics of archival paper, thereby gaining information about the society and culture of its origin and destination.[12] Furthermore, the Consortium draws attention to questions which this project aims to explore regarding the use of paper in the Ottoman Empire: did the choice of paper reflect, ´cultural preferences, marketing choices, historical randomness or data bias?`[13]

4. Overview of the dissertation structure

In this introduction, the topic and scope of the project are defined, alongside the relevance and importance of the research. In the next section, a brief overview of trade in the Ottoman Empire will help to define the context of the work. The last section of this introduction will detail the methodology of the project. Chapter two provides more background detail on how

[11] For example: the watermarks from Briquet's *Les Filigranes* and the University of Delaware Library´s Thomas L. Gravell Watermark collection have been combined into the Thomas L. Gravell watermark database and the Piccard Watermark Index provides a compilation of watermarks collected by Gerhard Piccard, a German watermark historian, from the main state archives at Stuttgart.
[12] Bernstein – The Memory of Papers, *Project Presentation*, (leaflet).
[13] Ibid.

paper and watermarks were manufactured, which will help to place the final discussion of the papers surveyed in context. Chapter three discusses the journey that paper took to reach the Ottoman Empire within the wider context of the journey of paper from China to the rest of the world and discusses the main importers of paper into the Empire, and domestic production of paper in the Empire. The fourth chapter focuses on the extant literature regarding the paper trade between the Ottoman Empire and Europe and also delineates how research on watermarks and paper analysis can be utilised as a methodology for the research into paper provenance. The results laid out in chapter five describe the types of paper surveyed and chapter six discusses these findings in light of the context provided in the introduction, chapters one, two and the literature review. Finally, the conclusion will summarise the project findings and discuss implications for future research into the topic.

5. International Trade in the Ottoman Empire

Ottoman economic theory was based on the teachings of Aristotle and the model of the Ottoman household economy came from Greek philosophy and Iranian traditions.[14] The Ottoman economy was predominantly agrarian, which provided the economic livelihood for ninety percent of the population and Ottoman state.[15] Collection of taxes from the peasant family farms across the countryside of Anatolia and the Balkans were converted into revenues for provincial armies.[16] In addition, according to Kate Fleet, decentralisation was one of the

[14] Fatih Ermiş, *A History of Ottoman Economic Thought: Developments before the Nineteenth Century* (New York: Routledge, 2014), p. 1.
[15] Şevket Pamuk, ´The Evolution of Factor Markets in the Ottoman Empire, 1500 – 1800´, *Global Economic History Network Workshop on The Rise, Organization, and Institutional Framework of Factor Markets*, (Utrecht, 23-25 June 2005), pp. 6-7.
[16] Ibid., p. 7.

main features of Ottoman economy; each province in the Empire controlled their own economies and most of the expenses of the provinces were fulfilled by local revenues in addition to economic decisions being made by the governors of the province rather than having to receive direct instruction from Istanbul.[17] Furthermore, many provinces adopted the existing economic policies of the lands that they conquered, leading to different policies being enacted across the empire resulting in a level of ´regional diversity` and ´autonomy´.[18]

In terms of international trade, capitulations (*ahdname*) were special trade agreements given to trading nations by the Sultan, which comprised lower customs taxes for the merchants, allowed merchants to reside in Ottoman cities, and granted them protection from interference by the state. The main aims of these capitulations were to foster potential allies against Ottoman rivals, to stimulate trade with the West, and to regulate the presence of foreign merchants in Ottoman lands.[19] When the Sultan decided to grant capitulations to a trading nation, he took into consideration how advantageous that nation would be to the Ottomans, in terms of political and military connections[20]

Furthermore, in the Ottoman Empire there was an importance placed upon an ideal balance between the Sultan and central government at the top of the social order, and other groups such as the peasantry, guilds and merchants.[21] Long distance intercontinental trade was

[17] Kate Fleet, 'The Ottoman Economy , c . 1300-c . 1585', *History Compass*, 5 (2014), p. 459.
[18] Ibid., p. 460.
[19] Maurits H. van den Boogert, *Capitulations and the Ottoman Legal System: Qadis, Consols & Beratlis in the Eighteenth Century* (Leiden: Brill, 2005), p. 7.
[20] Ibid., p. 7.
[21] Pamuk, pp. 9-10.

encouraged by the Ottomans as a means of providing for the capital city, urban areas and most importantly for the maintenance of the army, which was necessary for the stability of the social order.[22] Furthermore, imported goods were encouraged into the Empire to increase the volume of products available for the urban market.[23]

Ottoman opinions of foreign merchants were often favourable. An *Ottoman Mirror for Princes*, Sinan Pasha´s *Ma´ārifnāme* written in the fifteenth century states that:

> Look with favour on the merchants in the land; always care for them; let no one harass them; let no one order them about, for through their trading the land becomes prosperous and by their wares cheapness abounds in the world; through them the excellent fame of the Sultan is carried to surrounding land and by them the wealth within the land is increased.[24]

The nations granted capitulations during the early modern period were the Genoese, Venetians, English, Dutch, French, Tuscans, and many others.[25] The English traded with the Middle East from the late sixteenth century to the middle of the nineteenth century; all of the English trade in the Mediterranean was administered by a chartered company called The Levant Company. [26] Originally called the Turkey Company, the group of merchants operated under a royal charter granted by Elizabeth I in 1581; the government encouraged this type of private trading company in order to promote foreign trade in times of limited government resources for wide-scale exportation.[27] The types of goods exchanged between the nations

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[22] Ibid., pp. 10-11.
[23] Ibid., p. 11.
[24] Halil Inalcik, *Turkey & Europe in History* (Istanbul: Eren Press, 2006). pp. 122-123.
[25] Boogert, p. 7.
[26] Despina Vlami, *Trading with the Ottomans: The Levant Company in the Middle East* (London: I.B. Tauris, 2015), p. 1.
[27] Ibid., p. 1-2.

included English woollen cloth and munitions and Ottoman exports such as silk, cotton, spices and dyes.[28] During the middle of the nineteenth century, after the Anglo-Ottoman Convention was created, English manufactured goods began to flow into the Levant in greater numbers than in previous centuries, including English manufactured paper products.[29]

6. Methodology

In order to complete this project, it was necessary to undertake a survey of watermarks in Ottoman manuscripts. The method of data collection was based on the most relevant fields of watermark registration and categorisation from the International Association of Paper Historians' guidelines on *International Standards for the Registration of Paper with or without Watermarks*. The fields used in the survey were recorded in an excel spreadsheet in no particular order of importance:

- Catalogue number
- Location of manuscript
- Description of document
- Whether or not it is an original or a copy
- Attributed date of manuscript
- Kind of paper (end use of paper)
- Status of sheet (trimmed, untrimmed etc)
- Dimensions of sheet
- Colour of sheet
- Comments on the fibre furnish/pulp distribution
- Type and degree of sizing
- Surface appearance of sheet
- Thickness of the sheet
- Kind of watermark(s)/countermark(s) in the sheet
- Position of watermark(s)/countermark(s) in the sheet
- Main motif of watermark(s)/countermark(s) in the sheet

[28] Gábor Ágoston and Bruce Masters, *Encyclopedia of The Ottoman Empire* (New York: Facts On File, 2009), p. 206.
[29] Ibid., p. 207.

- Other observations about the paper
- Paper production type (handmade or machine-made)
- Paper type according to mould
- Laid lines in the sheet (per two centimetre)
- Width between chain lines
- Media
- Has the object been previously folded?

There are many methods of recording and reproducing watermarks in historic manuscripts, some techniques offering more or less degrees of accuracy and clarity to the final image. In the early days of filigranology, the easiest and most utilized method was tracing of the watermark from the manuscript onto a sheet of transparent paper, using a light box. This method has developed into digital tracing, whereby a digital device is used to trace the watermark onto computer software. Other early methods involved the rubbing technique; in the same manner by which one produces a rubbing of the texture of tree bark, transferring the watermark image onto a sheet of transparent paper will produce an outline of the watermark; essentially the watermark makes an indentation in the paper thus will appear in relief when traced over with a soft graphite pencil. Despite the reasonable quality of watermark image that these techniques can produce, they require the researcher to lean on the manuscript, which for conservation reasons is not advisable.

Other more technologically advanced methods include scanning the manuscript using a digital scanner, or the use of different wavelengths of light to illuminate the watermark (ultraviolet light, infrared light). However, these techniques require more equipment than would normally be permitted inside most library archives. The method of digital photography using transmitted light from a LED light sheet proved to be the simplest and most portable

method, as it produced sufficient enough results for the purpose of completing this project (although on occasion did not produce the clearest image of the watermark). The other advantage of the light sheet was that it produced heat-free and UV bright light, which was no risk to the manuscripts, some of which were very fragile. In addition, the sheet was very thin therefore would fit easily in-between the pages of a bound manuscript. The choice of photographic device was an Apple iPad and an Olympus Pen E-PL 1. Other equipment such as digital microscopes were not permitted in the libraries in question, therefore the manuscripts were studied under times ten magnification with a jeweller´s loupe in order to assess the fibre furnish and pulp distribution. This meant that the physical analysis of the manuscripts and fibre content was limited, however for the purposes of this exploratory project, the results obtained with the equipment that was permitted in the library were sufficient.

In terms of original source material, the collections that were surveyed were the Turkish papers from the Jomini-Onon collection at the John Rylands Library at the University of Manchester and the Turkish Manuscript Collection at the British Library.[30] The manuscripts studied ranged from: orders of an Ottoman Grand Vizier [31] from 1834-53; imperial orders from 1818-19 and 1825-41; decrees created in the name of the Sultan dated between 1869 and 1876; judicial rulings from 1566-1574 and the remaining letters, merchant correspondence and other state documents dated between the early seventeenth century to the nineteenth century.

[30] For more information on the Turkish Collection at The British Library, go to: https://www.bl.uk/collection-guides/turkish-and-turkic-collections. The information about the Turkish manuscripts held at the British Library was provided by the curator. For more information on the Turkish manuscript collection at the John Rylands Library, see Jan Schmidt, *A Catalogue of the Turkish Manuscripts in the John Rylands University Library at Manchester* (Leiden: Brill, 2011).

[31] The Grand Vizier was the Sultan´s representative and was a member of the Imperial Council.

The choice of which manuscripts to study was limited to what kinds of documents that were extant in collections in the United Kingdom. Nevertheless, the sample does provide a cross-section of the types of manuscript produced in the Ottoman Empire. The types of manuscripts were also chosen because they were either official documents issued by the Porte, or official letters relating to diplomatic or political events. Most of the manuscripts are original documents, however some of these letters are copies of original letters. These manuscripts are included in this project because they are either attributed to clerks at embassies in Istanbul or were copied under a specific Sultan. One set of manuscripts are copies of original letters sent by the Ottoman governors of Bosnia during the late eighteenth century, but still produced in the Ottoman Empire (the seals on the paper indicate that these documents are most likely to have been produced in the Ottoman chancery), so indicative of paper that was purchased and used in the Empire.[32]

In order to complete the survey and gain as much information from the manuscripts as possible, it was necessary to understand how to analyse paper; for this my previous experience in paper conservation provided me with the skills to look analytically and critically at historic manuscripts. To discover how the paper and watermark evidence could be evaluated to answer the research questions, an extensive study of primary and secondary sources was undertaken. Tracing the provenance of the watermark, thereby discovering the origins of the paper, was achieved by referring to existing watermark print catalogues and

[32] The Ottoman chancery was the central administration offices of the Ottoman government.

online watermark databases such as The Gravell Watermark Archive and the Bernstein Memory of Paper Portal.[33]

[33] For more information on these databases, go to www.gravell.org and http://www.memoryofpaper.eu/BernsteinPortal/appl_start.disp#

CHAPTER 2

HISTORY OF HAND AND MACHINE PAPERMAKING AND THE WATERMARK IN EUROPE BETWEEN THE THIRTEENTH AND NINETEENTH CENTURIES

1. Introduction

This chapter will examine the history of hand and machine papermaking and watermarks between the thirteenth and nineteenth centuries. In order to fully understand how paper provenance can be discovered in historic manuscripts, from an in-depth study of paper characteristics, an awareness of how paper and watermarks were manufactured is essential. The purpose of this chapter is not to re-write the history of watermarks and papermaking, but to provide context to this study on Ottoman paper and watermarks.

2. What is a watermark?

The study of watermarks in historic paper is a fascinating, intriguing and elusive branch of paper studies. The true origin of watermarks is continually disputed; however, it is believed that in Europe watermarks were introduced into handmade papermaking in Italy in the thirteenth century.[34] The study of filigranology is the analysis of watermarks and countermarks in paper: the word comes from the French word for watermark, *filigrane*, which originally indicated delicate and elaborate jewellery made from fine gold or silver wire. A watermark is essentially an image, number, letter, symbol or pattern that appears in paper when it is viewed through transmitted light.

[34] William Sommerville, *Watermarks: A Brief History and Survey of the Techniques* (South Croydon: William Sommerville and Son Limited, 1973), p. 2.

The precise reason as to why papermakers added watermarks and countermarks into their paper is unknown; the most widely accepted belief is that they were used to trademark their product, indicate size or quality of the paper, display the location of the paper mill and the owner's name or date of manufacture.[35] More obscurely, some suggest that watermarks were used as symbols of secret brotherhoods or religious beliefs; during the thirteenth century in Europe, the church was a highly regarded yet feared force of authority, and some papermakers may have chosen to display their support or opposition of the church by the use of a certain symbol.[36] There is some truth to the latter notion; European papermakers were sensitive to cultural and religious nuances and created watermarks to reflect this.[37] Other opinions suggest that the existence of watermarks is due to the fact that in the fourteenth and fifteenth centuries, the papermakers and other mill workers could not read, therefore a system of pictures including letters and symbols would have been necessary to aid communication.[38]

However, it is unlikely that watermarks were used as an indicator of size of paper; before the mechanisation of papermaking many handmade papers made of varying sizes were documented as carrying the same watermark design, thus the watermarks could not have been used as a marker of paper size.[39] In addition, in hand-papermaking, each different size

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[35] Ibid., p. 1.
[36] Anon, *Introduction to Archival Materials, An Introduction to Watermarks* (London: The National Archives Public Record Office, 1997), p. 2.
[37] Ourania Kanakari and Maria Giannikou, 'Narratives of Paper in the Archives of the New Independent Greek State', in *Advances on Information Processing and Management*, (Kos, Greece, September 29-October 3, 2011), p. 265.
[38] Dard Hunter, *Papermaking: The History and Technique of an Ancient Craft* (New York: Dover Publications, 1943), p. 259.
[39] Anon, *Introduction to Archival Materials: An Introduction to Watermarks, p*. 3.

of paper would require a different size of mould; the number of watermarks is far greater than the small number of paper sizes.[40] For instance, in 1740 the French passed a law that standardized paper sizes and the result was only fifty-three official paper sizes using more than a hundred different watermark designs. Furthermore, in the thirteenth century papermakers used two papermaking moulds simultaneously, therefore symbols may have been used to easily identify a pair of moulds.[41]

Papermakers utilised a range of symbols in the creation of their watermarks: the hand mark, symbolising fidelity and labour was used by many countries; ships, anchors, anvils, bagpipes, horns, keys, and images of men with agricultural equipment were popular.[42] Other symbols from nature were used such as flowers, trees, vegetables, plants and fruits alongside a variety of animal symbols such the unicorn, a symbol of purity and innocence, which was very popular.[43] In the Ottoman Empire, watermarks in paper manuscripts reflected European papermaking traditions and the types of symbols present ranged from hands, lions, three crescent moons, crests, eagles and many others.

3. Manufacture of handmade paper

In order to understand how watermarks were produced, it is important to understand the basic concepts of how handmade paper was manufactured.[44] The process of making

[40] Ibid., p. 3
[41] Sommerville, p. 1.
[42] Hunter, p. 269.
[43] Ibid., pp. 270 – 271.
[44] For a video demonstration of European papermaking techniques, see: https://www.youtube.com/watch?v=e-PmfdV_cZU

handmade paper has not changed drastically since its inception in China in 105 AD. From approximately the eleventh century onwards, in European papermaking, the most commonly used materials used to make paper were cotton, hemp and linen.[45] Papermakers in Asia also used hemp and linen fibres, in addition to silk, ramie, bamboo, rice straw, kozo, gampi, mitsumata and paper mulberry.[46] Fibre analysis can be a very useful tool to confirm the possible provenance or date of manufacture of a sheet of paper; taking a sample of the paper, extracting the fibres and studying them under magnification can reveal the type of fibre used. Each fibre has specific characteristics in terms of cell size and placement, that differ from others, and which can aid in identification. For example, if the sample revealed a predominance of esparto grass fibre, then a reasonable conclusion could be made that the paper was produced after the 1780s, when esparto was suggested as an alternative papermaking fibre; we can then conclude that sample of paper was most likely to have been produced in Europe before the 1780s.[47] Taking samples of paper for fibre analysis is a destructive process and would not have been permitted on any of the manuscripts studied for this project; however, knowledge of the types of fibres used to make paper is very useful for future studies of this type where fibre analysis is permitted.

The first step in papermaking was to prepare the rags: better quality rags required separation from poorer quality rags (see plate one).

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[45] Thomas Collings and Derek Milner, 'A New Chronology of Papermaking Technology', *Institute of Paper Conservation Journal*, 14 (1990), pp. 58–61.
[46] Peter F. Tschudin, 'Non.Destructive Optical Investigation of Paper', in *Paper as a Medium of Cultural Heritage, Archeology and Conservation*, ed. by Rosella Graziaplena (Rome: Instituto Centrale per la Patologia el libro, 2004). p. 137.
[47] Collings and Milner, p. 59.

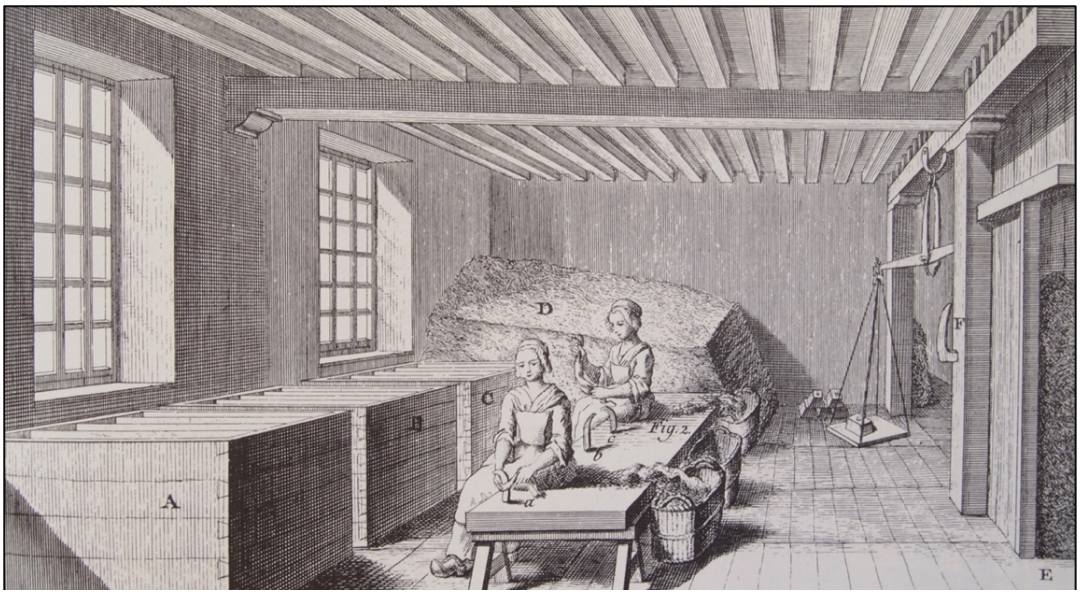

Plate 1. Sorting cloth rags for papermaking, A Diderot Pictorial Encyclopaedia of Trades and Industry: 485 Plates Selected from 'L'Encyclopedie' of Denis Diderot.

In order to soften the rags, they were sometimes soaked in water for several weeks in a process called retting.[48] The decomposition of the rags often caused them to turn yellow and the creamy colour of many early papers can be traced back to this initial retting process.[49] Once the rags were sufficiently disintegrated, long sharp knives were used to cut the rags into thin strips (see plate two) and then they were washed thoroughly in clean running water. In order to turn the cloth into pulp, it had to be beaten: this process would remove any remaining dirt from the cloth and macerate the cellulose fibres. Before the invention of the Hollander Beater in the 1680s beating was achieved with large wooden hammers or mallets powered by water (see plate three).[50]

[48] Richard L. Hills, *Papermaking in Britain 1488-1988, A Short History* (London: The Athlone Press, 1988), p. 15.
[49] Hunter. p. 155.
[50] Ibid., pp. 155-6.

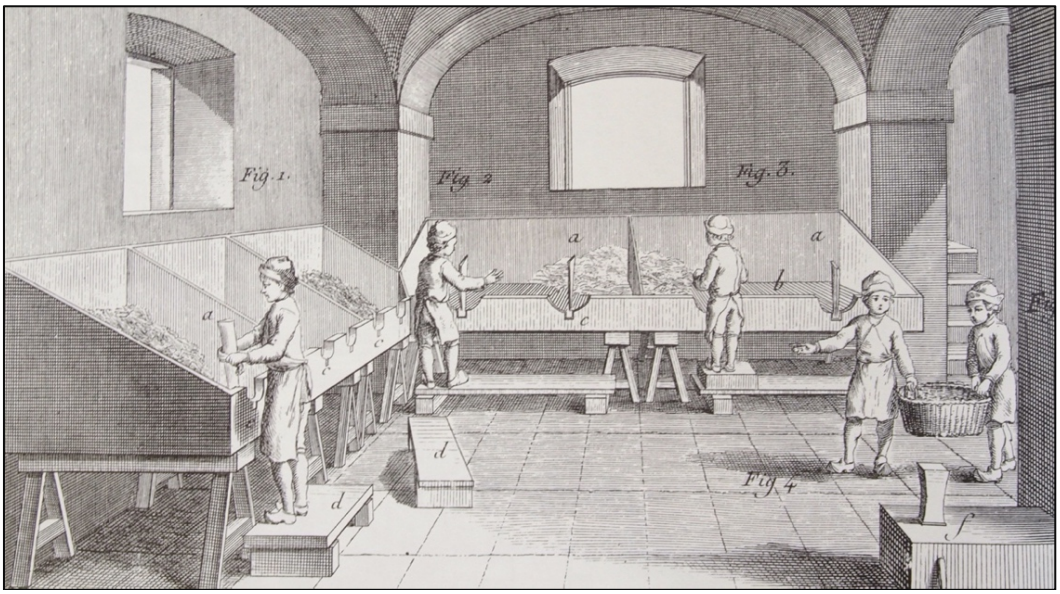

Plate 2. Cutting of rags into smaller pieces ready for maceration, A Diderot Pictorial Encyclopaedia of Trades and Industry: 485 Plates Selected from 'L'Encyclopedie' of Denis Diderot.

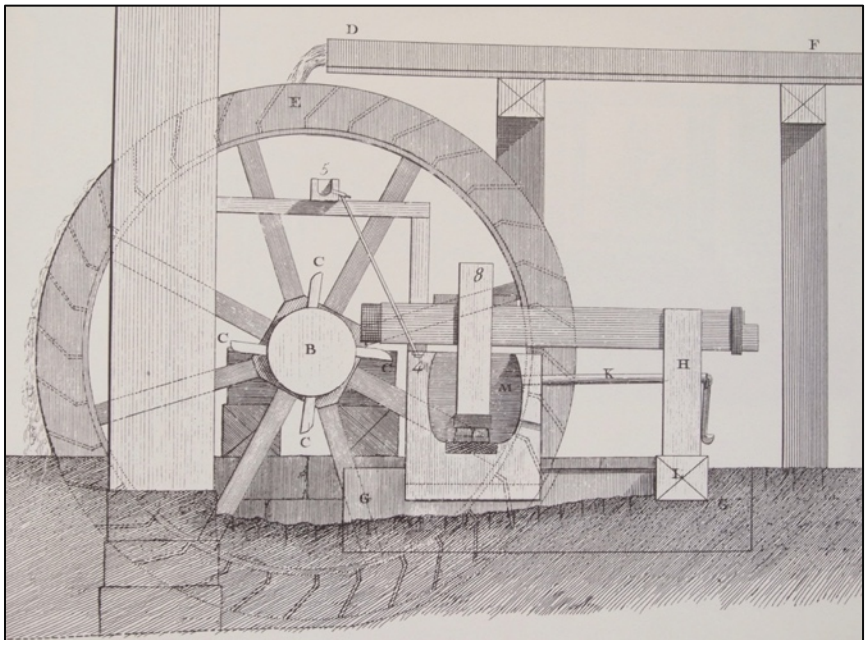

Plate 3. Water-powered stamper used to turn cloth into fibrous papermaking pulp, A Diderot Pictorial Encyclopaedia of Trades and Industry: 485 Plates Selected from 'L'Encyclopedie' of Denis Diderot.

Once the cotton rags had been beaten sufficiently, the paper pulp was added to a large heated vat and diluted with water until the required consistency was reached. The device used to form the sheet of paper is called a mould, and consists of a wire covered wooden

screen supported by equally spaced vertical wooden ribs, in conjunction with a removable wooden frame called a deckle (see plate four). The word deckle comes from the German ´deckel` or the old Dutch ´dekfel` which both mean ´cover`: the deckle essentially keeps the paper pulp within the boundaries of the mould.[51] When historians refer to a 'deckle edge' they are referring to the presence of thin and ragged pulp at the edges of the paper due to the pulp seeping under the removable deckle during the formation of the sheet.[52] True handmade paper before trimming has four deckle edges. The mat of wires on the mould allows water to drain through, whilst the fibres remain on the wires, forming the sheet of paper.[53]

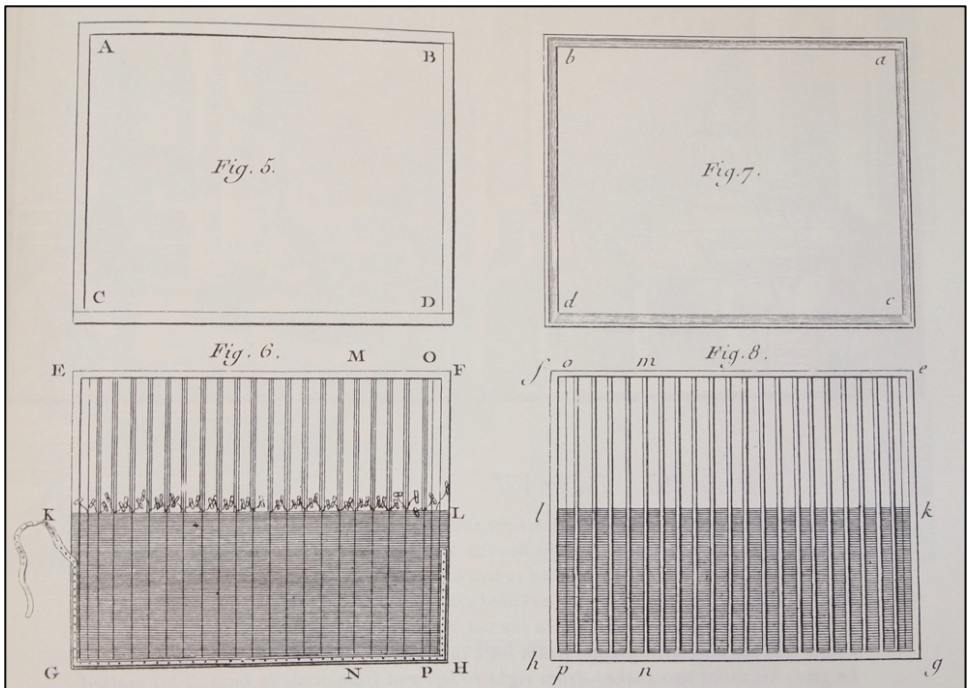

Plate 4. The deckle is represented by figures 5 and 7 whilst the mould is represented by figures 6 and 8, A Diderot Pictorial Encyclopaedia of Trades and Industry: 485 Plates Selected from 'L'Encyclopedie' of Denis Diderot.

[51] Ibid., p. 119.
[52] Peter Bower, *Turner's Papers: A Study of the Manufacture, Selection and Use of his Drawing Papers 1787 - 1820* (London: Tate Gallery, 1990), p. 127.
[53] Hunter, p. 177.

The presence of the deckle edge in paper, is another useful characteristic which can aid in the analysis of paper manuscripts; presence of this true deckle edge on every edge of a sheet of paper suggests that the paper is most likely to have been handmade. However, in this study, no such phenomenon was observed in the manuscripts studied, which does not necessarily suggest that all of the manuscripts were machine-made and not handmade. A simple explanation may have been the deckle edges were trimmed to produce a clean edge.

Sheet formation in European handmade papermaking always followed the same formula and involved three workers called the vatman, coucher and layman. To form the sheet of paper the vatman would place the deckle on top of the mould and dip the screen at a perpendicular angle into the vat (see plate five for a representation of the actions of the vatman, coucher and layman).[54] After the mould is completely submerged in the paper pulp, the vatman would draw the mould horizontally out of the water.[55] As he drew the mould up he would perform a complicated motion known as 'the papermaker's shake': this would involve shaking the mould from side to side and from the top edge to the bottom edge. This would ensure even distribution of pulp on the mould – any mistakes in this motion would lead to one end of the paper being thicker than the other. This shaking motion also overlapped and intertwined the fibres together to ensure the paper was uniformly strong.[56] Once the paper was formed on the mould, the vatman would remove the deckle and pass the mould to the coucher. The vatman would then proceed to form another sheet on a second mould using the same deckle.[57] After letting the mould drain for a few seconds, the coucher would then turn the

[54] Ibid., p. 177.
[55] Ibid., p. 177.
[56] Ibid., p. 177.
[57] Ibid., p. 178.

mould upside down and in a rocking motion from one of the long edges of the mould to the other, press the sheet onto a layer of felt.[58] This action was known as to 'couch' a sheet; the term ´coucher` is a French verb which literally means ´to lay down`.[59] Another layer of felt would be placed on top of the newly couched sheet of paper and thus the action would continue; the coucher would then pass the empty mould back to the vatman, and proceed to couch a sheet from the second mould. This cooperation between the coucher and the vatman was a continuous fluid motion; one man would never be waiting for the other to complete his task. In this manner, hundreds of sheets of paper could be formed in one day.

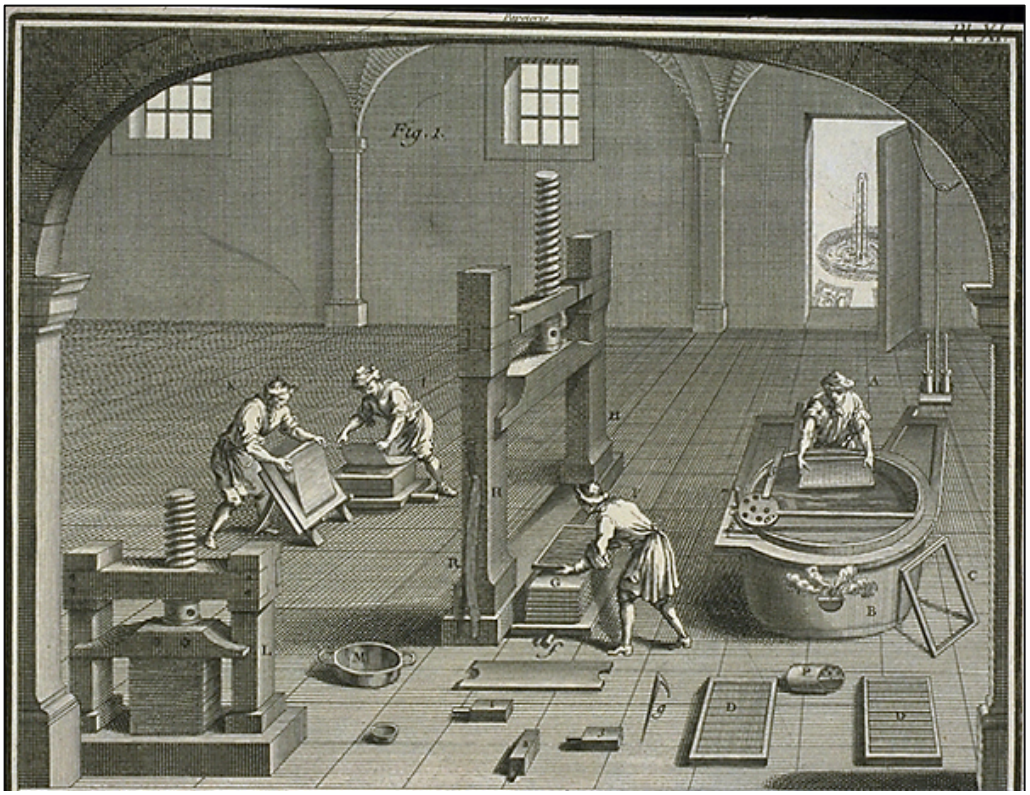

Plate 5. The papermaking process: vatman on the right, coucher in the middle and layman on the left, Observations Concerning the Characteristics of Handmade Paper: The Library of Congress Endpaper Project, 1996.

[58] Ibid., p. 178.
[59] Ibid., p. 89.

Understanding the above process is important, because the interactions of the sheet of paper with the papermaking mould and felts during sheet formation produced specific physical characteristics, which can be used to determine whether paper was handmade or machine-made. The texture produced in paper by non-woven felts used in hand-papermaking is described as ´chicken skin` texture and can be identified in paper.[60] Unfortunately, the ´chicken skin´ texture was not identified in any of the manuscripts studied for this project; if this characteristic was identified in the survey, the identification of would have enabled us to discuss whether the Ottomans preferred better quality handmade papers over cheaper yet less durable machine-made papers. However, knowledge of this characteristic in paper is one that could be valuable for future studies of this kind.

Once a sufficient stack of paper interleaved with felt was built up, the stack (which was called a 'post') would then be taken to a press and most of the water removed. In the early days of papermaking, the press would have been a simple wooden screw press, but hydraulic presses became the norm after 1795.[61] After the paper stack was pressed for several hours, the 'layman' would separate the layers of felt and paper; each sheet of paper would be stacked in a neat pile on an inclined bench or stool.[62] The stack of separated paper would then be sent back into the press to remove more water and the paper would have been dried. Once the paper was dried, it would then be sorted and checked for impurities and imperfections.

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[60] Mary Wootton, Jesse Munn and Terry Boone Wallis, 'Observations Concerning the Characteristics of Handmade Paper: The Library of Congress Endpaper Project' in *The American Institute for Conservation*, Vol 15, (1996), <http://cool.conservation-us.org/coolaic/sg/bpg/annual/v15/bp15-21.html#> [accessed 15 March 2016], p.6.
[61] Collings & Milner, pp. 58-61.
[62] Hunter, p. 185.

4. How is a watermark made?

A watermark is a small metal wire design that is sewn onto the surface of a papermaking mould using bronze or steel wire (see plate six). Each paper mill had dedicated artisan designing and constructing watermarks, and it was highly skilled work. Generally, the watermark would have been sewn onto the centre of one half of the mould and the countermark on the other half of the mould, but it would depend on the size of the mould and the intended function and recipient of the paper. During the papermaking process, as the paper pulp is dispersed across the screen, the fibres are pushed aside by the wires of the watermark, thus the distribution of the pulp across these wires is thinner than that of the surrounding paper. Therefore, when you look at a sheet of paper with transmitted light, the lines of the watermark appear less dense that the area surrounding the mark. Both countermarks and watermark were sewn onto the mould in a reverse position: this meant when the sheet was formed, the watermark would be the right way up (see plates seven and eight for examples of a countermark).

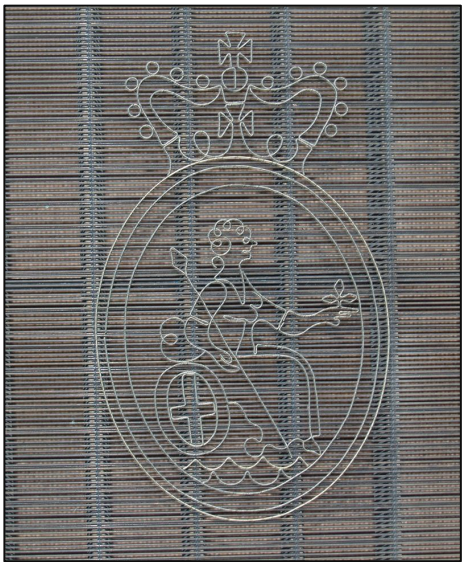

Plate 6. Example of a Britannia watermark sewn onto the surface of a wire mould for handmade papermaking © Simon Barcham Green, 2012.

Plate 7. Example of a wire papermaking mould displaying a watermark and countermark. © Simon Barcham Green, 2012.

Plate 8. Example of a countermark sewn onto the surface of a papermaking mould © Simon Barcham Green, 2012.

5. Machine papermaking

The papermaking process in western Europe between the thirteenth and eighteenth centuries did not change dramatically from the techniques described above. During the Industrial Revolution, the process underwent a transformation from one based on highly trained and skilled papermakers using centuries old techniques, to a revolutionary machine-

based process that could produce larger and more sheets per day than the traditional methods could achieve.

The growing demand for paper during the eighteenth and early nineteenth centuries was due to rising populations, the need to wrap goods produced by new industry, the need to administer this new industry with the creation of ledger books and accounts and the production of newspapers.[63] The zenith of the developments in the papermaking process came with the introduction of the papermaking machine in the early nineteenth century. Invented by Nicholas-Louis Robert in France in 1798 and developed in Great Britain by Bryan Donkin and the Fourdrinier brothers in 1803, the papermaking machine meant that paper could be made more quickly and easily than before; however, the mechanisation of papermaking did not become widespread in the European papermaking industry until the 1830s.[64]

The process of making paper by machine mirrors the hand-papermaking process: paper was formed on a woven wire cloth which held the matted fibres in place at the same time as allowing the excess water to drain through the wire mesh. In hand papermaking, the size of the paper was limited by the reach of the vatman's arms.[65] Paper made on the papermaking machine was not limited to the width of the vatman's arms, but could be as wide as the machine permitted, and the paper formed on the woven wire cloth was continual, an endless

[63] D.C.Coleman, *The British Paper Industry 1495 - 1860: A Study in Industrial Growth*, (Oxford: Clarendon Press, 1958). p. 100.
[64] Ibid., pp. 181-199.
[65] Hunter, p. 341.

reel of paper could be formed as long as the cylinders kept rotating.[66] The result of the papermaking machine, and the continual improvements and adjustments that were made to the machine throughout the nineteenth century, produced paper that was more uniform in appearance, with more evenly distributed fibres, and fewer defects or indentations than handmade paper.

Machine-made paper had no watermarks until the invention of the Dandy Roll in 1825. A Dandy Roll is a wire-covered roller used to create indentations in the paper such as laid lines or watermarks. William Joynson was credited with having made the first machine-made watermarked paper at his Kent Mill and obtained a patent for fixing letters to a Dandy Roll in 1839.[67] Paper manufactured on the papermaking machine between the period of 1803 and 1839 was considered inferior to handmade paper because without the Dandy Roll, the papermaker was not able to produce paper that looked similar in appearance to handmade papers; for example early machine made papers contained no impressions of laid or chain lines that were usually present on laid handmade moulds, and which indicated a better quality of paper.[68]

The fact that paper manufactured on the papermaking machine was considered inferior to handmade paper may have also been a result of the new papermaking fibres, and materials added to paper during the mid-nineteenth century. For example, in the 1820s the addition of chlorine based bleaching powers to pulp (to make the paper whiter) caused complaints that

[66] Ibid., pp. 345-346.
[67] Sommerville, p. 6.
[68] Ibid., p. 7.

these additions caused the paper to deteriorate more rapidly than papers without bleach.[69] Written in 1829, John Murray´s treatise on papermaking further highlights how some regarded machine-made papers to be second-rate compared to handmade papers: `About twenty-five years ago these machines were introduced and they form another era in the deterioration of the paper manufacture; for by means of them an immense quantity of inferior paper was thrown into the market.´[70] These comments on machine-made paper by no means suggest that only the very best quality of paper was produced by the handmade process; however, what they do suggest is that during the mid-nineteenth century, some regarded handmade paper to be of better quality.

It is unclear how quickly after the development of the papermaking machine, paper manufacturers in Europe were able to produce enough paper for export to the Levant. Being able to discern the difference between handmade and machine-made paper in Ottoman manuscripts could provide an indication about what kinds of paper were sent to the Levant from European manufacturers, and whether or not the Ottomans preferred to purchase paper made by hand, or sought to embrace the new types of machine-made paper. The methodology of discovering whether a paper is handmade or machine-made is complex and requires extensive knowledge of how paper is manufactured, hence a thorough understanding of the techniques of both processes is useful. Generally, paper made on the Fourdrinier machine is more uniform in appearance, smoother and has a strong grain line (i.e.

[69] Collings and Milner, p. 59.
[70] John Murray, *Practical Remarks on Modern Paper with an Introductory Account of its Former Substitutes* (Edinburgh: William Blackwood, London: T. Cadell, 1829) p. 66. <https://archive.org/details/practicalremark00murrgoog/page/n8> [accessed 29 November 2020].

the alignment of the paper fibres in one direction or the other). Only by touching, bending, folding and looking closely at the paper under a microscope can one discover how the paper was manufactured. Because many of the manuscripts studied were very fragile and microscopy was not permitted inside the archives, it was not possible to accurately indicate whether the papers surveyed for this project were hand or machine-made. For future studies of this kind, experience in discerning the difference between handmade and machine-made paper will be invaluable.

CHAPTER 3

THE JOURNEY OF PAPER INTO THE OTTOMAN EMPIRE.

1. The journey of paper from China to the world

The most recognized attributed date for the invention of paper by the court official Cai Lun under the Emperor He of Han (A.D. 89-105) was in A.D. 105.[71] The product then wound its way through the Chinese Empire to arrive in Samarkand in A.D. 751 via the caravan routes already established by merchants and traders.[72] Paper was not actually made in Samarkand until after conflict between the Chinese and Arabs resulted in Chinese papermakers being taken as prisoners of war, and being forced to show the locals how they made paper.[73] From Samarkand it was not until the tenth century that papermaking reached Egypt. From the Middle East the skill of papermaking jumped the Strait of Gibraltar and settled in Xátiva in 1151. From there, the craft spread across Europe. The journey of paper from China to the Arab lands and the Ottoman Empire is mirrored in the name used to describe paper; the Arabic word for paper is *kāghiṭ*, which comes from the Persian words *kāghid* or *kaghiz*, which itself is derived from the Chinese language. The Turkish word for paper, *kâğıt*, reflects how much influence the Persians had on the Ottoman language and culture. In the very early decades of the Ottoman Empire (circa 1300) paper was imported from the East into the Empire, and later from the West; however due to the fact that no records exist to confirm from exactly where in the East these papers came from, and in what quantities, this is purely

[71] Hunter, p. 48.
[72] Ibid., p. 60.
[73] Lothar Müller, *White Magic: The Age of Paper* (Cambridge, Massachusetts: Polity, 1954), p. 5.

an assumption.[74] In addition, there is also no documented date for when Western papers were first imported into the Ottoman Empire.[75] As one of my research aims is to discover the provenance of the paper used in the Ottoman Empire, this section will focus on the three main sources for paper used in the Ottoman Empire: paper made by the Ottomans, paper that came from the East on the Caravans, and paper that came from Europe.[76]

2. Paper manufactured in the Ottoman Empire

The Ottomans´ attempted to develop several paper mills and a papermaking industry in the Empire since the mid-15th century; they first took over mills that had been run by the Byzantines, and then sought to construct their own mills.[77] For example, the Ottoman government spent a considerable amount of money in order to finance and staff the paper mill constructed in Yalova in the eighteenth century, which highlights just how important domestic production of paper was to the Ottomans during this period.[78] However, as described in the following sections, the papermaking industry in the Empire failed to thrive, and many mills were forced to close. Furthermore, lack of evidence in the research renders it difficult to provide a conclusive history of the domestic production of paper in the Empire.

The first paper mill in the Ottoman Empire was a Byzantine inheritance. Situated on the ancient Vorvisis River (near the Bosporus) in Istanbul, the Kağıthane Paper Mill fell into the

[74] Osman Ersoy, *XVIII. ve XIX Yüzyillarada Türkiye´de Kâğıt*, (Ankara: Ankara Üniversitesi Basımevı, 1963), p. 15.
[75] Ibid., p. 19.
[76] İsmail Güleç, ´Osmanlılarda Kâğıt ve Kâğıtçılık`, *Müteferrika*, 2 (1994), p. 86.
[77] Mehmed Ali Kâğıtçı, ´Historical Study of Paper Industry in Turkey`, *Grafik Sanatlar Matbaası* (1976), p. 8
[78] Ersoy, p. 32.

hands of the Ottomans after the conquest of Constantinople in 1453.[79] In addition, after the conquest of Egypt in 1517, the Ottomans took craftsmen and skilled workers from the Egyptian paper mills to Istanbul, to help with the development of the Ottoman papermaking industry.[80] The celebrated travel writer Evliya Çelebi in his *Book of Travels* refers to a paper mill existing in this area in the Byzantine era, and waxes lyrical about the cleanliness of the water that runs through the valley: ´Fullers wash their turbans and shirts and trousers without the need for soap – after two rinses the garments come out as fresh as a white rose.` [81] Paper mills require a large amount of clear and fresh water to produce sufficient quantities of paper: water is required to wash the rags, macerating of the rags to make the pulp and to fill the vat during the forming of the sheet. The area around Kağıthane appears to have been an ideal location for the manufacture of paper, however the factory at Kağıthane closed down and was converted into a gunpowder factory.[82] According to state inventories, during the period of the reign of Murad IV (1623 – 1640) the paper mill was still operational; however, the date of the closure of the mill is disputed in the literature.[83] The lack of evidence regarding how long the mill was active for, highlights the gaps in the research, specifically regarding the administration of the domestic production of paper in the Empire.

There have been reports of several other paper mills being established in the Ottoman Empire, including paper factories in Amasya and Bursa.[84] Amasya was considered an

[79] Kâğıtçı, p. 8.
[80] Helen Loveday, *Islamic Paper: A Study of the Ancient Craft* (London: Archetype, 2001), p. 20.
[81] Evliya Çelebi, *An Ottoman Traveller, Sections from the Book of Travels of Evliya Çelebi*, ed. by Robert Dankoff and Sooyong Kim (London: Eland, 2010). p. 21-24.
[82] Güleç, p. 86.
[83] Kâğıtçı, p. 9.
[84] Güleç, p. 86.

important cultural centre since the Seljuk period (1037 – 1194) and remained the same during the Ottoman Empire.[85] The area became a centre for calligraphy, learning and education during the reign of Mehmed I (1413 – 1421).[86] The mill's location, on the banks of the Yeşilırmak River, would have provided the paper mill in Amasya a source of flowing water for the manufacture of paper to be used in the various libraries and educational centres. However, the research fails to suggest how long the mill at Amasya was operational for, which further highlights the gaps in the research.

The Bursa Registers dating from 1486 to 1487 indicate the presence of a paper factory in Bursa during this period.[87] According to Mehmed Ali Kâğıtçı, documents in a law suit referred to by a judge working in the area, suggested there existed a mill in Bursa in the late fifteenth century and Kâğıtçı suggests the paper manufactured in this mill contained watermarks in the shape of crescents, hats or whirling dervishes.[88] Like the mill in Amasya, there is no evidence in the literature that suggests how long the mill in Bursa was operational. If these gaps in the research were to be investigated, then a fuller picture of the operation and success of these mills would provide more insight into the domestic production of paper in the Ottoman Empire, how it compared to the production of other goods in the Empire and how the mills compared to the imported paper from the West.

[85] Ersoy, p. 27-28.
[86] Ágoston and Masters, p. 116.
[87] Ersoy, p. 27-28.
[88] Kâğıtçı, p. 9.

In 1744 a paper mill was constructed at Yalova to supply the first Ottoman printing press created by İbrahim Müteferrika. The paper mill at Yalova is a prime example of how much effort the state put into creating a domestic papermaking industry, and how important they considered this enterprise. Papermakers from Poland, alongside accomplished Jewish papermakers, were brought to Yalova and paid a considerable sum of money (1000 *akçe* each year and forty *akçe* per day; *akçe* referring to the main currency used by the Ottomans in the form of silver coins) to train Turkish papermakers in the craft.[89] In addition, the residents from the local village were exempt from tax charges in exchange for safeguarding and maintaining the water canals that fed the mill.[90]

However, despite the efforts of the state to promote domestic paper production, many of the Ottoman paper mills were forced to shut down as they could not compete with the output of European mills: Jonathan Bloom suggests that the reason for this was that European papermakers were far more accomplished at using hydro power to operate their mills, and the willingness of European papermakers to use new technologies resulted in their products being cheaper and better quality than locally produced papers.[91] Bloom´s theory that the Europeans were far more accomplished at using hydro power because of their superior skills and willingness to use new technologies is worrying; without proof of this, we have to be mindful of labelling the Ottomans as a backwards nation compared to Europe. If the management of the mills in the Ottoman Empire was lacking and the managers failed to pay staff wages, there is no doubt that the enterprise would eventually fail. This does not reflect a

[89] Ersoy, 1963, p. 31.
[90] Ibid., p. 33.
[91] Jonathan M. Bloom, ´Revolution by the Realm: A History of Paper`, *Aramco World*, Vol 50, No. 3 (1999), p. 35.

lack of skill on the behalf of the entire nation and its government. Similarly, hand papermaking was a very complex enterprise, often passed down from master to apprentice, and it took many years to become proficient as a papermaker. The vatman, who formed the sheet of paper from the paper pulp, often worked many hours at the vat and it was a tiring and repetitive job. We have to consider that there may have not been a popular interest in papermaking as a profession in the Ottoman Empire between the fifteenth and nineteenth centuries, which would result in a lack of sufficiently trained staff, and therefore less paper being produced at a consequently higher price.

In addition, there may have been other reasons for the collapse of the Ottoman mills: paper production often had to compete with agriculture for resources, which often caused tensions between farmers and the state. The paper mill at Yalova almost shut down in 1746 because despite the tax incentives for the local villages surrounding Yalova, the villagers were diverting the waterways that fed the factory, to water the gardens of a local church and to irrigate their fields.[92] This continued to happen, even after the governor of Kağıthane released an order barring the villagers from disrupting the waterways, and consequently the smooth running of the mill.[93] State attempts to harness the economic power of the environment at the expense of the needs and interests of the local farmers and fishermen is a trend seen throughout the history of the Middle East.[94] For instance, according to Alan Mikhail, the fair use of water in

[92] Güleç, p. 86.
[93] Ersoy, 1963, p. 33-34.
[94] Alan Mikhail, 'Middle East Environmental History: The Fallow between Two Fields', in *Water on Sand: Environmental Histories of the Middle East and North Africa*, ed. by Alan Mikhail (Oxford: Oxford University Press, 2013), p. 2.

the Empire was a, ´priority maintained by the administration at all costs`.[95] In addition, papermaking during this time involved disposal of a large volume of contaminated water from the various papermaking processes; therefore, it has to be considered that the locals may have felt discontented with the waters surrounding the mill becoming polluted, and that they intentionally sabotaged the mill to stop this pollution occurring. However, there is no evidence to suggest that this was indeed the case. Another reason for the collapse of the Ottoman mills was that the papermakers at the mill were not sufficiently skilled to make the factory a success and the mill often failed to pay the workers their wages.[96]

The Beykoz paper mill was established in 1804 as a direct result of Selim III´s interest in domestic production of goods and his aspiration to become industrialised.[97] However, again reflecting the fate of previous mills, the Beykoz mill was forced to shut down and the suggested reasons for the closure of the mill was due to the rag shortage, wages not being paid on time and the fact that the paper cost more than imported European paper.[98] Cotton and linen rags were the components of most handmade paper until the latter part of the eighteenth century, however rag shortage was not something that was only experienced by the Ottomans; across Europe paper manufactures struggled with rag shortages due to the increased demand for paper products and the expansion of the printing industry.[99] Despite these shortages across Europe, imports of paper from Europe were still able to outmatch the production of Ottoman mills; in the mid 1700´s, when the Ottomans announced their

[95] Mikhail, 2013, p. 10.
[96] Güleç, p. 87.
[97] Ibid., p. 87.
[98] Ibid., p. 88.
[99] Hunter, p. 309.

intention to create a paper mill near Istanbul, the French (who alongside the Venetians also imported large volumes of paper to the Levant) knew that there would not be enough linen rags in the Empire to supply the mills, and they remained unconcerned about future competition. [100]

In addition, Osman Ersoy brings to our attention the fact that due to the high cost of the paper produced in the Beykoz mill and its poor quality, the managers had difficulty selling the paper and were forced to accept payments from traders in instalments, rather than payments in whole.[101] Receiving payments for products in instalments must have led to negative financial consequences for the managers of the mill; this may have been one of the reasons why staff wages were not paid in time, and would have no doubt affected the mill´s ability to purchase large quantities of rags and other raw materials necessary for papermaking. Furthermore, it has also been suggested that the failure of Ottoman papermaking industry may have been due to the lack of good flowing rivers in Western Anatolia, that were not merely seasonal but that ran full all year round.[102] In order to manufacture one kilogram of paper, 100 litres of pure, clean and unpolluted water was required.[103] Therefore, the assumption by Bloom that the main cause of the closures of the papermills in the Ottoman Empire was due to European supremacy, can be challenged to create a more realistic narrative.

[100] Walz, p. 33.
[101] Ersoy, 1963, p. 46.
[102] Loveday, p. 20.
[103] Sommerville, p. 3.

3. Non-European imported paper

Not all paper imported into the Ottoman Empire came from the West; paper was imported from the Middle East and Asia where there existed a very well-developed papermaking tradition. The first paper made at Samarkand in A.D. 649-683 followed the Chinese tradition and the rapid spread of papermaking within the Middle Eastern region was stimulated by the flourishing of intellectual endeavour.[104] The main papermaking centres around the tenth century were: Samarkand, Baghdad, Cairo, Damascus and Tripoli.[105] From the tenth century onwards, paper was imported into the Ottoman Empire from the Middle East and Asia, but the numbers slowly declined in the fourteenth century when it is assumed that European papers flooded into the Arab lands, which affected the success of the local papermaking industries.[106]

Paper used in the Ottoman Empire from the 14th century onwards, was named according to the city of its origin, for example: *Semerkandi* (Samarkand); *Buḫārā* (Bukhara) and *Hindi* (presumably India).[107] Paper that came from Damascus in Syria was called *Dimişkî*; paper from Tabriz in Iran was called *Guniî Tebrizî* and paper from Turkestan was called *Hataî*.[108] Paper from Samarkand was highly sought after, and some of these papers were given names like ´Samarkand Sultan Paper` and ´Samarkand Silk Paper`.[109] Many other different types of papers were produced in the Middle East and Central Asia: during the tenth century the

[104] Joseph von Karabacek, *Arab Paper* (London: Archetype Publications, 2001), p. 19-26.
[105] Loveday, p. 20.
[106] Loveday, p. 25-26.
[107] Güleç, p. 89-90.
[108] Kâğıtçı, p. 12.
[109] Karabacek, p. 24.

categories of paper types ranged from Baghdad paper; Syrian paper, also called *Charta Damascena* and Egyptian paper, also known as *Mansūr* paper.[110] The large variety of papers manufactured in the Middle East and Asia from the tenth to the fourteenth century, when the numbers began to decline, suggests that the Ottomans may have had a large selection of papers to choose from, and that they continued to use papers from both the East and West. It has been suggested that non-watermarked paper was still being produced in the East, well into the twentieth century.[111]

However, papers from the East are more difficult to identify by watermarks alone because papers produced in the Islamic world were produced on a flexible mould, which inhibited the attachment of wire watermarks to the screen.[112] This means that paper provenance is much harder to decipher in papers produced in Eastern papermaking centres, compared to the watermarked papers produced in Europe. However, paper produced in the East was not as popular as European paper in the Ottoman Empire, because it was more expensive to purchase.[113] Transport of goods to the Empire was restricted to mules, camels and oxen, and routes were dependent upon the political stability of the regions that the caravans travelled through.[114] In addition, the terrain was harsh and the goods sometimes took years to get from the East to the West.

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[110] Karabacek, p. 52-53.
[111] Richard Francis, 'The Writing Surface: Paper', in *Islamic Codicology: An Introduction to the Study of Manuscripts in Arabic Script*, ed. by François Déroche (London: Al-Furqān Islamic Heritage Foundation), p. 58.
[112] Loveday, p. 52-53.
[113] Güleç, p. 86.
[114] Loveday, p. 17.

4. Paper that came to the Ottoman Empire from Western Europe

There is no widely accepted date for the introduction of European papers into the Ottoman Empire.[115] In the early years of the fifteenth century, paper from Fabriano, Treviso and Venice flooded the Egyptian market and devastated the local Egyptian paper manufacturing industry.[116]

Papermaking came to Italy during the thirteenth century, migrating from Arab papermakers in North Africa, Egypt and Spain, and the main centre for Italian paper manufacture was established around 1235 in Fabriano.[117] Papermaking technology was further developed in Europe during ´the technical and commercial revolution of the late Middle Ages`, which resulted in the traditional Arab papermaking process undergoing dramatic changes.[118] These changes let to paper mills being able to produce huge quantities of paper in a short period of time. For instance, a European paper mill in the fifteenth century would have a yearly output of approximately 1 million sheets.[119] This would ultimately result in European paper mills being able to produce large quantities of paper, and Venice in particular was well placed to bring their advanced paper products to the Levant as they had been trading in the area since the Byzantine era.[120]

[115] Ersoy, 1963, p. 19.
[116] Walz, p. 30.
[117] Müller, p. 22.
[118] Ibid., p. 22.
[119] Ibid., p. 26.
[120] Ágoston and Masters, p. 582.

Specific sizes of paper, manufactured in Italy, were intended to be used for Ottoman manuscripts and these types of paper were named accordingly: for example, *imperial* (imperial) or *real grande* (very large) were intended for Ottoman firmans.[121] Paper imported to Egypt was also glazed and burnished in order to remain acceptable for Egyptian inks, and to improve its durability.[122] Other types of paper sent to the Ottomans from Venice were: *reale, real più legera* and *real mezzana*, (roughly translating as royal, lighter than royal and medium royal, respectively).[123] The *tre lune* paper (three moons watermarks) was divided into two types: *tre lune* and *tre lune fine*. The latter type was a less refined version of the *tre lune* paper, intended for common use by the merchants, business and common people, and was meant for vast consumption.[124]

Many different types and qualities of papers were manufactured for the Levantine markets, and some mills manufactured a type of ´oriental` watermark in order to promote sales in the Levant.[125] The Venetians manufactured paper that catered specifically to the requirements of the Ottoman purchaser, especially paper intended for the Ottoman chancery which had to be able to withstand manipulation by local paper craftsmen.[126] This indicates that paper was manufactured purposely for the Ottoman market, viewing the tastes, needs and cultural preferences of the consumers as a direct influencer on the types of paper that they produced.

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[121] Walz, p. 33.
[122] Ibid., p. 38.
[123] Ivo Mattozzi, 'Le Filigrane e La Questione Della Qualita Della Carta Nella Rebubblica Veneta Della Fine Del '700 Il Caso Della Carte Filigranate Esportate Nell'Impero Ottomano', *Ateneo Veneto* (1994), p. 10.
[124] Ibid., p. 113-115.
[125] Vincent Daniels, Alan Donnithorne and Penny Smith, eds., 'Works of Art on Paper, Books, Documents and Photographs: Techniques and Conservation' in *Contributions to the Baltimore Congress* (London: International Institute for Conservation, 2002), p. 6.
[126] Mattozzi, p. 112.

5. Islamic Muslim opinions on European paper

There is some evidence that even as far back as the fifteenth century, Islamic Muslims were concerned about the use of European paper with watermarks: the fifteenth century *fetwa* by the jurist Ibn Marzuq al Hafid (1364-1438) highlights the early opinions of Islamic Muslims towards European paper and the piece is a thoughtful response to the rise of European dominance in one particular industry.[127] The petitioner describes their concerns regarding the presence of European paper in Islamic lands and its possible effect on Muslims´ religious piety; Ibn Marzuq al Hafid attempts to dispel these rumours by utilising theory on Islamic law and his own research into the topic. Although there is no direct connection to the Ottoman Empire in this case, this example highlights the types of reactions that occurred to European paper in Islamic lands during the fifteenth century.

A fatwa is a type of non-binding religio-legal opinion by a Muslim religious scholar. In many cases a fatwa consists of a simple hypothetical question and a short and uncomplicated answer.[128] In the fifteenth century, some Muslims regarded European paper with suspicion. According to the person who requested the fatwa, the problem with European paper was that Christians produced it and they were wine and pork consumers; because the papermakers manufactured the paper with their impure hands, he believed that the paper itself would be contaminated by traces of wine and pork, items both prohibited by Islamic law.[129]

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[127] Leor Halevi, ´Christian Impurity versus Economic Necessity: A 15th Century Fatwa on European Paper`, *Speculum*, 83.4 (2008), p. 919.
[128] Ibid., p. 919.
[129] Ibid., p. 923.

The fatwa also expressed arguments against European paper such as it was sacrilegious to write holy texts on paper that contained impurities and that writing holy texts on paper containing watermarks in the shape of Christian symbols such as the cross, angels and lambs, would be endorsing idolatry, which are concerns that had been previously risen before the release of this fatwa.[130] For example, watermarks containing grapes (used for making wine) and crowns (representing European symbols of sovereignty) were marks popular with French papermakers exporting to the Levant in the eighteenth century.

Ibn Marzuq articulately defends the use of European paper comparing it to repurposing of Christian clothing; all used clothing from Christian lands had to be washed before worn by a Muslim, and paper is simply rags that have been washed before being used again by Muslims.[131] In addition, Marzuq also states that paper was made with great care and that European papermakers made sure that the value was not reduced by altering it with superfluous materials or substances.[132]

Ibn Marzuq also stated that esteemed Muslim scholars in the past had chosen to write on bones and shoes and other random materials: the fact that these objects exist, suggests to Marzuq that the choice of writing material did not compromise the religious practice.[133]
In addition, Marzuq attempts to diminish the influence of Christian symbols in watermarks by stating that even if European paper contained infidel symbols, Christian paper could be

[130] Ibid., p. 924.
[131] Ibid., p. 933.
[132] Ibid., p. 933.
[133] Ibid., p. 935.

transformed into Islamic paper by the simple action of writing the Qur'an or another holy text onto the paper: he quotes from the Qur'an stating that ´we shall hurl truth at falsehood, until truth will triumph and falsehood will pass away`.[134] The opinion of Ibn Marzuq is that the product arrives into the consumer's hand with the maker's religious identity, but is transformed by the action of the consumer.[135]

However, we must consider that the opinion of the petitioner may not have been representative of the rest of the population, nor represent opinions of consumers throughout the sixteenth to nineteenth centuries; further research in this area could shed light on wider opinions on European papers. Nevertheless, it is an insightful snapshot of early Muslim opinions towards the use of a non-Christian product.

[134] Ibid., p. 936.
[135] Ibid., p. 936.

CHAPTER 4

LITERATURE REVIEW

Part 1: Existing literature regarding paper trade between the Ottoman Empire and Europe

1. Introduction

The subtitles and hidden stories of paper and its manufacture are just as illuminating as the history of cloth or pepper trade in the Ottoman Empire; however, there exists very little research in the literature regarding how the Ottomans used and traded paper in the Empire between the sixteenth and nineteenth centuries. Whilst the existing literature on general trade and merchant activity in the Ottoman Empire is comprehensive, little is known about the paper trade and the uses of paper in the Ottoman Empire. [136] This fact renders my study of unique importance; it fills a gap within the research and highlights the importance of paper within the wider context of international and domestic trade in the Ottoman Empire.

There will be two parts to the review of the literature; the first part will concentrate on the existing literature regarding trade in the Ottoman Empire. This section will evaluate how the study of the paper trade and paper production in the Ottoman Empire developed and what

[136] See for example: Despina Vlami, *Trading with the Ottomans: The Levant Company in the Middle East* (London: I.B. Tauris, 2015)*;* Edhem Eldem, *French Trade in Istanbul in the Eighteenth Century, (*Leiden: Brill, 1999); Christine Laidlaw, *The British in the Levant: Trade and Perceptions of the Ottoman Empire in the Eighteenth Century*, (London: I.B Tauris, 2010) and Kate Fleet, *European and Islamic Trade in the Early Ottoman State: The Merchants of Genoa and Turkey* (Cambridge: Cambridge University Press, 1999).

some of the key developments in the field were. This section will also describe how some of the research methodology in the literature can be adapted to this study.

The second part of this review will focus on watermark and paper analysis. Filigranology is a well-researched topic within paper history studies. The research on filigranology and paper analysis will be analysed based on its merit as a methodology for the study of paper provenance.

2. Development of the study of paper trade and papermaking in the Ottoman Empire

As referred to in the introduction (page six), the study and analysis of paper began with the field of diplomatics. In terms of the analysis of Ottoman paper and the paper trade, the field of Ottoman-Turkish diplomatics first emerged from the need for European rulers to translate and decipher letters and documents from the Ottoman state; in order to achieve this, they employed translators and scholars of Ottoman-Turkish who were often Greek, Armenian, Genoese or French.[137] Academic studies of Ottoman-Turkish diplomatics did not occur until the nineteenth century with works by Sylvestre de Sacy and Josef von Hammer-Purgstall.[138] One of the most important early studies of Ottoman manuscripts was Fridrich Kraelitz-Greifenhorst´s work *Osmanische Urkunden*, published in 1921.[139] The study analysed both the physical and literal characteristics of Ottoman documents and noted that the provenance of a

[137] Arthur Leon Horniker, ´Ottoman-Turkish Diplomatics: A Guide to the Literature´in *Balkan Studies*, 7, 1966, pp. .135-6.
[138] See Sylvestre de Sacy, *Chrestomatie Arabe*, Paris, 1806 and Josef von Hammer-Purgstall, *Staatsverfassung und Staatsverwaltung des Osmanischen Reiches*, Wien, 1815
[139] Friedrich Kraelitz, ´Osmanische Urkunden in türkischer Sprache aus der zweiten Hälfte des 15. Jahrhunderts: Ein Beitrag zur osmanischen Diplomatik´, in *Akademie der Wissenschaften, 197 (3),* (Wien, 1920).

document could be ascertained by a study of the watermark, the format of the document, and even how it was folded.[140]

Ludwig Fekete´s *Einführung in die osmanisch-türkische* published in 1926, focused on documents from the Ottoman-Hungarian administration from the sixteenth to seventeenth centuries.[141] Based upon an analysis of a variety of documents (letters, *berat*s, firman), Fekete also discussed the surface treatment of paper, and paper polishing.[142] In addition, Fekete examined the origins of the paper in his survey, suggesting that it came from Northern Italian papermills and makes mention of the types of watermarks that he has found which included a cross, and latin letters.[143] Fekete also draws attention to the point that paper as an imported good was often difficult to obtain and expensive: a fact that was not often made in the literature.[144]

Franz Babinger in the 1930s made further contributions to the field of Ottoman-Turkish diplomatics, most especially with his book *Das Archiv.*[145] Concerning the archives of the imperial treasurer Osman Paşâ, Babinger´s book was the first to examine the history of paper production in the Ottoman Empire.[146] Babinger also mentions that the paper was imported into Istanbul from Venice, but fails to acknowledge the presence of paper imported from

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[140] Horniker, p. 137.
[141] Ludwig Fekete, *Einführung in die Osmanisch-Türkische Diplomatik der Türkischen Botmässigkeit in Ungarn,* Königliche Ungarische Universitätsdruckerei, (Budapest, 1926). p. 11.
[142] Ibid., p. 11.
[143] Ibid., p. 11-12.
[144] Ibid., p. 11.
[145] Franz Babinger, *Das Archiv des Bosniaken Osman Pascha nach den Beständen der Badischen Landesbibliothek zu Karlsruhe*, Gedruckt in der Reichsdruckerei, (Berlin: 1931).
[146] Horniker, p. 145

France or the Netherlands, again which was a similar generalization made in the early literature on paper trade in the Ottoman Empire.[147]

The next development in the study of the history of the paper trade in the Ottoman Empire was Vsevolod Nikolaev ´s 1954 survey of watermarks in Ottoman manuscripts in Bulgarian libraries in conjunction with the Bulgarian Academy of Sciences, Sofia.[148] Bulgaria was a part of the Ottoman Empire from the late fourteenth century to the formation of the Bulgarian state in 1878, and as a consequence, there is a wealth of Ottoman manuscripts in the archives and libraries in Bulgaria. Nikolaev´s work consists mainly of reproducing the watermarks in Ottoman manuscripts in the library at Sofia, alongside a commentary on the watermarks that he found, where the paper may have originated from, its destination in the Ottoman administration and the types and qualities of paper that were made in the Ottoman Empire. Whilst Nikolaev´s work is influential in the that he was the first to systematically record and analyse the watermarks in Ottoman manuscripts, his knowledge of papermaking and some of his erroneous comments cast shade on what is a very valuable work. For instance, he states that the purpose of chain and laid lines in paper were to aid the author in writing in straight lines and to help with the distribution of text onto the sheet of paper.[149] Whilst it is true that chain and laid lines in paper would help the author to write in straight lines, that is not their original purpose. Knowledge of paper manufacture would have informed Nikolaev that the

[147] Franz Babinger, Appunti sulle cartiere e sull´importazione di carta nell´impero Ottomano Specialmente da Venezia´in *Oriente Moderno*, Agosto 1931, Anno 11, Nr. 8.
[148] Vsevolod Nikolaev, *Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries: Ottoman Documents of the XVth and XVIth Centuries to the XIXth and the First Quarter of the XXth Century, Volume 1* (Sofia: Bulgarian Academy of Sciences, 1954).
[149] Ibid. p. 3.

presence of chain and laid lines in paper merely indicates that the paper was made on a laid mould, and was most likely to be handmade paper, and that is a consequence of the manufacturing process, not an intended result of the process. However, despite these inaccuracies, Nikolaev´s work is an important contribution and serves to highlight the importance of the study of watermarks in Ottoman manuscripts.

In terms of the development of diplomatics, the extensive *Handbook of Ottoman-Turkish Diplomatics* produced by scholars at the University of Warsaw, Jan Reychman and Ananiasiz Zajaczkowski, was published in 1954 and then translated into English in 1968.[150] The work addresses the history of Oriental diplomatics, extant collections of Ottoman manuscripts in Asia and Europe, palaeography, diplomatics and auxiliary disciplines. The description of the type of paper used and imported into the Empire is brief, however the section on the methods of folding and preserving documents expands on earlier work by Kraelitz.

One of the first Turkish language articles focusing on the paper trade and watermarks in Ottoman paper was A. Süheyl Ünver´s study, which was published in 1962.[151] Alongside a description of the types of papers that were used in the Ottoman Empire, where they came from and the processes the paper underwent when it arrived in the Ottoman Empire before it was used by the government, Ünver´s study also reproduces the watermarks that he surveyed in the Başvekâlet Arşivi (now known as The Ottoman Archives of the Prime

[150] Jan Reychman and Ananiasiz Zajaczkowski, *Handbook of Ottoman-Turkish Diplomatics* (Paris: Mouton, The Hague, 1968),
[151] A. Süheyl Ünver, 'XV Inci Yüzyilda Türkiye Kullanilan Kâğıtlar ve Su Damgaları', *Türk Tarih Kurumu, Belleten*, 16, 104 (1962), pp. 739–62.

Minister´s Office) and Fatih Kütüphanesi (Fatih Library). Ünver highlights the importance of the study of watermarks in Ottoman papers: he states that paper is one of the most important materials used for writing and painting in the Empire and thus is a part of Turkish cultural heritage. Ünver suggests that the paper upon which a nation records their history should be viewed as an artefact in itself, and should be given equal importance alongside what is written on the paper.

Osman Ersoy´s *XVIII. ve XIX Yüzyillarada Türkiye´de Kâğıt*, 1963 (Paper in Turkey in the Eighteenth and Nineteenth Centuries) was based upon archival research in Turkey, specifically the archives of Topkapı Palace and Başbakanlık Osmanlı Arşivi (The Ottoman Archives of the Prime Minister´s Office).[152] Ersoy´s work, in addition to presenting a survey of watermarks in the Turkish archives, also discusses paper importation into the Ottoman Empire and provides a history of Ottoman paper manufacture. In addition, Ersoy includes a catalogue of reproductions of the manuscripts that he found in the archives and most interestingly sets out charts illuminating types of paper produced at Ottoman mills, the number of bales produced, the price of the paper and the profit; all extremely useful details for understanding the intricacies of paper production in the Ottoman mills.

The topic was looked at again in 1976 with Mehmed Ali Kâğıtçı´s, ´Historical Study of Paper Industry in Turkey´, which provided an overview of papermills in the Ottoman Empire, discussed what types of papers were produced in the Ottoman paper mills and which mills

[152] Osman Ersoy, *XVIII. ve XIX Yüzyillarada Türkiye´de Kâğıt*, (Ankara: Ankara Üniversitesi Basımevı, 1963).

began producing machine-made paper in the nineteenth century.[153] The issue with these early studies is the lack of research conducted on the paper trade between the Ottoman Empire and Western Europe. Nikolaev, Ersoy and Kâğıtçı´s work, whilst providing valuable insight into the watermarks found in Ottoman documents and the paper mills operating in the Ottoman Empire, did not delve much deeper into the paper trade in the Ottoman Empire and the impact this trade had within the Ottoman economy. This type of approach to the study of the paper trade is symptomatic of this period as historical writing inclined to be descriptive rather than interpretivist or critical.

An example of a development in the field of Ottoman paper trade studies is Ivo Mattozzi's research, which is an excellent resource on the export of paper from Venice to the Levant.[154] Mattozzi´s work on the type and quality of paper manufactured in Venice for the Ottoman markets provides an understanding into what the trade relationship was like between these two nations and how important the trade of paper with the Ottomans was to the Venetian export economy. Mattozzi highlights how the Venetian papermakers specialised in the manufacture of paper for the Ottoman Empire, specifically types of paper to be used in the Ottoman chancery, but that by the 1760´s the quality of paper being exported from Venice to the Empire had declined.

[153] Mehmed Ali Kâğıtçı, ´Historical Study of Paper Industry in Turkey`, *Grafik Sanatlar Matbaası* (1976).
[154] Ivo Mattozzi, 'Le Filigrane e La Questione Della Qualita Della Carta Nella Rebubblica Veneta Della Fine Del '700 Il Caso Della Carte Filigranate Esportate Nell'Impero Ottomano', *Ateneo Veneto* (1994).

In 2010 a more in-depth study of paper trade in the Ottoman Empire was produced by Terence Walz.[155] His article on ´The Paper Trade of Egypt and the Sudan in the Eighteenth and Nineteenth Centuries´, whilst not an exploratory essay on the trade in the Ottoman Empire as a whole, provides a snapshot of one aspect of the paper trade in a region that remained under Ottoman control until the early nineteenth century.

More recently, Michaelle Biddle and Evyn Kropf [156] have focused less on watermark surveys of collections, but more on developing our understanding of the source of the paper used in the Ottoman Empire and Sub-Saharan lands; where it was manufactured, by whom, what types of papers were produced and the origins of the most popular watermarks to be used in the Empire.

In short, the study of Ottoman watermarks and paper trade began in the field of Ottoman-Turkish diplomatics and from there developed into the form of watermark surveys; collecting, reproducing and publishing the types of watermarks that were found in Ottoman archives, with little or no analysis of the provenance of the watermark or the paper. During the 1990s and to the present day, researchers have focused more on the paper trade, rather than focusing solely on the reproduction of watermarks, and began to highlight the provenance of the paper and the relationship between the trading nations.

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[155] Terence Walz, 'The Paper Trade of Egypt and the Sudan in the Eighteenth and Nineteenth Centuries', in *The Trans-Saharan Book Trade*, Volume 8 (Leiden: Brill, 2010).

[156] See Michaelle Biddle, 'New Strategies in Using Watermarks to Date Sub-Saharan Islamic Manuscripts', in *The Arts & Crafts of Literacy: Islamic Manuscript Cultures in Sub-Saharan Africa*, ed. by Andrea Brigaglia and Mauro Nobili (Berlin, Boston: De Gruyter, 2017)., and Evyn Kropf, 'Recalling Alikurna', in *The Trade in Papers Marked with Non-Latin Characters, Islamic Manuscripts & Books, Volume 15* (Leiden: Brill, 2018).

3. Adapting aspects of the literature to this study: Terence Walz´s study on watermarks in Egyptian paper during the eighteenth and nineteenth centuries.

There were periods of time between the beginning of the Empire and the start of the Republic, when one nation had a quasi-monopoly on the importation of materials into the Ottoman Empire. These monopolies were shared by smaller trading nations, and their supremacy waxed and waned in line with changes in the political relationships between nations. One common theme to emerge from the research on Ottoman paper trade is the fact that there were distinct periods of time where the bulk of paper imports came from states like Genoa and Venice, only later to be challenged and replaced by France, England and the Dutch, not forgetting the smaller trading nations that imported paper into the Empire. The next section of this literature review discusses whether an article by Terence Walz can be used as a case study to discuss whether or not this pattern is reflected in the wider context of international and domestic trade in the Ottoman Empire.

The benefits of Walz's methodology is that it is similar to the approach used in this project; Walz surveyed a collection of manuscripts in Egyptian archives and used this analysis to evaluate the paper trade in Egypt. Walz assumed that the Egyptian papermakers had not learnt the art of watermarking, thus the manuscripts in the Egyptian archives containing watermarks were manufactured in Europe.[157] In addition, Walz suggests that there were four periods of trade nation domination in the paper trade in Egypt, for example papers displaying watermarks from specific nations appeared in the Egyptian archives in greater numbers during set time periods:

[157] Walz, p. 30.

1. From 1530 to 1640 – Italian & French papers
2. From 1640 to 1680 – Italian papers
3. From 1680 to 1780 – French papers became popular again
4. From 1780 to 1880 – Italian paper.[158]

However, there are potential limitations in utilizing Walz´s study as a reflection of the paper trade in the rest of the Empire. Cairo developed itself as a centre of commerce and trade independent from the commerce of the capital, Istanbul; therefore, any comparisons between Istanbul and Cairo in terms of trade will be assuming that their manner of trade with European nations was similar.[159] In addition, the Sultans did not gain as strict a control over the trade activities in Cairo as they did in Istanbul.[160] Therefore, one must utilise Walz's work on the strength of its methodological approach to the study of regional trade, rather than a way to extrapolate a general theory or model of paper trade for the whole of the Empire. I will nonetheless use his chronological geographical findings as a basis from which to interrogate my own material.

3.1. From 1530 to 1640 – Italian and French papers

Walz´s assumption that the majority of papers imported into Egypt during the period 1530 to 1640 came from Italy and France, is reflected in the literature on international trade in the Ottoman Empire: Halil Inalcik states that because of the presence of the Venetian pre-established colonies in the Mediterranean during the Byzantine period, Venetian merchants held a ´quasi trade monopoly` with the Middle East during the fifteenth and sixteenth

[158] Ibid., p. 30.
[159] Faroqhi, 2006, p. 17.
[160] Ibid., 2006, p. 17.

centuries.[161] After the 4th crusade in 1204 the Venetians gained control over a number of islands and territories on the Aegean coast and the eastern Mediterranean; Cyprus remained under Venetian control until it was captured by the Ottomans in 1570.[162] Venetians were also known for their fine fabrics and glassware which were very popular with the wealthy members of the Ottoman elite well into the seventeenth century.[163]

During this same period when Italian papers dominated the paper import market, French trade with the Empire was of increasing importance. Despina Vlami states that by the end of the sixteenth century, France and Venice had monopolised most of the Levantine trade, which concurs with Walz's findings regarding the presence of French papers in Egypt between 1530 and 1640.[164] Walz also states that in Egypt, paper manufactured in France was favoured over Venetian and Italian paper in general between this period.[165] In addition, after the French were granted capitulations in 1536, all other Christian merchants in the Levant, without capitulations of their own, were required to conduct their trade under the French flag; this resulted in a great volume of revenue entering France from consular fees collected on all goods bought into the Empire. [166] This is reflected in the volume of French trade in the Levant in the early years of the seventeenth century, which reached 30 million French livres, making the Levant trade for France represent half of the entirety of French trade during this

[161] Halil Inalcik, 'Mutual Political and Cultural Influences between Europe and the Ottomans', in *Ottoman Civilization*, ed by Halil Inalcik, Günsel Renda, Volume 2 (Istanbul: Ministry of Culture and Tourism, 2002), p. 1055.
[162] Faroqhi, 2006, p. 140.
[163] Ibid., p. 141.
[164] Vlami, p. 88.
[165] Walz, p. 31.
[166] Horniker p. 289.

period.[167] Furthermore, after the Ottoman-Venetian war of 1570-73, the French slowly began to replace the Venetians as the dominant trading nation in the Levant.[168]

The trade relationships of these nations were significantly bolstered by the capitulations granted by the Porte to foreign trading nations. After the fall of Constantinople, capitulations were granted to the Genoese located in Galata and to the Venetians in the sixteenth century.[169] French capitulations were settled with the Ottomans in 1569.[170] Therefore, Walz´s assumptions regarding the dominance of papers being imported into Egypt from France and Italy in the early modern period, concur with the general opinions on the importance of these nations as favoured trading partners in the Levant during this first period of 1530 to 1640.

3.2. From 1640 to 1680 – Italian papers

During the seventeenth century and the second period in Walz's timeline (1640 to 1680), the position of Italy as one of the main importers of paper into the Empire is perpetuated; according to Faroqhi, the trade relationship of the Venetians with the Ottomans continued during this period in spite of the numerous wars between the two nations (for instance, the attempt to conquer Venice in 1683), and this relationship remained closer than with any of the other European nations.[171] This is reflected in Walz´s statement that during this period, Italian papers dominated the import paper trade market in Egypt, and that the difficulties that the French had in marketing their goods in the Middle East from 1640s onwards may have

[167] Inalcik, 2006, p. 124.
[168] Halil Inalcik, *The Ottoman Empire, The Classical Age 1300-1600* (London: Phoenix, 2000), p. 1399.
[169] Boogert, p. 7.
[170] Inalcik, 2000, p. 137.
[171] Faroqhi, 2006, p. 141.

contributed to this.[172] Walz´s assumption is ratified by Vlami; towards the end of the seventeenth century, France was only sending 30 ships to the Levant, compared to the 1000 ships that were sent in 1610.[173] In addition, the Dutch, English and Venetians were far more accomplished at ship building than the French, which may have given them an advantage in the shipping of goods to the Levant.[174] Lastly, the political instability and war that occupied the French during this time, may have contributed to their absence in international trade in the Levant.[175]

However, contradictorily, Faroqhi also states that from the 1630s onwards, Venetian trade in the Mediterranean was also in decline; she confirms that piracy was a hindrance to the Venetians as well as the French, but also that competition with the English and Dutch, political tension between Venice and the Spanish Viceroy of Naples and the 1618 coup d'ètât by mercenaries in the Venetian army, created a visible waning of the Venetian presence in the Levant.[176] The evidence in the literature suggests that Walz may be accurate in his assumption that Italian papers made up the bulk of the imports into Egypt between 1640-1680; however, difficulties that the French were having may have had no effect on the importation of paper into the Middle East. French manufactured paper may have been sent to the Levant under the flag of a different nation.

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[172] Walz, p.41.
[173] Vlami, p. 88.
[174] Ibid., p. 88.
[175] Ibid., p. 88.
[176] Suraiya Faroqhi, 'The Venetian Presence in the Ottoman Empire 1600-1630', in *Studies in Modern Capitalism: The Ottoman Empire & the World Economy*, ed. by Huri İslamoğlu-Inan (Cambridge: Cambridge University Press, 1987), pp. 311–22.

3.3. From 1680 to 1780 – French papers became popular again

Walz states that between the third period of 1680 and 1780, French papers become popular again after a period of Italian dominance. Edhem Eldem states that since the 1720s, French trade had begun to replace English and Dutch trade in the Levant, by attaining more than 60% of the total trade of European nations, from a level of 15% in the 1680s, which could explain the increased interest in French papers during this period.[177]

Walz highlights that during this period the French Minister of Finance attempted to reinvigorate the economy and a consequence of this was that the volume of French products in the Levant increased; according to Walz, by 1719 French exports of paper doubled from their levels in 1686.[178] In addition the French began to make the *tre lune* watermarked paper, previously made in quantity by the Venetians, in an attempt to overthrow the Venetian dominance in this market.[179] The increase in French trade in the Empire during this time is also reflected in the fact that the Ottomans rewarded the French in 1740 with a ´most favoured nation` commercial agreement as a reward for their diplomatic assistance in a recent conflict.[180] The resulting customs rate discount that the French received from the Porte (3 percent instead of 10 percent) would have served to bolster French imports into the Empire during this period. The French also undertook a project to reorganise their embassies, consulates, posts and storehouses in the Empire, and streamlined the structure of their

[177] Edhem Eldem, 'French Trade and Commercial Policy in the Levant in the 18th Century', *Oriente Moderno*, 18, 79 (1999), pp. 27–47.
[178] Walz, p. 32.
[179] Ibid., p. 33.
[180] Suraiya Faroqhi et al, *An Economic and Social History of the Ottoman Empire, Volume 2, 1600-1914* (Cambridge: Cambridge University Press, 1997) p. 728.

trading activities; these actions served to further enhance the French's domination of trade during the late eighteenth century.[181]

One point that Mattozzi makes which contradicts Walz's findings on paper trade nation-monopolies, was that from the period between 1720 to 1760, an increase in publishing in the Levant resulted in an increased need for Venetian paper and thus the Venetians established themselves ahead of the other trading nations.[182] However, according to Walz, during this period, French-manufactured papers dominated the market in Egypt. One reason that could explain this discord in theories is that, as discussed above, Egyptian trade developed apart from the rest of the Empire, in terms of its trading activity and community. At the end of the eighteenth century, a group of Ottoman governors of Egypt broke away from the Ottoman Empire and attempted to gain control over Egyptian revenues, which led to the development of institutions independent of the Porte, such as schools, military services and taxation.[183]

3.4. From 1780 to 1880 – Italian paper

Walz argues that in Egypt from 1780 to 1880, Italian paper gained dominance over the other merchant nations during this period. Walz states that the preponderance of Italian watermarks on paper dated between 1780 and 1880 in the Egyptian archives highlights the success of Italian merchants and manufactures in the Levant during the latter part of the

[181] Fatma Müge Göçek, *Rise of the Bourgeoisie, Demise of Empire: Ottoman Westernisation & Social Change* (Oxford: Oxford University Press, 1996), p. 88.
[182] Mattozzi p. 111.
[183] Alan Mikhail, *Nature and Empire in Ottoman Egypt: An Environmental History* (Cambridge: Cambridge University Press, 2011), p. 4.

eighteenth century.[184] In 1760, the Venetian consul stated that Venetian paper used in Aleppo was superior to French paper in `whiteness, neatness and fineness´.[185] The French Revolution in the latter part of the eighteenth century may have contributed to the decrease in French dominance in the paper trade in Walz's fourth period of 1780 to 1880, as the French merchant navies all but disappeared from the Mediterranean.[186] In addition, in 1750, the Franco-Austrian alliance resulted in a negative impact on Franco-Ottoman interactions; due to political, cultural and economic developments, the French began to lose interest in domination of the Levantine markets.[187] Eldem also confirms that in 1750, the import of paper by the Venetians was over 70,000 piasters compared to only 20,000 for the French.[188]

However, Mattozzi highlights that the importance the Venetians placed on trade monopolies and the lengths they went to achieve domination of the Levant market, may have caused a decline in the quality of the Venetian paper products. Mattozzi states that in 1761 the Venetians began to send their paper to the Levant through rogue traders instead of through merchants in Venice who normally acted as middlemen; these rogue traders distributed the paper without checking its quality, thereby introducing inferior paper into the Levantine markets and damaging the reputation of Venetian papermakers.[189] By cutting out the merchants and by distributing the papers using rogue traders, presumably the Venetians wished to reduce their costs, and reap more revenue from the lucrative Ottoman markets. However, the reputation of Venetian paper continued to decline during the late eighteenth

[184] Walz, p.33.
[185] Mattozzi, p. 111.
[186] Daniel Panzac, 'International and Domestic Maritime Trade in the Ottoman Empire During the 18th Century', *International Journal of Middle East Studies* 24 (1992), p. 204.
[187] Eldem, p. 30.
[188] Ibid., p. 66.
[189] Mattozzi p. 112.

century; Mattozzi states that in 1778, importers Sbardellà and Fua from Istanbul complained about the paper imported from Venice, when they found one shipment of paper that was dirty, brown and full of small stones.[190]

Trade domination of the Levant was very important for many of the big trading nations in Europe, but what Mattozzi suggests is that monopoly of a specific market may in fact have damaged the quality of the products being manufactured for that market, thereby causing that product to lose its place in the hierarchy and fundamentally resulting in that product disappearing from the market.

4. Problems with using Walz´s study as a reflection of paper trade in the Ottoman Empire

There are issues with utilising Walz´s study as a reflection of the paper trade in the Ottoman Empire. For instance, the periods of trade nation domination and quasi monopoly were not exclusive. In Walz's article, he fails to mention the presence in the Levant of other trading nations such as the Dutch and English, and the possible importance these nations had on the import of paper into Egypt.

4.1. English trade

The Ottomans granted capitulations to more nations than just the Venetians and the French: other European nations were granted capitulations from the early seventeenth century onwards.[191] The English were granted capitulations as far back as 1580 and the Levant

[190] Ibid., p. 115.
[191] Boogert, p. 7.

Company, founded by royal charter in 1581, competed aggressively with French and Venetian merchants for dominance in Levantine trade.[192] During the seventeenth century, the English exported good quality woollen goods (on par with the quality of Venetian wool), tin and steel, vital for the Ottoman arms industry. [193] As a result, the Venetian and French success in the trade of these materials in the Levant declined.[194] Vlami draws our attention to the growing importance of England as a dominant trading nation with the Ottoman Empire. Vlami states that the English were an aggressive rival to the other trading nations in the Levant, and were not immune to the bribing of Ottoman authorities to further their cause.[195] Furthermore, to the Ottomans, the English under Queen Elizabeth, were a ´counterpoise and a standing threat to Philip II in the Mediterranean`.[196] The evidence above suggests that the English were a viable contender against the Venetians, French and other Italian nations for the title of dominant trading nation in the Levant. Walz does not refer to the English in his article because English paper was not one of the goods sent to Levant in any of his four time periods. From the late fifteenth century to the mid to late eighteenth century, no good quality white writing, printing or drawing paper was manufactured in the British Isles.[197] Most white papers during this period were imported from Italy, France and the Netherlands; the first recorded paper mills in England were not operational until the late fifteenth century, and the majority of these mills manufactured brown wrapping paper of middling quality.[198] There is no concrete evidence to show that papermaking mills during this period made any format of

[192] Inalcik, 2000, p. 138.
[193] Ibid., 2000, p. 138.
[194] Ibid., 2000, p. 138.
[195] Vlami, p. 33.
[196] Horniker, p. 301.
[197] Coleman, p. 23.
[198] Ibid., p. 49.

good quality writing or printing paper. Despite the success of the English traders in the Levant in the trade of materials such as cloth, wool, tin and steel, the English could not match the Venetians or French in the paper trade. It was not until the late eighteenth and early nineteenth century that good quality English-manufactured white paper began to appear in watermarked papers in Ottoman manuscripts, demonstrating that the British were now able to compete with the Venetians and French for a role in the paper trade with the Empire.

4.2. Implications of Walz´s study

Walz´s study, whilst highlighting the dominance of Italian and French paper imported into Egypt between 1530 and 1880 and provides a useful framework for further discussion about the provenance of paper in the Ottoman Empire, does not prove that there were distinct periods where either nation held an absolute monopoly in importation. The research suggests that the importation of goods was more fluid and changed according to the political and economic climate of the country of manufacture. For example, trade between the Ottoman Empire and the Levant continued in spite of international war and conflict; between the period of 1463 and 1918, 31 out of 43 wars fought by the Ottomans were against European nations.[199] However, as demonstrated above, the exportation of good quality white paper from England was only possible until the country had developed their papermaking industry; the trade in white paper was dependent on the technology and skills available, and not the political climate or relationship with the Levant. This further highlights the point that the trade in paper and the domination of that trade is difficult to fit into an absolute structure, as

[199] Donald Quataert, *The Ottoman Empire 1700-1922,* 2nd edition (Cambridge University Press, 2005), p. 85.

Walz suggests. Locating and analysing paper purchase records in the Empire, would provide more concrete evidence on where the Ottomans purchased their paper from, which would in turn provide a clearer picture on which trading nation had domination in the paper trade.

LITERATURE REVIEW

Part 2: Research on filigranology and paper analysis and its merit as a methodology for the analysis of paper provenance

1. Introduction

The aim of this project is to use the evidence inherent in paper in order to highlight trends in paper-use in the Ottoman Empire, from a small survey of manuscripts dating from the sixteenth to the nineteenth century. The section below assesses how paper historians have approached the study of watermarks and paper analysis and the examples below explore the usefulness and reliability of the approach to paper analysis and discuss the limitations of such approaches.

2. The Compton Family Archive

In 1977 a collection of dramatic and poetic manuscripts was found in the collection of the Compton Family at their home in Castle Ashby, Northamptonshire. Some of the manuscripts were theatre plays ascribed to Cosmo Manuche, a dramatist of the seventeenth century, but many were undated and by an unknown author.[200] The plays' themes focus on the English Civil War and upon studying the manuscripts, librarians from The British Library noted that estate records from the family archive were bound in the same format as the manuscripts: for

[200] William Proctor Williams, 'Paper as Evidence: The Utility of the Study of Paper for 17th Century English Literary Scholarship', in *Essays in Paper Analysis*, ed. by Stephen Spector (Washington, D.C.: Folger Shakespeare Library, 1987), p. 195.

example with similar marbled paper covers and similar watermarks.[201] From this evidence, it was assumed that the manuscripts were not bought by the family, or gifted to them, but written on the same paper that the Compton Family used for their business records.[202]

Williams Proctor Williams used this evidence to demonstrate that the plays were commissioned by the Compton Family and written at Castle Ashby; the paper was supplied to the authors, from the paper stock that the family used for their business records, which led him to the assumption that the manuscripts (and themes therein) were very closely tied to the Compton Family.[203]

But what does this discovery mean with regards to the use of watermarks and paper as bibliographical evidence? According to Williams, the fact that the same paper used to create politically charged plays about the English Civil War was used by the family in their day-to-day record keeping suggests that the plays were never intended for publication or wider dissemination, but to be enjoyed by the family and their acquaintances.[204] The authors were commissioned not to fulfil their own burning creative fire, but for the private enjoyment of a family so closely aligned with the subject matter. One manuscript was apparently gifted to Queen Dowager Henrietta Maria, and is written on very different paper compared to the manuscripts in the Castle Ashby archive.[205] This manuscript was intended as a gift; thus, the family stock of paper was perhaps deemed unsuitable. Williams makes the point that without

[201] Ibid., p. 195.
[202] Ibid., p. 196.
[203] Ibid., p. 197.
[204] Ibid., p. 197.
[205] Ibid., p. 198.

watermark and paper analysis, simple literary criticism on its own would not have been able to make this discovery.[206]

However, one point to note is that the librarians were significantly assisted in their investigations of the manuscripts, with identical comparison papers and watermarks. Without comparison papers, this discovery could not have been made. Paul Needham calls this type of family archive, the 'retained archive' or 'blank archive'; he states that every user of paper, whether it is an official government office or family estate, creates a stock of paper, which they draw on for specific uses: this stock eventually forms the basis of their own private archive and in turn adds to the archive of their recipients.[207] Most interestingly, Needham states that each person's or government department's 'retained archive' becomes over time as ´unique as a fingerprint`.[208] Each department's 'retained archive' (which would include notes, official records, and inter-departmental records and so on) becomes a signifier to the bibliographer on that person's or culture's habits and motivations, or what materials were available to that person or cultural group.[209] From this small exploratory study of Ottoman manuscripts, this project investigates what kinds of papers were available to the Ottomans and what kind of paper-fingerprint can be identified from the manuscript survey.

[206] Williams, p. 198.
[207] Paul Needham, 'Concepts of Paper Study', in *Puzzles in Paper: Concepts in Historical Watermarks*, ed. by Daniel Mosser, Michael Saffle and Ernest W. Sullivan II (Delaware: Oak Knoll Press, 2000), pp. 2-3.
[208] Ibid., pp. 2-3.
[209] Ibid. pp. 2-3.

3. Beethoven´s use of paper during his European trips

The second example discusses the discipline of Musicology and how historical musicologists have utilized the study of watermarks in musical manuscripts in order to further an understanding of a composer's oeuvre or a collection of manuscripts. Considered a remote faction of musicology, nevertheless, according to the musicologist Ulrich Konrad, ´An historical understanding of music is inseparably bound up with an historical understanding of its material and notational sources`.[210]

For example, Douglas Johnson used watermark evidence to ascertain which works were produced during Beethoven's many European trips and the connections the works had with the circumstances surrounding them.[211] Johnson states that according to watermark evidence, Beethoven's output whilst he was in Prague was of a light nature (in terms of tone and musicality) due to Beethoven preferring to submerge himself in amateur social circles for amusement.[212] Meanwhile the works produced in Berlin were of a more sober nature according to the tastes and habits of the more serious patrons of the city.[213] The author in effect used watermarks to 'follow' the journey of the composer.[214] Following the watermarks from the manuscript survey is what this project hopes to achieve. As we compare watermarks and the quality of paper with the subject matter of the archival documents in the Ottoman

[210] Ulrich Konrad, 'The Use of Watermarks in Musicology', in *Puzzles in Paper: Concepts in Historical Watermarks*, ed. by Daniel Mosser, Michael Saffle and Ernest W. Sullivan II (Delaware: Oak Knoll Press, 2000), p. 94.
[211] Johnson, p. 39.
[212] Ibid, p. 39.
[213] Ibid, p. 39.
[214] Ibid, p. 27.

manuscripts, we will be able to highlight how significant the document was to the Ottomans, and comment on the social, political and environmental context surrounding the manuscript.

4. Joseph Haydn´s London concerts

In addition, the study of watermarks can also alter previous held beliefs regarding certain historical events.[215] In 1794, famed composer Joseph Haydn travelled to London for his second concert season. As was the custom, Haydn prepared a new series of symphonies, which he premiered in a very short period of time: only three to four weeks elapsed between each performance and his audience was astounded at the speed at which he was able to compose these works, whilst at the same time adhering to his various social obligations.[216] However upon studying the manuscripts, researchers discovered that many contained Italian watermarks; the same watermarks were also found in paper that Haydn had used in Vienna.[217]

After analysis of the evidence presented by the manuscripts, the conclusion drawn was that Haydn in fact did not compose the works in London, but had previously prepared certain pieces before he left Italy.[218] Konrad states that Haydn was ´… no gambler who depended on "inspiration and a quick pen" … he was a goal-orientated composer who planned his work with care`.[219]

[215] Ibid., p. 100.
[216] Ibid., p. 101.
[217] Ibid., p. 101.
[218] Ibid., p. 101.
[219] Ibid., p. 101.

Our perception of Haydn during this period as a master artist has changed because of the watermark evidence, and the subsequent conclusions drawn from that evidence. Therefore, we are able to make more accurate deductions regarding Haydn's working practices. Applying this approach to the paper in the Ottoman archives forces us to alter our perceptions regarding certain aspects of Ottoman culture: we may be able to change our assumptions about the importance of certain Ottoman documents, or the location where they were produced, based on an analysis of the watermark.

5. Paper science and conservation as an aid to researching paper provenance

The analysis of archival paper documents should be undertaken in a scientific-based manner; lack of knowledge about paper science, paper manufacture and deterioration can have a deleterious effect on the conclusion researchers draw from studying archival documents. For example, Stephen Shearon chronicles the analysis of a series of manuscripts by the Neapolitan musicians, Nicola and Lorenzo Fago and Giuseppe Sigismondo.[222] Shearon made assumptions about the dates of a set of manuscripts based the condition of the documents: the first set of papers are thinner, more brittle and discoloured, which prompted Shearon to associate these with Nicola Fago (circa early to mid-eighteenth century) The second set are thicker, more flexible and with less discolouration and were therefore associated with Giuseppe Sigismondo (circa late eighteenth century to early nineteenth century).[223] A

[222] Stephen Shearon, 'Watermarks and Rastra in Neapolitan Music Manuscripts, 1700-1815', in *Puzzles in Paper: Concepts in Historical Watermarks*, ed. by Daniel Mosser, Michael Saffle and Ernest W. Sullivan II (Delaware: Oak Knoll Press, 2000), p. 111.
[223] Ibid., p. 111.

conservator at some point repaired both sets of manuscripts and Shearon consequently states: ´repairs suggest usage and passage of time`.[224]

From my experience and knowledge of paper science, this is not a reliable interpretation of the evidence. Repairs do not always imply that a paper is very old; the word 'repairs' in this context refers to the treatment of a damaged archival document by a conservator which may include fixing tears to the paper, adding in-fills (attaching paper where there are large gaps in the document) and cleaning or washing a document. There are many reasons as to why paper deteriorates: the type of materials used in the paper, pollutants in the paper pulp from the manufacturing process, bleaching agents used to whiten inferior pulps, sizing agents, environmental conditions of the storage facility and contact with acidic auxiliary materials.[225] Thus, a possible reason for the 'earlier' papers appearing brittle and thinner is because they may have been in contact with acidic storage materials, whereas the 'later' papers may have been stored in better conditions. Shearon may have got the dates the wrong way around: the thinner and more brittle papers may have been produced much later than the thicker papers. Furthermore, many papers produced in the late eighteenth and nineteenth centuries were primarily manufactured from mechanical wood pulp and deteriorated much faster than paper produced decades earlier (which was made from cotton or linen rags); Shearon does not make these distinctions in his article.

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[224] Ibid., p. 111.

[225] There are two mechanisms of deterioration in paper documents. The first is internal and the second external. Internal mechanism of deterioration derives from the paper pulp and adulterants added to the pulp and external mechanisms of deterioration come from the environment surrounding the artefact. Acidic deterioration refers to the chemical reaction that occurs in the paper after exposure to organic pollutants or exposure to light (photo-oxidation). Acidic auxiliary materials refer to the paper or plastic folders, or frames where the item was stored.

The use of watermarks as evidence from the perspective of musicology is an important factor in the wider debate on the methodology of paper analysis, however it must not be considered in isolation. The study of paper does not need to be undisciplined and scattered but can be ´practiced systematically on the basis of scientific principles, and that it can lead to reliable results`.[226] For instance, it is unwise to assume that because a paper displays signs of advanced deterioration, it is older than a paper with less deterioration. This is where knowledge of conservation and paper science can override and question these hypotheses and push for a more scientific and rigorous analysis of the data. This will be imperative when analysing the papers in the Ottoman archives; understanding how paper deteriorates will enable the formation of more precise assumptions on how old a document is, therefore making the discussion regarding the social and political context more accurate.

6. The papermaking mould

It is not just the watermark on a handmade papermaking mould that left impressions in the finished sheet of paper: there are other signs visible within the sheet of paper, left by the mould, which can indicate approximate date and place of production. Although the historian should not focus too much on using watermarks to date manuscripts, the presence of shadow marks in the paper can provide a confirmation of the date of a previously dated manuscript. Until the end of the eighteenth century, all handmade papermaking moulds were constructed from one layer of wires, which were supported by a set of wooden ribs.[227] After the mould

[226] John Bidwell, 'The Study of Paper as Evidence, Artefact and Commodity', in *The Book Encompassed, Studies in Twentieth-Century Bibliography*, ed. by Peter Davidson (Cambridge: Cambridge University Press, 1992). p. 73.
[227] Richard L Hills, 'The Importance of Laid and Chain Line Spacing', in *Bibliologia: Le Papier Au Moyen Âge: Histoire et Techniques* (Belgium: Brepols Publishers, 1999), 19, p. 151.

was dipped into the vat and lifted out with a layer of pulp, the water flowed through the single layer of wires and the ribs helped to facilitate this movement of water; a consequence of this was that the water flowing towards the ribs, through the pulp, caused the paper to be slightly thicker across the ribs, causing a build-up of pulp in this area (called the shadow-zone – see plate nine). [228]

Plate 9. Example of shadow zones on either side of chain line. Turkish MS52, By permission of John Rylands Library, University of Manchester.

Peter Bower states that the single-faced-mould was succeeded by the double-faced mould in the 1800s which resulted in the disappearance of the shadow zones; this was due to the laid wire of the mould being supported on the ribs by a second set of wires, which held the papermaking surface away from the ribs, allowing the water to drain more easily away and stopping the pulp from either side of the ribs from accumulating.[229] In another article, Bower confirms that the earliest double-faced mould was found in 1793 and that the paper produced on the single-faced moulds were referred to as Antique Laid papers.[230] Biddle also

[228] Ibid., p. 151.
[229] Bower, 1990, p. 132.
[230] Peter Bower, 'White Art: The Importance of Interpretation in the Analysis of Paper', in *Looking at Paper: Evidence and Interpretation*, ed. by John Slavin and others (Ottawa, Canadian Conservation Institute, 2001), p. 233.

confirms that by the 1800s, papers produced on a laid mould will no longer display shadow zones adjacent to the chain lines.[231] This knowledge will be useful when analysing the Ottoman manuscripts; for example the presence of the shadow zones in the document in plate nine indicate that the paper was manufactured before 1800, which can help with dating of the paper since the manuscript was undated, and can also highlight the fact that the paper is handmade and not machine made (which can help further with dating).

7. Problems in using paper and watermark analysis as a methodology to aid the research of a manuscript

Despite being able to reveal many things about the provenance of a sheet of paper, the literature has highlighted some difficulties with the study of watermarks. In the previous sections, some of these problems have been emphasised: for example, the problems of using watermarks to date manuscripts; how knowledge about paper science, manufacture and deterioration can impact on the conclusions drawn regarding a certain manuscript´s origin and how the analysis of paper is assisted by the presence of identical comparison papers with identical watermarks. These issues will be expanded upon in the following sections.

7.1. Problems in using watermarks to date manuscripts

Rules came into effect in 1794 in Great Britain which stated that all newly manufactured papers that were subsequently exported had to contain a watermark which included the present year of production; this was in order to facilitate drawbacks being allowed on excise

[231] Biddle, p. 36.

duties paid on newly manufactured goods.[232] The law for the inclusion of dates in papers produced in France was officially enforced in 1741, but did not become common practice until 1742.[233] In Venice, the law stating that all paper had to display watermarks of the initials of the papermaker and the date of production, came into existence in 1774.[234] However, referring specifically to the law created in Great Britain, the act did not stipulate whether or not the date in the watermark had to be the date of production, thus many papermakers retained the date of 1794 in the watermarks, even for many years after this date.[235]

According to Hilton Kelliher, the only real conclusion that can be drawn from the presence of this date is the fact that if a paper has a date of 1794 or onwards, we can assume that the paper was not made before this date.[236] Papermakers were under no obligation to change the date on their watermarks to the current year of manufacture, a loophole that permitted them to produce paper long after this date. Resewing watermarks onto moulds, was a lengthy and costly process, one which the papermaker may have wished to avoid. Thus, by using these dates as markers of the date of manufacture of the paper is inaccurate and not be considered as a reliable methodology.

In addition, many historians agree that there was sometimes a large time-lapse between the manufacture, exportation, sale and first use of the paper; Peter Tschudin states that in the

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[232] Hilton Kelliher, 'Early Dated Watermarks in English Papers: A Cautionary Note', in *Essays in Paper Analysis*, ed. by Stephen Spector (Washington: Folger Books, 1987), p. 61.
[233] Edward Heawood, *Watermarks: Mainly of the 17th and 18th Centuries* (Hilversum: The Paper Publications Society, 1950), p. 31.
[234] Walz, p. 33.
[235] Kelliher, p. 61.
[236] Kelliher, p. 62.

eighteenth century, it took a considerable time between the manufacture and export of the paper to the eventual sale of the paper in its country of destination, and that it was not until the nineteenth century with the invention of steamships, roads and railways, that the speed of exportation accelerated.[237] Tschudin also states that paper was also stored for many years at the place of sale and by the consumer.[238] Therefore, any attributed date present in the watermark of the work will not necessarily be the date of when the paper was used in the country to where it was exported. For instance, in the view of Biddle, some papers may have remained in Ottoman chanceries or scriptoria for long periods of time.[239] Nancy Ash and Shelley Fletcher also state that the length of time between first production of a paper and its eventual use could be as long as five to ten years.[240]

As highlighted above, the use of dates in watermarks to identify the provenance of a sheet of paper is unreliable as a methodology. Ash and Fletcher suggest that ultimately in order to accurately date a watermark and thus a sheet of paper, the sheet must be matched exactly to another sheet produced by the same mould:

> The watermark to be identified must match exactly a published watermark or other mark for comparison. As well as identical size and shape, both marks must have identical placement relative to the chain lines...even side-by-side comparison can deceive in establishing that two marks are from the same mould. Certain comparison requires superimposing the exact size images or their tracings, to see that they coincide in all significant points. The only permissible variations are those that could result from deterioration of the mould and resultant repairs.[241]

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[237] Peter F Tschudin, 'The Mould: Its Function, History and Importance in Historiography', in *La Forma, Formistie Cartai Nella Storia Della Carta Occidentale*, ed. by Giancarlo Castagnari, Volume 3 (Rome: Instituto Europeo di Storia della Carta e delle Scienze Cartarie, 2016), pp. 134.
[238] Ibid., 2016, p. 134.
[239] Biddle, p. 42.
[240] Nancy Ash and Shelley Fletcher, *Watermarks in Rembrandt´s Prints* (Washington: National Gallery of Art, 1998), p. 15.
[241] Ibid., p. 12.

7.2. Comparing watermarks

However, regarding Ash and Fletcher statements about matching watermarks, there are some caveats to this methodology. Watermarks can change over time and with continual use the mark will display distortion and deterioration as the wires bend and break; because of the act of couching of the sheet upon felt and brushing and cleaning at the end of the day, the watermark wires sometimes partly detach and have to be resewn onto the mould. [242] In addition, the act of couching produces drag on watermark wires which tends to pull them towards the right end of the mould. [243] These changes to the watermark make it very difficult to compare watermarks with side-by-side analysis.

In addition, the inconsistencies in production during the handmade papermaking process can produce watermarks and paper that will show subtle differences, even if the sheets were made from the same mould, from the same paper pulp and in the same mill; this factor can hinder our analysis if we are trying to compare a dated sheet of paper with a specific watermark that has been accurately attributed to a certain mill to a undated, unattributed sheet with the same watermark. These inconsistencies in the production of paper range from: the drying times of the paper; the thickness and density of the sheet; fibre content; the method of rag beating; whether the sheets were dried in spurs or singly; how many sheets were dried together in one spur and how the sheet shrinks during drying (changes in the direction of shrinking during drying can alter the size of the dry sheet, resulting in a change in

[242] Allan Henry Stevenson, 'Paper as Bibliographical Evidence', *The Library*, XVII.3 (1962), p. 202.
[243] Ibid., p. 202.

the watermark shape and size).[244] Biddle confirms how difficult the task of comparing watermarks is, stating that:

> Whilst the discovery of a watermark is very similar to one which a scholar might be trying to date will be helpful, the discovery of a dated, precisely identical mark is analogous to the precise matching of two strings of DNA and is far rarer…with watermarks we are dealing with fuzzy matching…matching that is approximate rather than fixed and exact.[245]

7.3. Copying of watermarks by rival mills

Another problem that this project encounters is that no copyright law ever existed to protect individual watermarks as trademarks; one dishonest papermaker could have easily copied the watermark of another papermaker, and mills would often sell their old moulds to other papermakers.[246] For instance, Ottoman papermakers may have copied watermarks from European papermakers, which will make it more difficult to decipher between genuine European watermarks and Ottoman copies of European watermarks; according to Ersoy, papermakers in the Yalova paper mill produced papers with a lion watermark, which was directly copied from European papermills.[247] This factor is corroborated by several researchers: Maria Brinquis states that a watermark only identifies the mill where it was produced during a short period of time: after the watermark was released onto the market and gained value and prestige, it was normally copied by other papermakers. [248] In addition,

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[244] Bower, 1999, p. 8.
[245] Biddle, p. 28.
[246] Hunter, p. 265.
[247] Ersoy, p. 34.
[248] Maria Carmen Hidalgo Brinquis, 'Spanish Watermarks of the 14th and 15th Centuries: The Great Unknown', *Bibliologia: Le Papier Au Moyen Âge: Histoire et Techniques*, 19 (Turnhout: Brepols Publishers, 1999), p. 207.

Brinquis states that certain papermakers copied profitable watermarks from other mills in order to market their own papers as high quality.[249]

Peter Bower confirms this fact stating that watermarks were routinely copied by other mills and moulds were sold to other papermakers or passed onto next generations.[250] Bower highlights a case during the early nineteenth century, when fake Whatman papers (James Whatman produced very expensive and excellent quality papers at Turkey Mill in England in the eighteenth century) were manufactured in France, Germany and Austria and sold as genuine Whatman papers, in order to cash-in on the name and profitable reputation of the English mill.[251] In addition, Bower highlights another case that occurred in the 1760s when papermaker Valentine Galvani of Pordenone made copies of watermarks of the famous Dutch papermakers Dirk and Cornelis Blauw; as a consequence many Dutch watermarks were found in Italy during the eighteenth century.[252] This is a difficult point for our project when we come to analyse the watermarks in the Ottoman manuscripts; any Dutch watermarks we find could have been manufactured in Italy.

Peter Bower´s insights onto watermarks are valuable, particularly his remark, ´never trust a watermark`.[253] Watermarks are valuable tools in our methodology, however they cannot be exclusively relied on to provide accurate data on a manuscript regarding dating and provenance. Bower also suggests to ´never trust a papermaker` and he highlights several

[249] Ibid., p. 207.
[250] Bower, 1990, p. 30.
[251] Bower, 1999, p. 12.
[252] Bower, 1999, p. 12.
[253] Ibid., p. 214.

examples as to why he believes this: Mathias Koops was an English papermaker in the nineteenth century who manufactured 100 percent straw paper as an alternative to the linen rags that were becoming very difficult to source during this period.[254] However, Koops in reality was fooling the consumer because he was actually dying linen rags to look like straw; he could not find enough straw for his papers so he resorted to fakery. [255] In addition, Bower highlights a small paper mill in Wales that was called Turkey Mill; although this was not the famous Turkey Mill run by James Whatman, the small mill in Wales was none the less very profitable simply because of the connotations with the name Turkey Mill and the superior paper that the Whatman´s originally produced.[256]

These examples highlight just how carefully historians must tread when using paper evidence as a quantitative research method. Stating irrevocably that a certain paper document in the Ottoman archives was manufactured in a certain country can only be an assumption and we would be inferring subsequent conclusions about the history of the paper based on circumstantial evidence. Essentially, if there is no proof of where a certain paper came from, such as record of paper purchase or a similar paper to compare to, as described above, suggesting that a paper produced on a certain date, without doubt, came from a specific mill according to the watermark is like trying to convict somebody of a crime without any forensic evidence. In essence, it will be important not to take the watermark evidence at face value, but use it as a clue in the wider search for understanding. The focus of this project is not to irrevocably and unequivocally state that the watermarks come from a specific mill or a

[254] Ibid., p. 213.
[255] Ibid., p. 213.
[256] Ibid., p. 213.

specific papermaker. The aim is to suggest that because this watermark looks similar to another watermark that has been identified in a database as being manufactured in Italy or France, and then one can reasonably suggest that the paper probably came from the same place. The motivation of this project is to make connections instead of focusing exclusively on paper provenance; discussing paper quality, size and other paper features will inform a wider discussion on the use of paper and the paper trade in the Empire. Ruby Reid Thompson suggests that any conclusions made regarding the provenance of a manuscript be based on a ´totality of evidence`.[257] This term highlights exactly how this type of project should proceed, not considering watermarks or one other aspect of paper analysis in isolation, but viewing and gathering the evidence from all angles and through many different lenses, to get a more accurate insight into the provenance of paper used and traded in the Ottoman Empire between the sixteenth and nineteenth centuries.

[257] Ruby Reid Thompson, 'Watermarks and Other Physical Evidence from the Portland Literary Manuscripts', in *Puzzles in Paper: Concepts in Historical Watermarks*, ed. by Daniel Mosser, Michael Saffle, and Ernest W Sullivan (Delaware: Oak Knoll Press, 2000), p. 198.

CHAPTER 5

DESCRIPTION OF MANUSCRIPTS SURVEYED FOR PROJECT

1. Introduction

The main aims of this project are to discuss whether or not we can identify paper provenance and patterns of paper use in the Ottoman Empire, by the physical analysis of a selection of manuscripts dating between the sixteenth and nineteenth centuries. This project also evaluates specific patterns of paper-use, to determine whether they correlate with the social and political context of the time. This chapter will examine the evidence gathered from the manuscript survey and describe the types of documents that were surveyed. The categories of manuscripts examined for this project are documents produced by the high-ranking officials in the central Ottoman government, documents produced by Ottoman governors in the provinces and merchant letters; the choice of manuscript category was limited to what was available in British archives therefore, the discussion focuses on paper provenance for these three categories. The descriptions of the manuscripts below were copied from the catalogues provided by The British Library and the John Rylands Library at the University of Manchester. In total, 37 manuscripts were surveyed and this number includes collections of manuscripts in codex form (for example, some of the codices were not broken down into individual entries in the survey, but were assessed as a whole). The next section will describe the manuscripts surveyed (arranged by document type), the archive they were located in, and the approximate date of the manuscript or collection based on the archive catalogues. The last section will summarise the results from the manuscript survey, based on specific

categories of paper analysis. Unfortunately, there was not much information available regarding the provenance and chain of transmission of these manuscripts; extant evidence for who wrote or copied each document is included in the sections below. For more information on the paper analysis data collected for each document, see Appendix two.

2. *Buyuruldu*s

A *buyuruldu* is an order issued by the Ottoman grand vizier, defterdar[258] or other high official to a lower-ranked official: *buyuruldu*s dealt with administrative issues such as grants of fiefs, economic policies and safe conduct documents.[259]

Location	Catalogue Number	Description of document	Date
The British Library	OR 11559 (No. 1 of 4)	Document for the protection of Lord Sandon and Lord Carnarvon, travelling from Erzurum to Trabzon.	1852-3
The British Library	OR 11559 (No. 2 of 4)	Document for provision of safe conduct directed to governors along the route between Trabzon and Istanbul.	1852-3
The British Library	OR 11559 (No. 3 of 4)	Document for provision of safe conduct, in Arabic, for the protection of the Fourth Earl of Carnarvon and Viscount Sandon travelling through Aleppo to Mosul.	1852-3
The British Library	OR 11559 (No. 4 of 4)	Document for provision of safe conduct for a Mr Burgess(?) and his servant who have left for Corfu.	1834-5

[258] A defterdar was a financial administrator in charge of tax collectors and the imperial treasury (Jan Reychman and Ananiasiz Zajaczkowski, *Handbook of Ottoman-Turkish Diplomatics* (Paris: Mouton, The Hague, 1968), p. 165.)

[259] U. Heyd, `Buyuruldu`, in *Encyclopaedia of Islam, Second Edition,* ed. by P. Bearman, Th. Bianquis, C.E. Bosworth, E. van Donzel and W.P. Heinriches (Leiden: Brill, 2012), <http//dx.doi.org.ezproxye.bham.ac.uk/10.1163/1573-3912_islam_SIM> [accessed 6 September 2019].

3. Firman

A firman is a command or order from the Sultan and received by lower ranking officials.[260] The majority of firmans regarding general subjects were issued not by the Sultan but upon his authorization by the Grand Vizier; *defterdar*s (finance officer) were responsible for issuing firmans regarding economic matters and the *ḳāḍī-ʿasker*s (judges of the army) were responsible for firmans on religious law.[261] Firmans cover an extensive assortment of topics: administration of The Porte, military matters, finance, travel permits, safe-passage documents, authorization for foreign ships to pass through Ottoman waters and matters of law.[262]

Location	Catalogue Number	Description of document	Date
The British Library	OR 13026	Firman allowing British ships ´Crescent`, ´John Tudor` and ´Bianco` to pass the custom-house and the Dardanelles. Turkish language.	1835-6
The British Library	OR 11320	Firman ordering the customs and harbour authorities of Istanbul to allow the British vessel Proteus, commanded by Captain John William James, to proceed with its cargo to the Black Sea.	1818-19
The British Library	OR 11688	A firman to the *Kadi* (judge presiding over Islamic law) of Istanbul commanding him to do all in his power to deal justly with the Jewish population, and protect them from molestation. At that time Jews had been persecuted at Damascus and Rhodes. The Sultan states that all Ottoman subjects, whether Muslim, Christian or Jew are equal in his sight.	1840-1

[260] Jan Reychman and Ananiasiz Zajaczkowski, *Handbook of Ottoman-Turkish Diplomatics* (Paris: Mouton, The Hague, 1968), p. 136.
[261] Ibid., p. 136.
[262] Ibid., p. 136.

The British Library	OR 12216	A firman ordering the Customs and Harbour authorities to allow a Russian vessel commanded by Ippolit Sevelin (Severin?) to proceed with its cargo to the Black Sea. There is a note to the effect that the document has been inspected by the *Gümrük-emīnī* (roughly translating as customs official).	August 1825

4. Fatwa

A fatwa was a non-binding legal opinion produced by a religious authority.[263] The purpose of the fatwa was to produce a decisive opinion on a point of religious law for a litigant or advocate.[264]

Location	Catalogue Number	Description of document	Date
The British Library	OR 13508	Collection of copies of imperial ordinances and fatwa concerning the land tenure and taxation in Budin. Dated from the reign of Sultan Süleyman I but was compiled under Selim II (1566-74).	1566-1574
John Rylands Library, University of Manchester	MS 95	Collection of copies of law codes and fatwa of the late seventeenth century (copied in the time of Sultan Süleymān I but bound and collated by the owner). A loose sheet of paper between ff47-8 contains a fatwa concerning the lease of a shop, which contained the only watermark in the collection.	Copied in the early eighteenth century.

[263] Reychman and Zajaczkowski, p. 137.
[264] E. Tyan and J.R. Walsh, `Fatwā`, in *Encyclopaedia of Islam, Second Edition,* ed. by P. Bearman, Th. Bianquis, C.E. Bosworth, E. van Donzel and W.P. Heinriches (Leiden: Brill, 2012), <http//dx.doi.org.ezproxye.bham.ac.uk/10.1163/1573-3912_islam_COM_0219> [accessed 6 September 2019].

5. Miscellaneous letters, state documents and petitions

Most of these documents are letters produced by merchants, dragomans and Ottoman governors in the Ottoman Empire. Some of the letters are original copies of letters sent by Ottoman officials to colleagues in the Empire. There was no detailed description of the letters´ content in the archive catalogue, but most of the letters deal with diplomatic and political matters concerning the Ottoman Empire.

Location	Catalogue Number	Description of document	Date
The British Library	Egerton 3243 Documents No.1 and No.5	Turkish papers from the Jomini-Onon Collection associated with Baron Alexander Jomini, First Councillor in the Russian Foreign Office and Michael Onon, dragoman and afterwards Councillor of the Russian Embassy at Istanbul.	1869-79
John Rylands Library, University of Manchester	MS 46	An undated collection of letters. Copies. Mostly of an official (diplomatic and political) nature and concerning French interests in The Ottoman Empire. Contains models of letters addressed to various functionaries from the Grand Vizier down to the chief dragoman of the Porte. Copied by French clerks at French Embassy in Istanbul. Ownership inscription of Jean-Baptiste Pérille (1732-1805/6), French dragoman and bookplate of Nathaniel Bland.	Letters composed between 1671 and 1730.
John Rylands Library, University of Manchester	MS 53 No. III, V, VI, VII, XII, XIX, XX, XXI, XXII, XXVI, XXVII, XXVIIII, XXXII, XXXVIII	A collection of 42 original copies of documents. Most documents are letters sent by Ottoman governors of Bosnia (they bear the *pençe* and seal of the respective officials) to the Austrian military commanders at Karlofça (Croatia) and Agram (Zagreb) concerning the implementation of the Peace Treaty of Sistova of 1791 (1205), particularly the establishment of the new border in Bosnia, in which Franz von Dombay, the owner of the MS, was closely involved as interpreter.	No date of when these were copied. Documents refer to period 1791

John Rylands Library, University of Manchester	Persian MS 913 No. 206, 209, 202, 201	A miscellany. A Collection of mostly, original official and private letters, documents and various texts. Originally belonged to Dutch Protestant minister, orientalist and professor at Leiden University, Johannes Heyman (1667-1737). The papers were partly collected by Heyman himself and partly acquired by him from the estates of his predecessors. The Heyman papers consist of letters, almost all in Arabic, addressed to or sent by Paul Maashoek, a Dutch merchant and entrepreneur who lived in Aleppo and Acre.	Circa early eighteenth century (1700-1710)

6. Imperial *berat*

Berat was the term used to describe an order issued by the Sultan; the types of orders issued related to the granting of diplomas or privileges and certain documents that employed dignitaries and granted feudal estates. [265] The employment of staff to the civil service, from high-ranking pashas to low-ranking mosque workers, were instigated by the issue of a *berat*.[266]

Location	Catalogue Number	Description of document	Date
The British Library	OR 12091	An Imperial *berat* granted at the request of the English Ambassador at the Porte, Sir Thomas Bendish, to William Prideaux, appointed consul at Smyrna in place of John Edwards. Izmit. At the top is the *Tuğras* of Mehmed IV.	1659

[265] Reychman and Zajaczkowski, p. 136.
[266] L. Fekete, `Berāt', in *Encyclopaedia of Islam, Second Edition,* ed. by P. Bearman, Th. Bianquis, C.E. Bosworth, E. van Donzel and W.P. Heinriches (Leiden: Brill, 2012), <http//dx.doi.org.ezproxye.bham.ac.uk/10.1163/1573-3912_islam_SIM_1371> [accessed 6 September 2019].

The British Library	OR 14301	A *berat* in the name of the Ottoman sultan Abdulmecid I. Its purpose was as follows: Sultan Abdul Medjid Khan receiving Major Andrew Cathcart as H.B. Majesty´s Consul for the Province of Albania including Epirus, Upper and Lower Albania and the Pashalik of Shkodra in Europe and confirming all privileges and immunities contained in the ancient Treaties and Capitulations dated in the year 1859.	1859
The British Library	Egerton 3244 No. 28	From the Jomini-Onon Collection: a *berat* conferring the Mecidīye Order, First Class, on M. Onon.	1869-70
The British Library	Egerton 3245 No. 33	From the Jomini-Onon Collection: A Persian *berat* conferring the order of the Lion and the Sun, Second Class on M. Onon.	1875-6

7. <u>General observations on the data collected from the manuscript survey</u>

See Appendix two for a more detailed listing of the individual manuscripts from the watermark survey and in which documents the specific paper characteristics appeared.

- Surface texture: the majority of the documents appeared to be burnished on one side of the document, leaving the back un-burnished. A few manuscripts were completely un-burnished and displayed an uneven surface texture.

- Weight: measuring weight or thickness of a sheet of paper should be measured in grams per square meter, using a paper gauge. As this device was not permitted to be used in the archives, the weight of the sheet was estimated using touch alone. The majority of the manuscripts were of medium/heavy weight, with only a few manuscripts being of a thin/light weight.

- Position of the watermark: the position of the watermark and countermark in the manuscripts varied: some were positioned in the middle of the sheet; towards the top of the sheet in the centre middle; in the bottom half of the left-hand side of the sheet or in the centre middle of one half of the sheet. In large manuscripts, the watermark was in the centre of one half of the sheet and the countermark in the centre of the other half of the sheet. Some bound manuscripts showed the watermark in the centre fold of the paper.

- Colour: the colour of the manuscripts surveyed ranged from light cream, cream, yellow cream to brown. Colour of a sheet can refer to six different categories: surface dyed or coated, marbled or decorated, natural (uncoloured fibres), coloured (from dyed rags), coloured (stock dyeing) or veined. For the purposed of this project, the description of colour refers to the natural colour of the uncoloured fibres.

- Size: all of the manuscripts surveyed varied in size, but there were some common sizes amongst the different type of document:
    - *Buyuruldu*s: all four of this type of document were approximately the same size, averaging 50 cm x 28 cm.
    - Firman: the four firman surveyed were very roughly of similar size, ranging from 70 cm to 80 cm by 45 cm to 62 cm.
    - Fatwa: these manuscripts were collated and bound; therefore, it was difficult to decipher the exact size of the paper before it was bound.

- Miscellaneous letters, state documents and petitions: a group of 4 letters from the Heyman papers were almost the same size. These letters were sent to a Dutch merchant named Paul Maashoek who lived in Aleppo and Acre, and measured approximately 30 cm x 22 cm. Other letters and state documents were bound; therefore, it was difficult to decipher the exact sizes of the paper before it was bound. Two letters associated with Baron Alexander Jomini were approximately 20 cm x 12 cm.
- Imperial *berat*s: both examples varied in size, one measuring 60 cm x 50 cm and the other 56 cm x 50 cm.

♦ Trimming of manuscript: most of the manuscripts had been trimmed (the edges of the paper had been torn or cut); for example, there was only one manuscript that displayed a deckle edge.

♦ Fibre furnish: fibre furnish refers to the type of raw materials used to form the sheet. With microscopic fibre analysis it was very difficult to accurately identify the types of fibre present in the paper. However, many of the manuscripts displayed similar qualities: under times 10 magnification it was possible to identify small brown, blue or orange flecks in the pulp in many of the manuscripts. Other manuscripts displayed no visible small flecks or fibre in the pulp. Several manuscripts displayed large clumps of unbeaten fibre in the pulp, whilst other displayed an even and consistent fibre furnish.

- Watermark or countermark: The majority of the manuscripts displayed a visible watermark in the sheet, only five out of the thirty-seven documents survey showed a clear countermark, as well as a watermark in the sheet.

- Watermark and countermark motifs: the six descriptors for classifying the kind of watermark in the sheet are border watermark, counter watermark, corner watermark, dividing line, main watermark and without watermark. For the purposes of this project, the descriptions below refer only to the main watermark and the counter watermark (or countermark):

    - Three crescent moons, or *tre lune*
    - Crescent moon-face
    - Crossbow
    - Crescent moon-face watermark, eagle countermark with initials GFA
    - Crown with initials GFA
    - Watermark with the name, J WHATMAN
    - Eagle with initials CEA, CFV or CEV plus countermark of crest/urn
    - Moon face within a shield with crown on top
    - Three moons in shield, topped by crown with words IMPERIAL
    - Initials GFA with words SOTO IMPERIAL
    - Crown, heart and grapes watermark with initials A and G (or V an G)
    - Cross ending in a three-leaf clover. Letters P and A on either side of the cross
    - No watermark or countermark present in the sheet.

- Paper production type: it was very difficult to state irrevocably whether the manuscripts were either handmade or machine made. Six manuscripts exhibited (when viewed under transmitted light) shadows on either side of the chain lines: these shadows indicate a type of paper that was produced on a single-faced handmade laid mould (see page seventy-one); this confirms without a doubt that these papers were handmade and not machine made.

- Width between chain lines: the width between chain lines in the papers that exhibited laid and chain lines were very similar ranging from 2 cm to 3.5 cm.

- Media: all of the manuscripts surveyed were written in black ink. Thirteen of the thirty-seven works surveyed were flecked with gold pigment, either throughout the entirety of the text or localised on the end signature. Two documents were written in black and red ink (the works which had been bound), and two documents (the Imperial *berat*s) were richly illuminated in black, red and gold pigment, with painted *Tuğra*s.

- Folding of manuscripts: twenty-nine out of thirty-seven of the manuscripts exhibited crease lines, indicating that they had been folded in the past.

CHAPTER 6

ANALYSIS OF THE SURVEY DATA

1. Introduction

The aim of this project is to analyse Ottoman manuscripts on a micro level as opposed to scrutinizing them on a purely textual or pictorial level. The main aims are to find out whether or not the journey from mill to user, of a collection of documents, can be discovered based on physical evidence inherent in the manuscript and what the physical evidence also indicates about the type of consumer and how they used paper in the Ottoman Empire between the sixteenth and nineteenth centuries. The project also examines what the types of paper used in the Ottoman Empire during this time, suggested about the social and political context.

The method used to investigate these questions was to undertake a survey of Ottoman manuscripts in British archives, photographing the watermarks and countermarks in the paper and recording physical evidence of the manuscripts, based on standard guidelines for the recording of historic paper documents from the International Association of Paper Historians. The results of the survey indicated that patterns of paper use in the Ottoman Empire can be deciphered based on a survey of this kind, and that the physical evidence of the manuscripts can reveal indications of where the paper came from. See Appendix two for a more detailed listing of the individual manuscripts from the watermark survey and links to which documents contained the specific watermarks and other paper characteristics.

2. Patterns of paper use in the Ottoman Empire between the sixteenth and nineteenth centuries

2.1. The different qualities of paper used by the Ottomans

The results of the survey indicate some distinct physical characteristics common to Ottoman manuscripts. The *buyuruldu*s were all of a similar size, the colour of the paper was a dark cream, the thickness was medium to thick and the fibre furnish appeared very similar. The firmans displayed similar qualities; cream colour, similar sizes, similar weight and fibre furnish.

However, the four *berat*s were only similar in size and colour but the weight of the manuscripts ranged from thin to thick. What is interesting about the *berat*s is that three of the manuscripts dated from the mid to late nineteenth century, whilst one manuscript was dated mid seventeenth century; there was very little difference in the physical characteristics of these four documents. While four examples are not statistically significant, the lack of difference in physical characteristics between the *berat*s could suggest that the Ottoman chancery requirements and preferences for this type of document had not changed in over 100 years; surveying *berat*s from a wider time period could provide more evidence to back up this assumption.

All of the original letters between the Dutch merchant Paul Maashoek and his colleagues, are of a very similar size, written on a thin weight cream paper, with similar fibre furnish. The collection of copies of documents pertaining to diplomatic matters surrounding the Peace Treaty of Sistova are written on thicker weighted cream paper.

Taken as a whole, the common type of paper used in the Ottoman Empire is cream to dark cream coloured, on average of a medium weight of thickness, in sizes that corresponded loosely with the other papers in the different manuscript categories. As to whether or not the Ottomans considered this type of paper good or bad quality is not conclusive. What the research does suggest is that in the Middle East, there was a tendency to give state documents and correspondence between rulers a lavish appearance, using a large size of paper.[267] Venetian paper mills in the eighteenth century produced large sizes of paper required for official Ottoman documents, specifically the *sottoimperiale* and *imperiale* sizes of paper. The words *imperiale* and *sottoimperiale* indicate the size and weight of a type of paper: in this case *imperiale* refers to a paper weighing sixty-six grams, measuring 78 cm x 55 cm and *sottoimperiale refer to* paper measuring 74 cm x 51 cm and weighing forty-six grams.[268] This type of Venetian paper manufactured for the Ottoman market was deemed to be of good quality and it is significant that the Venetians produced a paper specifically for the production of Ottoman firmans.[269] From this evidence it can be assumed that the four firmans surveyed for this project were written on Venetian *imperiale* and *sottoimperiale* paper, and that the Ottomans deemed this paper to be of high quality.

However, although it has been argued that some of the paper sent to the Ottomans from Europe was of poor quality, even this type of paper was sold successfully in the Levant due to aggressive marketing.[270] Only a few of the manuscripts in the survey were written on thin

[267] Karabacek, p. 45.
[268] Mattozzi p. 114.
[269] Eldem, p. 65-66.
[270] Biddle, p. 45.

weighted paper, and were all letters or copies of letters, between merchants or regarding internal matters of the Russian foreign office. As a group, the documents issued by the Ottoman chancery are on much thicker paper than the paper used for letters of civilian matters. This indicates that the type of paper preferred for official documents was a thicker more substantial paper than the paper used and purchased by the mass market.

2.2. Ottoman preferences for specific paper surface treatments

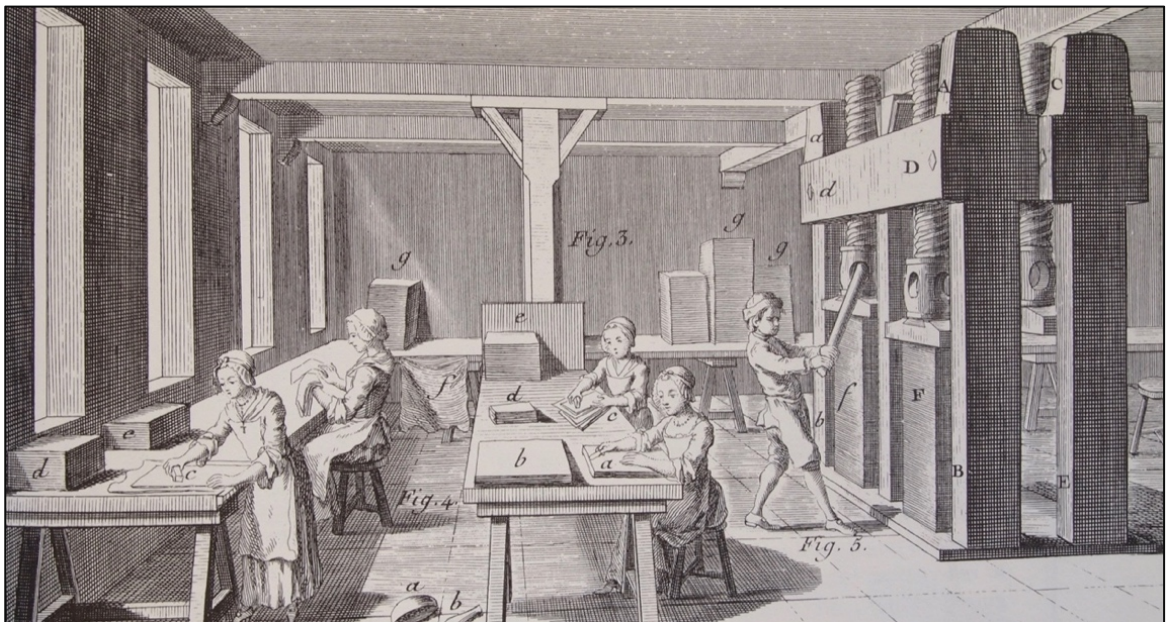

Plate 10. Glazing and sorting of finished sheets of paper, A Diderot Pictorial Encyclopaedia of Trades and Industry: 485 Plates Selected from 'L'Encyclopedie' of Denis Diderot.

Another characteristic of the paper used by the Ottomans was a preference for specific paper surface treatments. Glazing or burnishing the paper was the final step in the papermaking process. If the client desired a paper with a smooth, glossy surface texture, then the paper would be burnished or glazed (see plate ten). In early European papermaking mills, between the twelfth and sixteenth centuries, the paper would have been rubbed with agate stones,

flint, glass or shells till smooth.[271] This process was replaced in the mid-sixteenth century by large glazing hammers.[272] Western papers manufactured for the Ottoman Empire were sized and burnished according to Middle Eastern traditions: the paper was first rubbed with a piece of fabric and soap and then burnished by hand with a *mühre*, a polishing tool, which was either stone, shell or glass.[273]

Many of the Ottoman manuscripts studied in this survey appeared to have a smooth surface texture, indicating burnishing/glazing of the paper. The traveller Evliya Çelebi in the seventeenth century stated that papermakers in Istanbul burnished papers from Persia and Venice in their shops.[274] This suggests that when paper came directly from the European or Eastern merchants, it was passed onto the paper sellers, in which premises the paper was prepared for the market or for selling to printing houses. Kâğıtçı points to the fact that he believed there was a street in the district of Beyazid in Istanbul called Kağit sokağı (paper street), in which a group of different trades relating to the book trade had existed since the fifteenth century, and it is among these trades that Kâğıtçı suggests papers were burnished for use in the Ottoman market.[275] This indicates that there may have been an infrastructure present in the Ottoman Empire for the preparation of imported paper for the market; paper would have come directly from the merchants, un-sized and un-burnished for the Ottoman paper sellers to prepare according to consumer tastes.

[271] Kâğıtçı, p. 18.
[272] Wootton, Munn and Wallis, p. 6.
[273] Güleç, p. 92.
[274] Loveday, p. 26.
[275] Kâğıtçı, p. 18.

The reason why paper was burnished in the Ottoman Empire was due to issues of fraudulence; Ottoman law stipulated that for official documents, only the use of paper with a ´coated surface` was permitted, in order to prevent forgery.[276] Burnishing the paper meant that the ink could not be scraped or wiped away, therefore demonstrating that the document was untampered with; paper that has been only sized and unburnished can be altered by scraping or even licking away the ink.[277]

The majority of the documents in the survey appeared to have been burnished; their surface texture was smooth and there was an overall sheen to the paper. There were some instances where the paper had been burnished on both sides of the sheet, and some papers only burnished on one side of the sheet, where the ink was placed. This indicates that across the categories of paper, there was a preference by the consumer for paper that could not be tampered with or altered. The degree and quality of burnishing differed across most of the manuscripts, pointing to a difference in skill on behalf of the paper merchant or craftsman who prepared the paper for the market.

2.3. Use of gold in Ottoman manuscripts

Another characteristic of the type of paper used by the Ottomans refers not to the paper itself, but to the preparation and presentation of the ink. Three out of the four *berat*s plus all of the *buyuruldu*s and firmans surveyed for this project displayed the presence of gold

[276] Kâğıtçı, p. 18.
[277] Ismet Binark, 'Turkish Book Making Arts: Various Materials, Methods and Tools', in *Turkish Book Civilization*, ed. by Alper Çeker (Istanbul: Kültür AS, 2008), p. 37.

pigment in the ink. Only two of the original letters (regarding the Peace Treaty of Sistova of 1791) contained gold pigment in the ink, a third letter contained gold pigment only on the end signature and the remaining nineteen letters did not contain gold pigment. The image in plate eleven illustrates how this pigment was scattered throughout the manuscript, with more pigment present in the *Tuğra* (for a larger version of this plate, see the Appendix).[278]

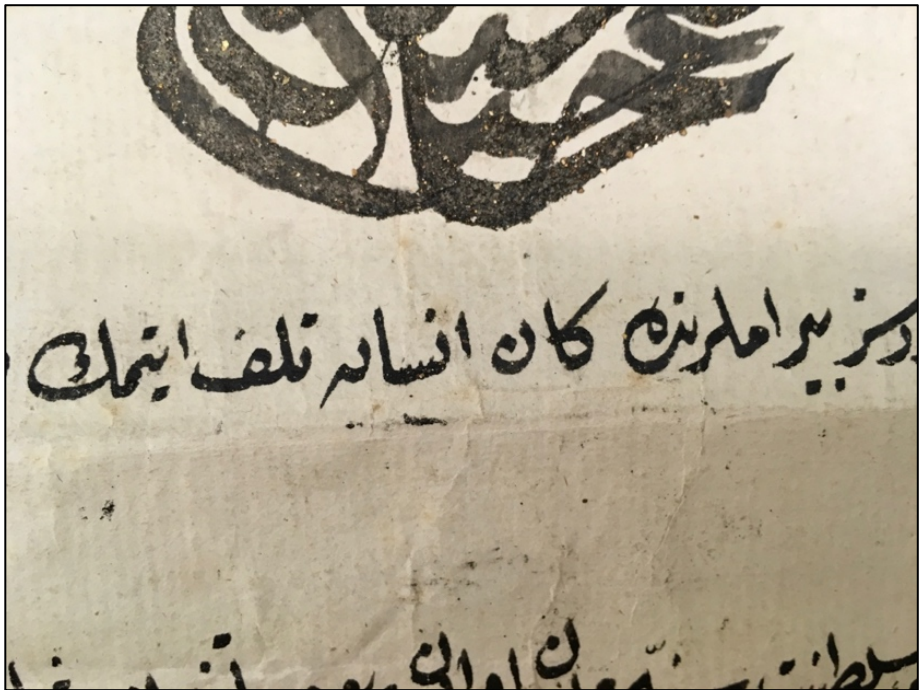

Plate 11. Illustration of gold pigment in ink on a firman from circa 1840. Turkish Manuscript Collection OR11688. By permission of The British Library

The presence of gold pigment in Ottoman manuscripts derives from the Chinese; gold and silver paint were used to decorate paper since the Tang period (A.D. 618-907) and the practice filtered through to the Islamic lands when paper was imported from China in the

[278] A *Tuğra* is the sultan's personal signature that was used on all official documents, carved on seals and stamped on coins and was the sign of his imperial authority.

fourteenth century.[279] The technique of adding gold to manuscripts is known in Persia as *zarafshāni* which literally translates as gold sprinkling.[280] Another method of adding gold to manuscripts was to dry the ink using a coloured sand called *rih*; the sand would be sprinkled onto the wet ink and after dried was wiped away.[281]

One reason for adding gold to manuscripts was in order to intensify colour of the script.[282] It is significant that, out of all the manuscripts surveyed, it is the official documents issued by the Porte that contained the gold pigment while only a few letters from private individuals show evidence of gold pigment. In addition, many of these manuscripts refer to dealings with foreign ambassadors, consuls and other notables travelling through the Empire; this suggests that the Ottomans were concerned with the appearance of their documents, specifically for manuscripts that were official.

2.4. Utilising knowledge of paper science to analyse Ottoman manuscripts

Unfortunately, the results of the survey did not support my hypothesis (described on page sixty-nine) that knowledge of paper science can assist with the analysis of Ottoman manuscripts. Discoloration of paper due to acidic catalysed deterioration (see footnote 205) can result in paper appearing darker than its original colour and deterioration of the paper due to ageing may have contributed to some of the papers appearing thinner than their original weight after manufacture; these aspects may have slightly altered the conclusions

[279] Sheila S. Blair, 'Color and Gold : The Decorated Papers Used in Manuscripts in Later Islamic Times Author', *Muqarnas*, 17, 2000 (2018), p. 31.
[280] Ibid. p. 26.
[281] Binark. p. 45.
[282] Reychman and Zajaczkowski, p. 106.

drawn regarding the types of paper used by the Ottomans. For instance, one of the manuscripts was a brown colour, but the manner in which the paper had been mounted suggest that the paper had been previously glued to a backing board; the acidic content of the backing board may have contributed to a darkening of the original manuscript, thereby altering any conclusions that could be made regarding the colour of the manuscript. However, there was only one example of this type of colouring in the manuscript survey and there were no indications that we could challenge certain attributed dates or infer anything about Ottoman social and political context from this finding.

2.5. Stockpiling of paper

In the literature review, it was suggested that discovering whether or not the Ottomans stockpiled large volumes of paper would contribute to a further understanding of how paper was used in the Empire. The research does suggest that there was a practice in the Empire for stockpiling paper; a document from 1757 indicates that upon receipt of imported European paper, paper wholesalers of Galata were required to reserve a specific number of reams of paper for the sole use of the Imperial Treasury and Ottoman chancery.[283] In addition, the research suggests that the Ottomans purchased paper in bulk, believing that the same quality of paper would be difficult to find again and boxes of unused paper were even found in the legacies of Ottoman calligraphers.[284] In the sixteenth century there was a specific office in charge of controlling the paper needs of the state, which was called the Paper Office.[285]

[283] Eldem, p. 66., Note 124.
[284] Binark. p. 39.
[285] Ünver, p. 742.

Nevertheless, the results of the survey do not suggest that the Ottoman chancery stockpiled paper because the majority of the papers were too subtly different in their physical characteristics to have come from the same ream. However, one collection of documents from the survey indicate that the papers all came from the same ream; most of the manuscripts from the collection of letters regarding the Peace Treaty of Sistova of 1791 have almost identical watermarks, paper sizes, surface finishes and colour. This suggests that the scribe most likely drew from the same stock of paper for all the relevant letters.

3. Identifying paper provenance from a survey of watermarks in Ottoman manuscripts

Initial research results from the collections surveyed indicate a wide range of watermarks and countermarks in paper used in the Ottoman Empire between the fifteenth and nineteenth centuries. In this section, the watermarks and countermarks found on the Ottoman manuscripts surveyed for this project will be discussed in reference to the provenance of the paper. Suggestions will be made as to which countries the paper came from, based on the analysis of the data. The format of this watermark analysis will be organised into groups according to the different types of watermarks and countermarks that were surveyed. For the majority of the manuscripts held by The British Library, no photography was permitted due to conservation and copyright reasons; therefore, drawings taken from relevant publications will be used to illustrate the watermarks or countermarks found in these manuscripts.

3.1. Three crescent moons (*tre lune*)

Perhaps one of the most recognisable watermarks present in Ottoman manuscripts is the three crescent moons (that decrease in size) or the *tre lune* watermark (see plate twelve). This watermark was abundant in the Ottoman manuscripts that were surveyed for this project, and appeared in a variety of different styles and adaptations.

Plate 12. Example of a single moon-face watermark. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

The origins of this mark and how it was developed is contested. It has been suggested by Biddle and Walz that the *tre lune* watermark was a simplification of a watermark created by Andrea Galvani, a papermaker from Ceneda/Serravale, modern day Vittorio Veneto, Italy.[286] *Tre lune* watermarks have been found in Venetian paper in Italian manuscripts as far back as the 1600s so it can be implied that this watermark existed in Europe long before it was adapted for the Levantine markets.[287] Paper used for musical manuscripts in Vienna in the

[286] Walz, pp. 29–48; Biddle, p. 45.
[287] W.A. Churchill, *Watermarks in Paper in Holland, England, France, Etc. in the XVII and XVIII Centuries and Their Interconnection.* (Amsterdam: M. Hertzberger, 1933), p. 24.

1790s also displays the *tre lune* watermark, apparently originating in Northern Italy.[288] It has also been suggested that the *tre lune* watermark was based on an adaptation of a watermark of the Genoa Coat of Arms (see plate thirteen below and in the Appendix for a larger version).[289] The first development to the watermark was that the coat of arms watermark became a simple three overlapping circles watermark; eventually the three overlapping circles became three separate crescent moons. The three circles watermark was imported from Italy to Spain and Portugal between the sixteenth and nineteenth centuries in very large quantities and subsequently spread to France, where it was also produced in Provence, Soule and Béarn.[290]

Plate 13. Genoese Coat of Arms Watermark, 1586, Italy. Daniel W. Mosser, Ernest W. Sullivan II with Len Hatfield and David H. Radcliffe. The Thomas L. Gravell Watermark Archive 1996- 2019. <www.gravell.org>

[288] Johnson, p. 27.
[289] Celia A Fryer, 'Spanish and Italian Watermarks in Colonial Guatemalan Books', in *Puzzles in Paper: Concepts in Historical Watermarks*, ed. by Daniel Mosser, Michael Saffle, and Ernest W Sullivan (Delaware: Oak Knoll Press, 2000), p. 39.
[290] Th. Laurentius and Frans Laurentius, *Watermarks in Paper from the South-West of France, 1560-1860* (Leiden: Brill, 2019), p. 5.

It is unclear from the literature when and how the three crescent moon watermarks became so popular in the Ottoman Empire, and whether or not the papermakers manufactured paper with this type of watermark specifically for the Levantine markets. The symbols of the crescent moon, sometimes situated alongside the five-pointed star, can be traced back to Osman I, founder of the Ottoman Empire, who had a dream about the growth and success of the Ottoman Empire; in this dream a full moon rose from the breast of a holy man and came to rest in Osman´s chest, from which grew a large tree whose branches covered over the entire earth.[291]

Kâğıtçı proposed that the decision by European paper mills to create the *tre lune* watermark for export to the Levant was intentional; it is suggested that that the *tre Lune* watermark was derived from the flag of the Ottoman navy, and that Italian mills decided to produce paper with the three crescent moons, after the defeat of the Ottomans at the Battle of Lepanto in 1571.[292] The Battle of Lepanto is described as the last great naval campaign in the Mediterranean in the early modern period.[293] The battle was a result of the determination of the Ottomans since the late fifteenth century to conquer Cyprus; controlled by the Venetians, Cyprus provided a secure place of shelter for Christian corsairs who disrupted Muslim trade between Istanbul and Egypt.[294] The painting in plate fourteen, *The Battle of Lepanto, 7 October 1571* highlights how the symbol of the crescent moon would have been well known

[291] Caroline Finkel, *Osman´s Dream: The Story of the Ottoman Empire 1300 – 1923* (London: John Murray), pp. 16-17.
[292] Kâğıtçı, p. 15.
[293] Goffman 2002 p. 159.
[294] Ágoston and Masters, p. 331.

to the papermakers, due to the experience and narrative of battle plus conflicts and encounters with ships throughout the period.

Plate 14. The Battle of Lepanto, 7 October 1571, Unidentified artist, circa late sixteenth century. By permission of The National Maritime Museum, Greenwich, London

If the Venetian papermakers designed watermarks specifically for the Ottoman market, then it suggests that the European papermakers knew their consumer, they knew what would sell well and they were aware of cultural nuances. Rather than watermark designs' primary function indicating trademarks or paper sizes, the marks were a mode of advertising, a way of appealing to the consumer through symbols embedded in the national psyche. However, despite the connections that the crescent moon symbol has with the Ottoman Empire and with the Islamic religion, there is no concrete documented evidence that European papermakers knew about these connections and the significance of these marks to the Ottomans, and that they deliberately produced this watermark to appeal to the Ottoman consumer.

Regarding the manuscripts in the survey containing the *tre lune* watermark, and their provenance, a set of six manuscripts bound in the same volume contained the three crescent moon watermarks; the manuscripts are copies of original documents, however were most likely to have been written within the Ottoman Empire. The letters were sent by Ottoman governors of Bosnia to Austrian military commanders at Karlowitz (Croatia) and Agram (Zagreb) and some display the *pençe* and seal of the respective officials.

The *pençe* in an Ottoman document refers to the type of signifier used by high dignitaries, viziers and *sancak beyi*s (governors) in the Ottoman Empire, and closely resembled the *Tuğra*; it contained the name of the official and specific phrases.[295] The tail at the end of the *pençe* (see plate fifteen) which was called *kuyruklu imza* (tailed signature) was specifically used when a document was written in the name of the Sultan, but was issued in his absence.[296] The seal in this manuscript was called a *mühür* (see plate fifteen) and was essentially a seal of authenticity; the seal usually contained the name of the person issuing the document, a religious phrase and quotation from the Quran.[297]

[295] Reychman and Zajaczkowski, p. 143.
[296] Ibid., p. 148.
[297] Reychman and Zajaczkowski, p. 149.

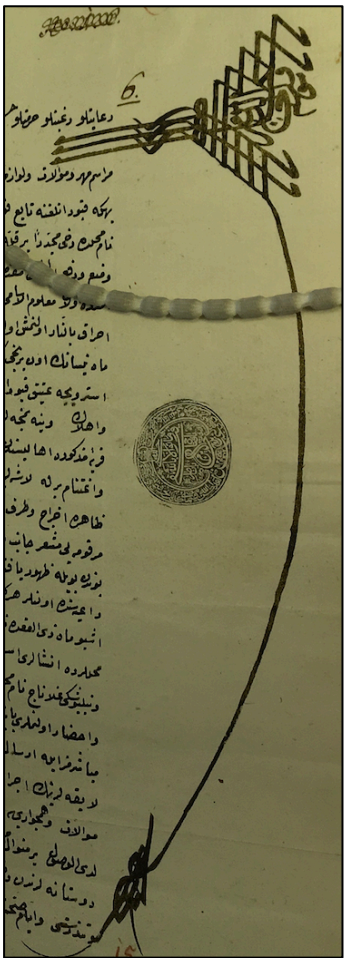

Plate 15. Detail of a pençe and mühür taken from Turkish MS53, number XXII. By permission of John Rylands Library, University of Manchester.

Despite these documents not being originals, they are still of use to this study; copying manuscripts in the Ottoman Empire was a formal part of the system of administration in the Ottoman Empire and a copy of each important document (*hüküm)* was made and bound into volumes (the copies were called *suret)*.[298] Many of these manuscripts with the *tre lune* watermark are inscribed with a date ranging from 1793 to 1799 in the Gregorian calendar (see plates sixteen, seventeen, eighteen and nineteen below and in the Appendix for larger versions), which was years after the actual event that the letters refer to (the implementation

[298] Ibid., pp. 149-150.

of the Peace Treaty of Sistova in 1791). Therefore, we can suggest that these manuscripts were either copied after the actual event, or the dates refer to when the manuscripts were collated and bound into a single collection.

What is interesting about the Peace Treaty letters, regarding the provenance of the watermarks, is that six of the manuscripts contain the *tre lune* watermark, in roughly the same location within the sheet (the centre-middle of one half of the sheet or in the centre-middle of the sheet). This suggests that these sheets of paper came from the same ream of paper and may have come from the same mill. All six of the examples were written on thick to medium weight paper, the width between chain lines was very similar (ranging from 2.9 cm to 3 cm) and the burnishing of the paper was affected in the same manner: hand burnished on one side only of the sheet. The gap between chain lines on a sheet of paper usually follows local or regional standard measurements thus can help to pinpoint the country of manufacture or even mould maker. [299]

The Venetians have been credited with the majority of the imports of the *tre lune* paper into the Ottoman Empire and symbols of the crescent moon alongside the star were present in many papers exported from Venice to the Ottoman Empire in the eighteenth century.[300] Venetian mills specialised in paper for the Ottoman market, and paper with the *tre lune* watermark was one of the papers that was produced in a variety of different levels of refinement.[301]

[299] Tschudin, 2016, p. 130.
[300] Loveday, p. 26.
[301] Mattozzi, p. 115.

In 1774, new regulations were issued in Venice stating that all *tre lune* watermarked paper had to measure 46.5 cm by 33.3 cm.[302] Whilst the paper in the manuscripts described above do not correlate exactly with these measurements, one could assume that the paper might have been trimmed from the original size set by the Venetians to fit within the boundaries of the covers of the book to which the manuscripts were going to be bound in.

However, it is difficult to prove conclusively that these manuscripts with the *tre lune* watermark came from Venice, as the French also began to produce the *tre lune* mark in the eighteenth century, to cut into this lucrative Levantine market.[303] The Genoese and Tuscan papermills were also known to produce the *tre lune* paper, and exported it to the Levant from Livorno.[304] In addition, we must consider the contribution the Ottoman mills made to the production of paper during this time; alongside ascribing names of paper used in the Ottoman Empire according to country of manufacture, colour or size of paper, the Ottomans also named the paper produced in local mills *Aylı* which means with moon.[305] The Beykoz paper mill also produced a paper called *Aydamga* which roughly translates as moon-seal; this type of paper was one of the most frequently produced paper in the mill.[306] However as the Beykoz paper mill was in operation after the production of the manuscripts relating to the Peace Treaty of Sistova which took place in 1791, and the fact that the manuscripts are inscribed with dates before the turn of the century, we can conclude that these papers were not manufactured in the Beykoz Mill. Nevertheless, there is the possibility that these papers

[302] Mattozzi, p. 33.
[303] Walz, p. 33.
[304] Mattozzi, p. 35.
[305] Kâğıtçı, p. 12.
[306] Ersoy, 1963, p. 45.

were manufactured within the Ottoman Empire, possibly in the Yalova mill which was constructed in 1744. We have to take this into consideration, and not immediately assume that these papers were imported from Europe. As discussed earlier, many papermakers copied the marks of other more successful mills, in order to benefit financially from the popularity of the papers produced by these mills.

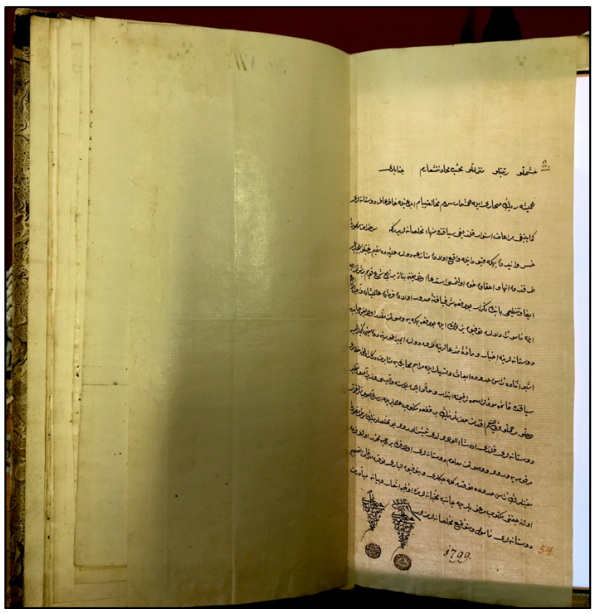

Plate 16. Letter displaying the tre lune watermark, circa 1791. Turkish MS53, number VII. By permission of The John Rylands Library, University of Manchester

Plate 17. Letter displaying the tre lune watermark, circa 1791. Turkish MS53, number XX. By permission of The John Rylands Library, University of Manchester

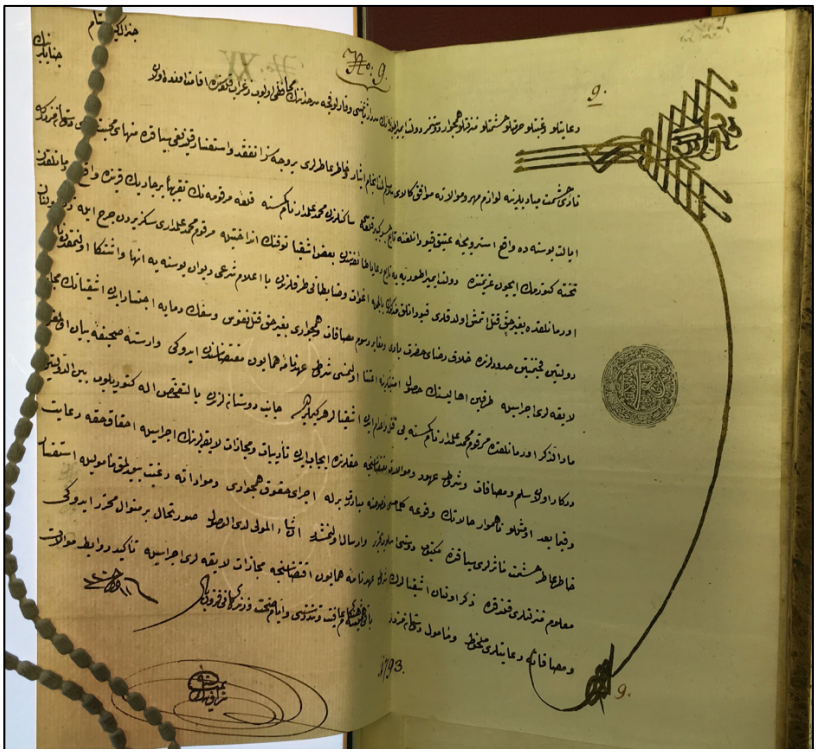

Plate 18. Letter displaying the tre lune watermark, Turkish MS53, number XXI. By permission of The John Rylands Library, University of Manchester

Plate 19. Letter displaying the tre lune watermark. Turkish MS53, number XXII. By permission of The John Rylands Library, University of Manchester

3.2. Crescent moon-face

In many of the manuscripts that I studied, the crescent moon-face watermark appeared regularly, similar in appearance to the moon face in plate twenty. In some instances, the watermark appeared on its own in the sheet, and in other instances, the watermark was accompanied by a countermark or was contained within a shield. According to Walz, by the 1820s the *tre lune* watermark had begun to appear regularly in Ottoman manuscripts, in the shape of a crescent moon with a face, however the mark had appeared occasionally in Ottoman manuscripts since the 1700s.[307]

Plate 20. Example of a single moon-face watermark. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

Some examples of these types of watermarks appear to be crudely made with little refinement, and it has been suggested that the moon-faces resemble caricatures or cartoons.[308] We have to consider that the presence of this watermark in Ottoman

[307] Walz, p. 35.
[308] Nikolaev, p. 469.

manuscripts, especially in religious manuscripts, may have been insulting to the Ottomans. However, as modern paper historians, we know that over time watermarks can move and become distorted as the mould is used over and over again, which may have resulted in the face shape becoming distorted. In addition, cleaning and scrubbing of the mould after a period of use may have caused the wires to shift about on the mould.

We have to contemplate that the Ottoman consumer may have not been aware of this fact when they were looking at paper made from a mould that was ten years old, and they may have been offended by the treatment of a traditional Ottoman symbol; however there is no evidence to suggest that this was the case and the abundance of the moon-face watermark in the manuscript survey suggests that it was not as offensive as we assume.

3.3. Crossbow

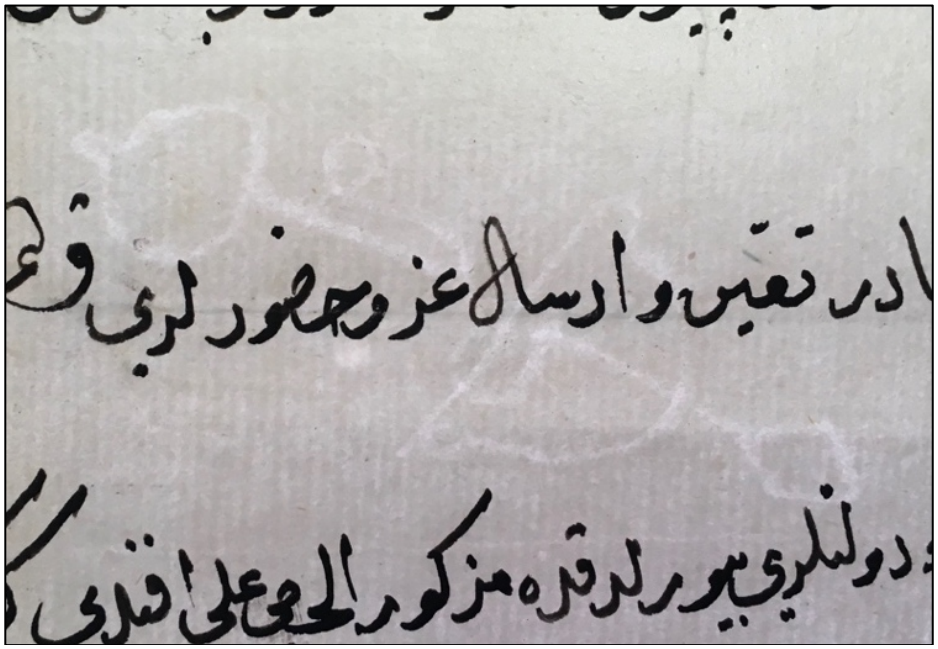

Plate 21. Close-up of crossbow watermark. Turkish MS53, number V. By permission of The John Rylands Library, University of Manchester

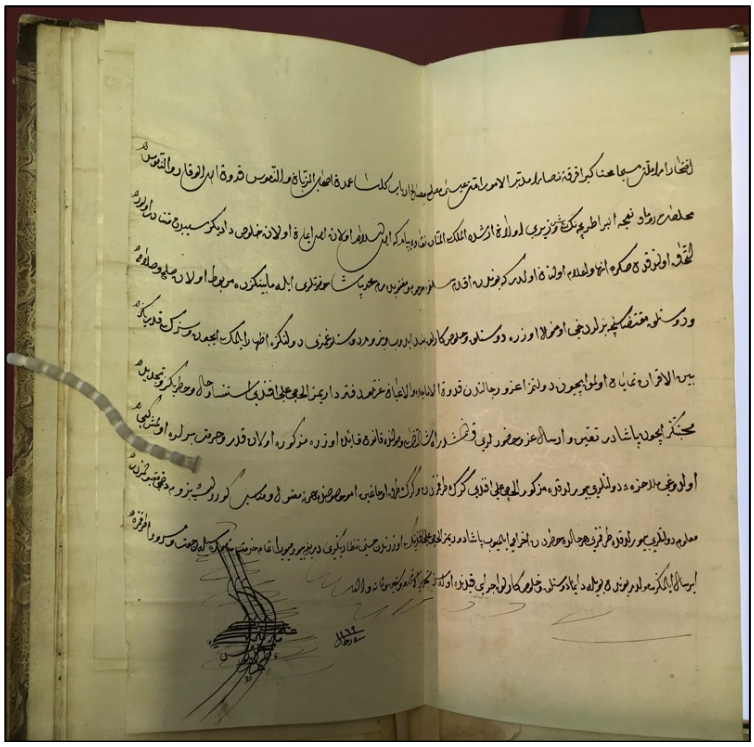

Plate 22. Letter displaying the crossbow watermark. Turkish MS53, number V. By permission of The John Rylands Library, University of Manchester

Little mention is made in the research of the crossbow watermark and there was only one example in the survey that contained this watermark (see plates twenty-one and twenty-two- for a larger version of these plates see the Appendix).

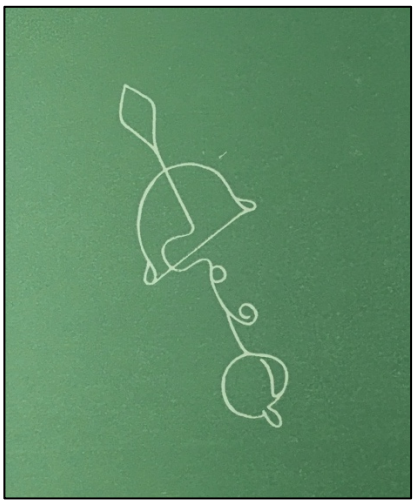

Plate 23. Example of the crossbow watermark. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

However, upon searching for this watermark in the Bernstein watermark database, I found many examples of this symbol used as a countermark to the *tre lune* watermark, in musical manuscripts from the late eighteenth century. The manufacturer of this type of watermark was supposedly an Italian papermaker called Antonio Zuanelli who operated a handmade paper mill in Salo, Toscolano, Italy. The fact that the *tre lune* watermark cannot be viewed in the manuscript in plate twenty-two suggests that this paper make have been imported to the Empire in a much larger dimension and cut down to the relevant size by the paper trader or customer. According to Ismet Binark, the cutting of paper was an Ottoman custom; large sheets of uncut writing paper would be cut down to the preferred size using paper scissors (*kâğıt makası)* and in addition most writing sets would also include a knife for cutting reed pens (*kalemtraş).*[309]

3.4. Crescent moon-face watermark and eagle countermark with initials GFA

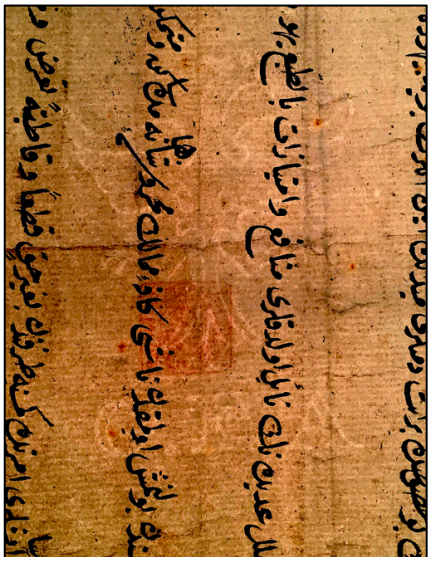

Plate 24. Eagle watermark with initials GFA, taken from a firman dated circa 1840. Turkish Manuscript Collection OR11688. By permission of The British Library

[309] Binark. p. 42.

Two of the manuscripts in the survey displayed a crescent moon-face watermark with a countermark comprising an eagle countermark with the initials GFA, one dated between 1835-1836 and the other between 1840-1841 (see plate twenty-four above and in the Appendix for a larger version). According to Walz, the initials GFA indicate the papermaker Fratelli Gava, who produced paper from his mill in Lombardy and Venice at the end of the eighteenth century.[310] However eagle watermarks were also produced in Austria, the symbol being derived from the Austrian coat of arms.[311] The combination of an Austrian symbol with the initials of an Italian papermaker casts doubt on whether or not this paper was manufactured by Fratelli Gava. Indeed, the paper could have be manufactured in the Ottoman Empire; as we have discussed previously, many mills copied the watermarks of other more successful mills in order to benefit from the popularity of their papers.

3.5. Initials GF within a shield topped by a crown or initials GF with a shield

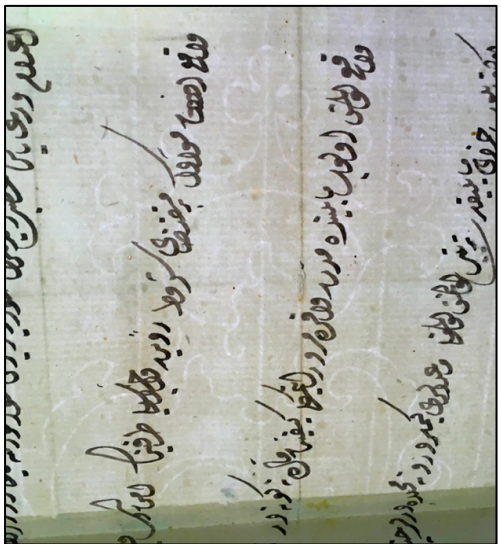

Plate 25. Detail of watermark: initials GF enclosed within a shield and topped by a crown. Turkish MS53, number III, By permission of The John Rylands Library, University of Manchester

[310] Walz, p. 33.
[311] Nikolaev, p. 124.

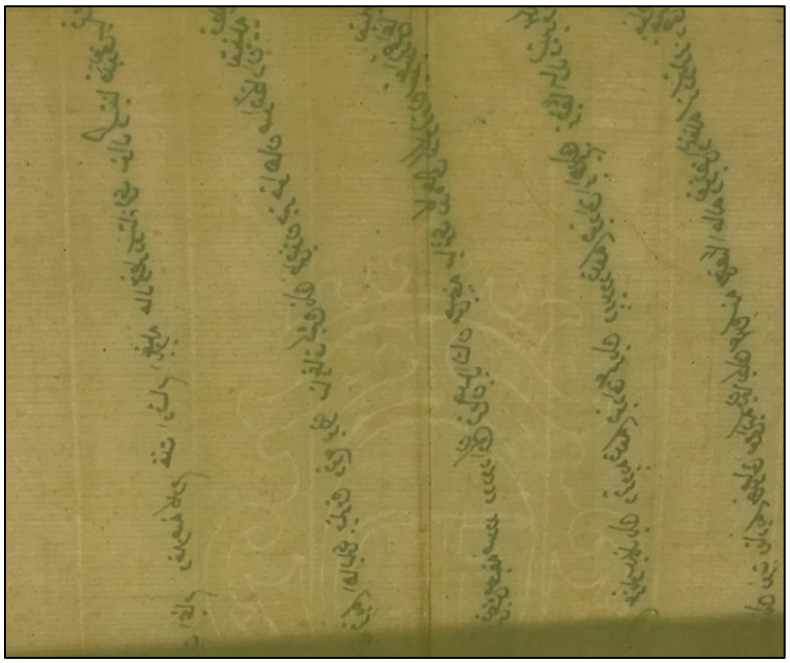

Plate 26. Detail of watermark: initials GF contained within a shield and topped by a crown. Turkish MS53, number XXXII, By permission of The John Rylands Library, University of Manchester

Several manuscripts surveyed contained countermark with the initials GF, set within a shield and sometimes topped with a crown (see plates twenty-five and twenty-six) all attributed to the end of the eighteenth century. A clearer illustration of the mark is shown in plate twenty-seven. The research indicates that the initials GF refer again to Fratelli Gava, the papermaker from Lombardy and Venice, as discussed above.

Plate 27. Example of a watermark containing the initials GF set within a shield and topped by a crown. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

3.6. Crown with initials GFA

Plate 28. Watermark with the initials GFA, topped by a crown. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

Another manuscript in the survey showed the initials GFA topped by a crown and this manuscript was dated around end of the eighteenth century (see plate twenty-nine). Watermarks with a similar arrangement of crown and initials (see plate twenty-eight) appear in Nikolaev`s 1954 survey of Ottoman manuscripts. The GFA watermark in plates twenty-eight and twenty-nine is also similar to watermarks found in Venice in the late eighteenth century.[312] The initials of GFA have been attributed to the same maker discussed above – Fratelli Gava. Conversely, other paper historians have suggested that the GFA initials actually refer to Giovanni di Faustino Andreoli, an eighteenth-century papermaker from Toscolano, Italy.[313]

[312] Heawood, p. 24.
[313] Neil Harris, *Paper and Water as Bibliographical Evidence*, (Lyon, Institut d´Histoire du Livre, 2007), p. 100. <http://ihl.enssib.fr/sites/ihl.enssib.fr/files/documents/Harris_Paper%20and%20Watermarks.pdf> [accessed 2 October 2019].

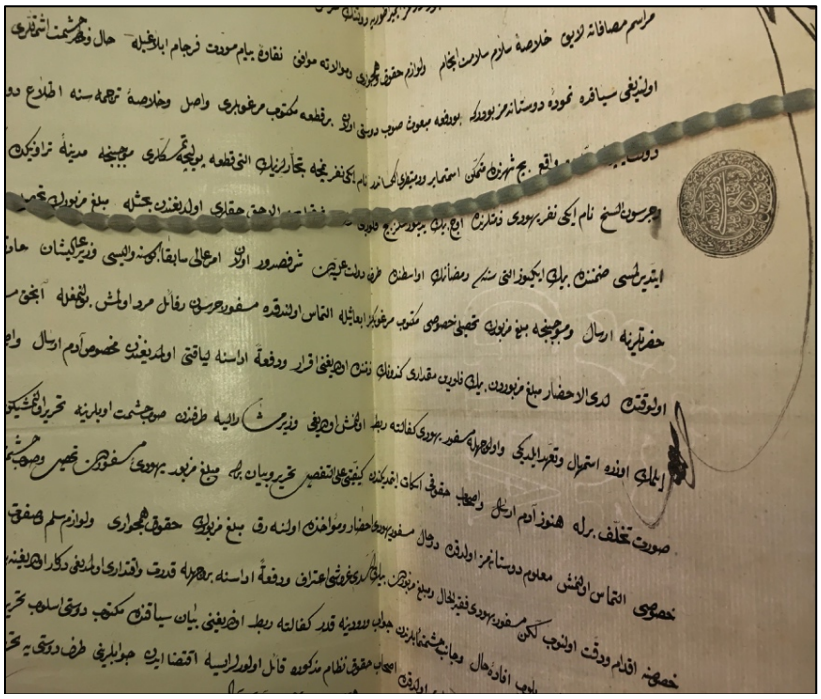

Plate 29. Detail of a watermark: initials GFA topped by a crown. Turkish MS53, number XXVIIII. By permission of The John Rylands Library, University of Manchester

3.7. Eagle with initials CEA, CFV or CEV plus countermark of crest/urn

One manuscript from the survey dating from 1825, displayed a watermark and countermark similar in appearance to the one in plate thirty, which was also found in Nikolaev´s 1954 survey of Ottoman manuscripts. The presence of the initials GFA mark could also indicate the mill of Giovanni di Faustino Andreoli. There is not enough evidence in the literature to confirm which papermaker was responsible for the GFA watermark, which makes the identification of the provenance of the paper difficult. However, we can assume that the paper came from somewhere in Europe (unless of course it was a copy produced in an Ottoman paper mill) and that it was popular in the Empire: there were four appearances of the watermark GFA in the manuscript survey, with or without the eagle, or moon-face within the shield.

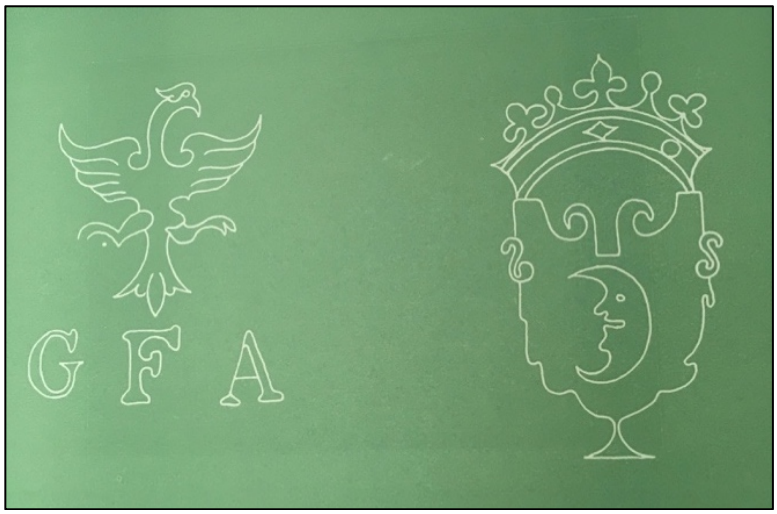

Plate 30. An eagle with the initials GFA next to a moon-face enclosed within a shield, topped by a crown. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

3.8. Moon face within a shield with crown on top

The watermark in plate thirty-one of a single moon-face set within a shield, and containing a crown, could be attributed to the papermaker Valentino Galvani, who was a papermaker operating in Pordenone, Italy in the late eighteenth century.

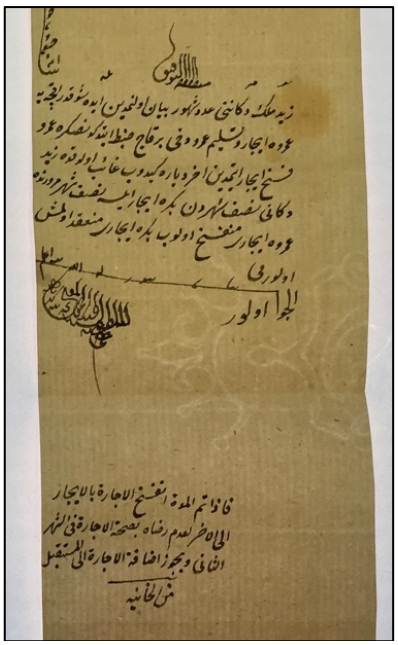

Plate 31. Detail of the moon-face watermark set within a shield. Fatwa circa early eighteenth century. Turkish MS95, By permission of The John Rylands Library, University of Manchester

Even though the sheet is undated, we can assume that the paper was manufactured after 1800 and this is due to the lack of shadow marks around the chain lines in the paper; as described on page seventy-one, the invention of the double-faced mould ensured that the paper drained more easily away from the ribs of the mould, thus avoiding build-up of pulp around the chain lines.

The Galvani family exported large quantities of paper to the Levant.[314] The family had been in the papermaking business since the 1730s and exported their paper via Udine and Trieste.[315] The family owned five paper mills in Italy: Cordenone, San Valentino, Bellasio, Porcia nella Villa di Rorai Piccolo and Rizzardi in Ceneda.[316] The countermark of Galvani are the initials VG, which are not visible in this manuscript, however if the paper was trimmed or cut in half it is possible that the VG countermark may have been a part of the excised paper. The type of watermarks produced by Galvani were similar to the mark in plate thirty-one; a shield enclosing a crescent moon-face watermark was produced by Galvani around the end of the nineteenth century.[317] Galvani apparently used the crescent moon watermark to indicate different qualities of paper; a simple *tre lune* watermark with the initials VG as the countermark indicated lower quality paper and a crest containing a crescent moon-face with the VG countermark indicated a better-quality paper.[318] This manuscript from the survey did not appear to be a high-quality paper, the surface of the paper had not been burnished as it lacked a sheet or smooth surface texture. The fibre furnish was poor and the paper contained

[314] Walz, p. 36.
[315] Biddle, p. 45.
[316] Ibid., p. 45.
[317] Walz, p. 36.
[318] Biddle, p. 31.

lumps of unbeaten fibre. These physical characteristics indicate a lower quality of paper, which is contradictory to what we would expect from a high-quality paper from a Venetian mill, if indeed this was a paper produced by Valentino Galvani. In fact, we must consider the fact that this paper may have been produced in Egypt, as the Egyptian paper industry was revived in 1833, and paper was exported across the Middle East, and even to Europe.[319]

3.9. Watermark with the name J. Whatman

This watermark is a fine example of how watermarks of successful papermills were regularly copied by rivals. James Whatman was a highly respected papermaker, whose established a paper mill in Maidstone, England in 1731; fake Whatman papers with the recognisable watermarks were produced in France, Germany and Austria during the early nineteenth century.[320] This mark found in the Ottoman manuscript in the survey (similar in appearance to plate thirty-two, dated approximately 1878) is most definitely a forgery: the full stop between the J and W never appears in genuine Whatman watermarks.[321]

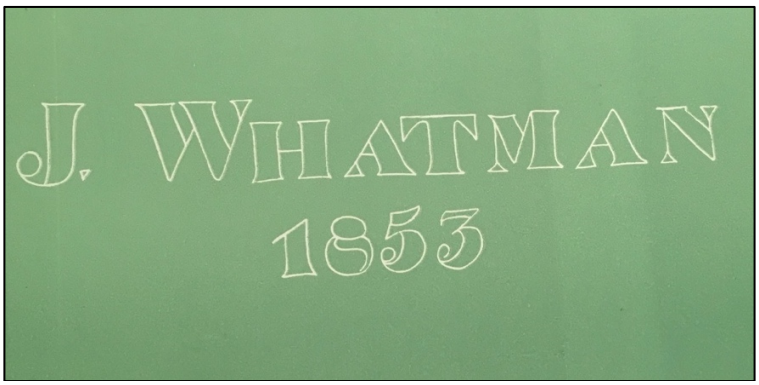

Plate 32. Example of a J Whatman watermark present in Ottoman manuscripts. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

[319] Walz, p. 38.
[320] Bower, 1999, p. 12.
[321] Ibid., p. 13.

3.10. Three moons within a shield, topped by a crown. The word IMPERIAL underneath

One manuscript in the survey dating from the late eighteenth century showed a watermark that contained the *tre lune* inside a shield, topped by a crown with the word imperial underneath (see plates thirty-three, thirty-four and thirty-five). Vesvolod suggests that Venetian paper imported into the Levant from the end of the sixteenth and beginning of the seventeenth century contained the three crescent moon watermark with the word *imperial* or *soto imperial* written underneath.[322] Mattozzi, however, claims that the *imperial* and *soto imperial* papers were only imported into the Ottoman Empire in small amounts between 1710 and 1720.[323]

As described on page ninety-seven (note the slight change in spelling of the words) the words *imperial* and *soto imperial* refer to the size and weight of the paper. The word *imperial* refers to paper measuring 78 cm x 55 cm: the paper in plate thirty-three has clearly been cut down to a smaller size as this manuscripts measure about 40 cm x 20 cm. The difference in sizes between the original size of the *imperial* paper and the size of the manuscript in plate thirty-three indicate that this watermark may have been copied by a rival mill; if we cut two sheets of paper measuring 40 cm by 20 cm out of an *imperial* sheet, there would be a strip of paper left over that would be too small to be used as a letter, therefore would be put to waste. Therefore, we have to consider that the paper in plate thirty-three was not the *imperial* paper produced in Venice in the end of the sixteenth and beginning of the seventeenth century but

[322] Nikolaev, p. 4.
[323] Mattozzi, p. 110.

a paper produced on a totally different sized mould, using a copy of the *imperial* watermark. Alternatively, if we assume that the manuscript in plate thirty-three was cut from an *imperial* sheet of paper, then the strip of waste paper may have been reassigned to another use, such as notepaper or the user may have even collected these strips of waste paper and collated them to form a small notebook; as it is unlikely that these strips of waste paper are extant in archive collections in any form, we can only assume that this happened, but the idea does highlight how the Ottomans may have treated paper waste.

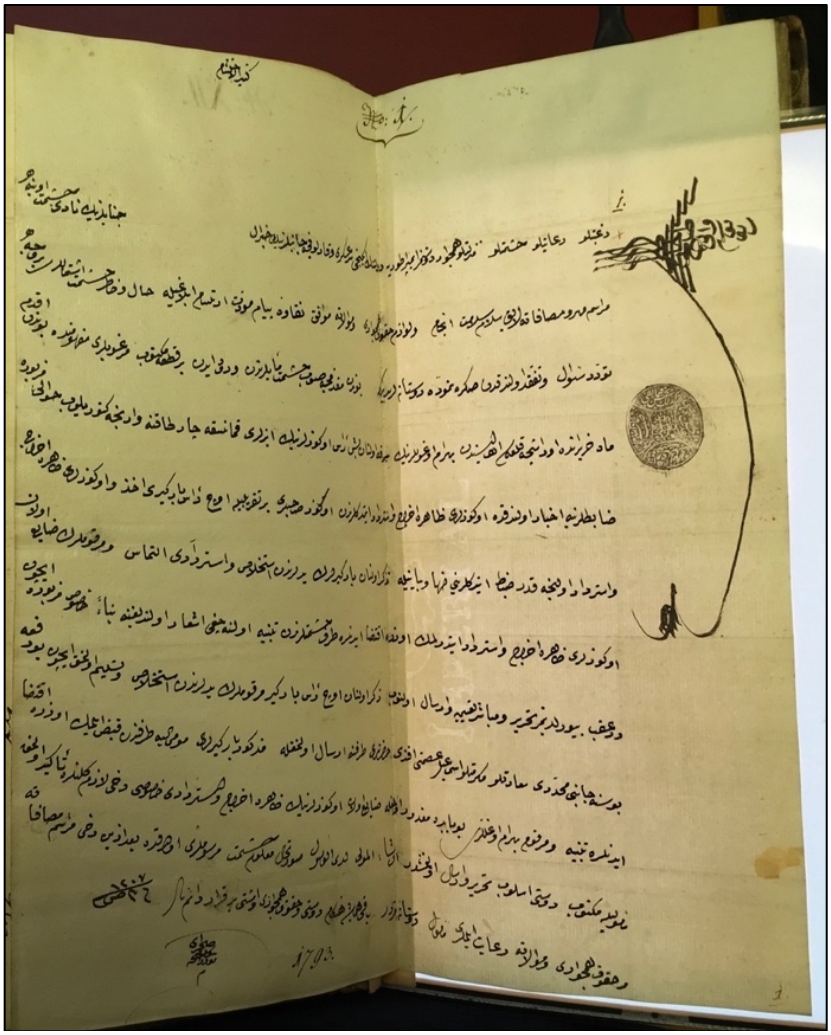

Plate 33. Letter dated circa 1791. Part illustration of watermark with word imperial. Turkish MS53, number XII. By permission of The John Rylands Library, University of Manchester

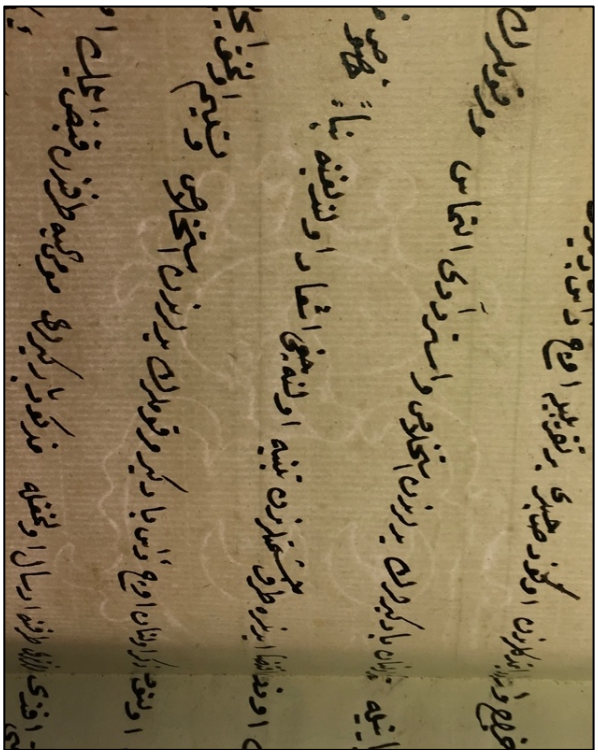

Plate 34. Detail of watermark: three crescent moons in a shield and topped by a crown. Turkish MS53, number XII. By permission of The John Rylands Library, University of Manchester

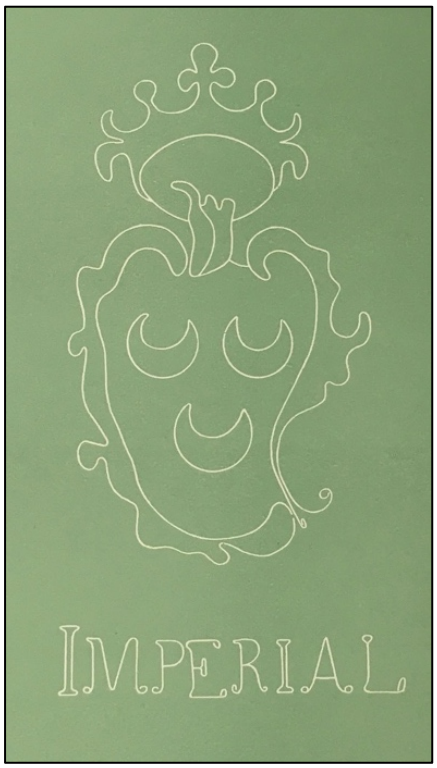

Plate 35. Tre lune watermark enclosed within a shield and topped by a crown with the word imperial. Watermarks of the Mediaeval Ottoman Documents in Bulgarian Libraries. Volume 1. 1954, Bulgarian Academy of Sciences, Vsevolod Nikolaev

3.11. Initials GFA with words SOTO IMPERIAL underneath

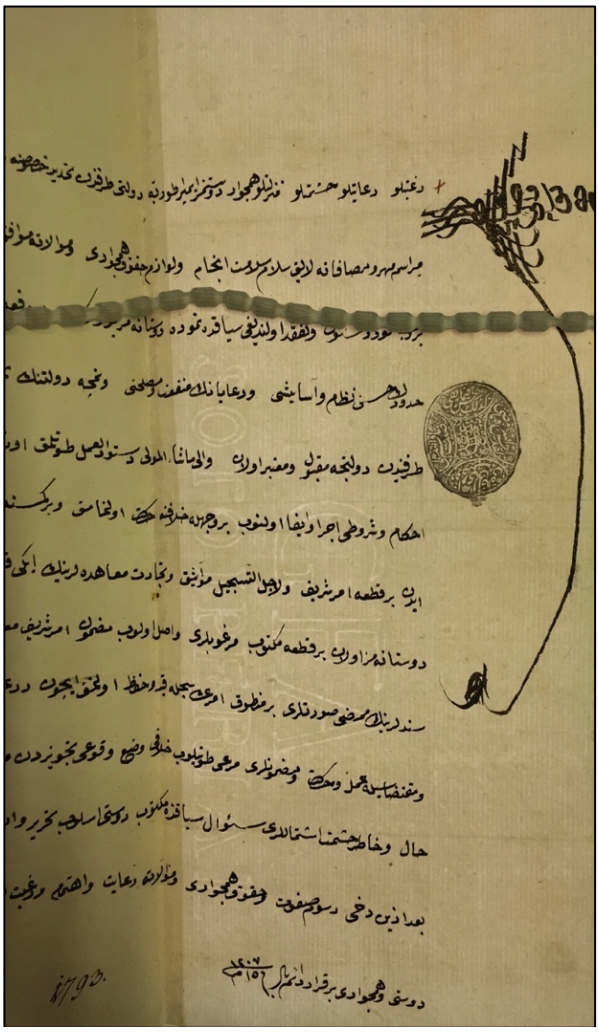

Plate 36. Detail of a watermark: initials GFA with words soto imperial. Turkish MS53, number XXXVIII. By permission of The John Rylands Library, University of Manchester

As discussed above, the initials GFA could indicate Italian papermaker Giovanni di Faustino Andreoli. In the same manner as the *imperial* example above was attributed to the end of the eighteenth century, the size of the manuscript in plate thirty-six is considerably smaller than the size of the *sottoimperiale* paper (paper that was manufactured in Venice and measured 74 cm x 51 cm), indicating that this paper may have been a forgery of the *sottoimperiale* paper.

3.12. Cross ending in a three-leaf clover. Letters P and A on either side of the cross

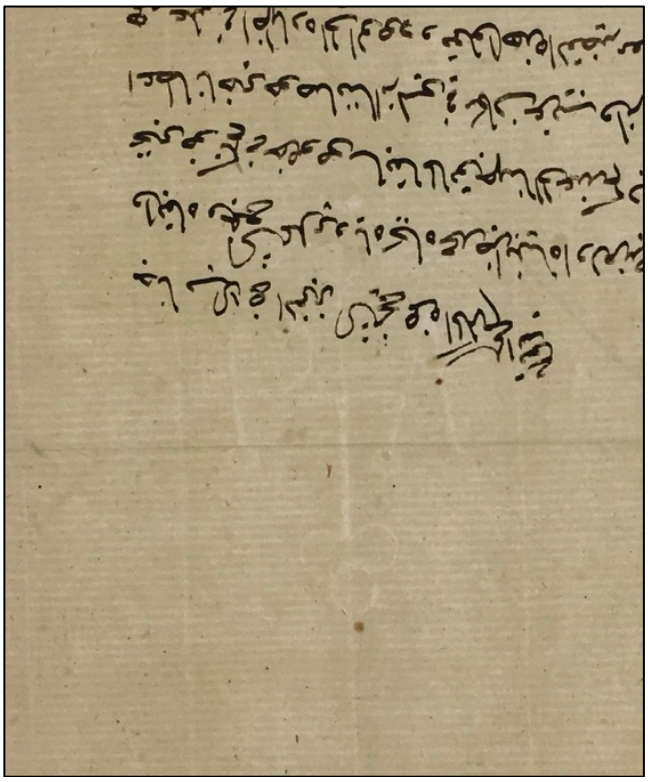

Plate 37. Detail of watermark: cross, three-leaf cover and the letters PA. Turkish MS913, number 201. By permission of The John Rylands Library, University of Manchester

There was very little in the research about this type of watermark (see plate thirty-seven) attributed to the early eighteenth century, and it was only present in one manuscript in the survey. The initials PA have been found in paper in Venice in the seventeenth and eighteenth centuries.[324] This mark is similar to a mark found in Charles Briquet´s Album II of a cross ending in a three-leaf clover type of shape, which Briquet refers to as a Greek cross; this particular watermark was found at Pisa in 1298. Therefore, we can assume that this mark has been used in Europe since in the thirteenth century and that the paper in this manuscript was most likely manufactured in Europe. This manuscript was the only example in the survey that

[324] Heawood, p. 24.

contained symbols of Christianity; while the presence of Christian symbols in only one manuscript surveyed for this project is not statistically significant enough to suggest that these symbols were not popular in the Empire, the preponderance of non-Christian symbols used as watermarks in the survey indicates that European papermakers may have been aware of cultural and religious nuances and chose to omit overt references to religion in their paper intended for the Levant.

3.13. Crown, heart, grapes. Initials A and G (or could be V and G)

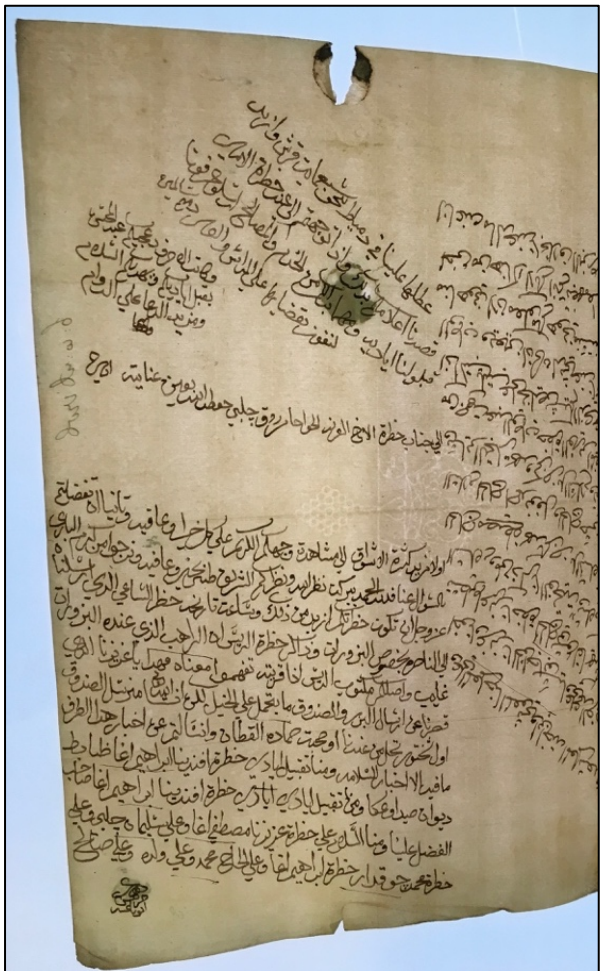

Plate 38. Letter sent to Paul Maashoek from Jurjī Abū Nā'isa concerning commercial transactions, circa early eighteenth century. Turkish MS913, number 209. By permission of The John Rylands Library, University of Manchester

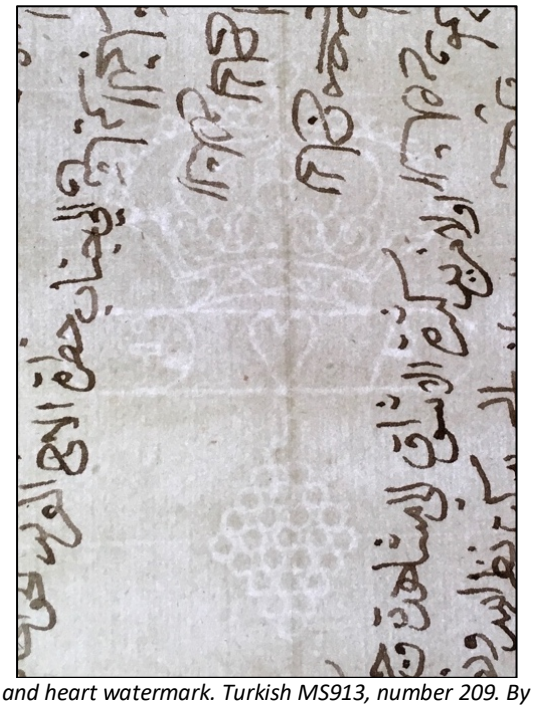

Plate 39. Detail of grape, crown and heart watermark. Turkish MS913, number 209. By permission of The John Rylands Library, University of Manchester

Watermarks containing crowns and grapes have been popular in France since the fifteenth century.[325] The initials AG in the watermark in plate thirty-eight and thirty-nine, dated early eighteenth century, could also refer to Andrea Galvani II, a member of the same papermaking dynasty as Valentino Galvani: Andrea II operated the Viazzol mill between 1734-1758 and it has been reported that his products were so popular with the Levantine market that customers even came to his mill to personally purchase Andrea´s paper.[326] However, no scholars have suggested that Andrea Galvani manufactured a paper with the heart, cross and grape watermark; though Valentino Galvani did not object to copying rival papermaker´s watermarks and was known to have copied the marks of renowned Dutch papermakers Dirk and Cornelis Blauw.[327] The presence of the crown and grape symbols in the watermark in the

[325] Laurentius and Laurentius, p. 5.
[326] Biddle, p. 45.
[327] Bower, 1999, p. 12.

manuscript in plate thirty-eight indicates that the paper was manufactured in Europe, in either France, Italy or the Netherlands. A search on the Bernstein watermark database for the heart watermark highlights similar examples to the watermark in plate thirty-eight: a heart symbol in-between two letters, with a bunch of grapes underneath with or without the presence of a crown. This type of configuration was obviously popular with papermakers; however, it was not possible to find any examples on the database that referred to specific places of production.

4. Comparison of watermarks in Ottoman manuscripts with subject matter

This study of Ottoman manuscripts does not demonstrate any obvious correlations between the type of watermark on the sheet and the subject matter of the manuscript. The imperial *berat*s issued by the Sultan contained no watermarks. Whether or not this indicated a specific choice by the Ottoman chancery to have no marks in the paper for any document granted by the Sultan is unclear, however the fact that all of the *berat*s did not contain any watermarks indicates this may have been a possibility. The same case can be made for the *buyuruldu*s; only one manuscript contained a watermark, that of a single crescent moon-face. This could have been a specific choice by the chancery to avoid documents issued by a high ranking official to contain any watermark symbols. However, these hypotheses are contradicted by the results of the survey of firmans. All four of the firmans that were surveyed contained watermarks, and each watermark contained some form of the crescent moon symbol. For the remainder of the watermarks in original letters and copies of letters, there was no obvious correlation between the watermark and the subject matter; a letter regarding a diplomatic

matter often contained the same watermark as a letter containing a merchant and his trade dealings.

This type of comparison was difficult to make, because we have to consider the fact that the sheets that were initially imported and sold to the paper trader or stationer, may have been cut down to fit a specific size. In this case, the watermark may have been located in the corner of the sheet, and thus not present in the final sheet. Venetian papermills often placed their watermarks in one corner of the sheet in order not to alter the illustrations or text that was to be written in the centre of the text. [328]

One notable finding was the fact that in the mid eighteenth century, papers manufactured in Venice specifically for Ottoman firman were called *imperiale*.[329] However the one manuscript in the survey where the word *imperial* was used as a part of the watermark is a certified copy of a letter which refers to diplomatic matters. This is one example where the subject matter of the manuscript may not match the type of watermark and type of paper, which was created for another use.

5. Analysis of unexpected findings

As described in section 2.2, the majority of the manuscripts surveyed for this project appeared to have been burnished on one side of the paper, where the ink was used, leaving the back of the paper unburnished. One unforeseen finding from the survey refers to one

[328] Nikolaev, p. 1.
[329] Walz, p. 33.

document, an original letter dated early eighteenth century, sent to the Dutch merchant Paul Maashoek from Hājjī Muhammad Shahbī; it appears that Shahbī had written on the side of the paper that was unburnished, thus in effect, Shahbī wrote on the ´wrong` side of the paper. Plate forty illustrates the burnishing on the back of the sheet and visible is a list of names and amounts of money in Roman script and remnants of the original sealing wax.

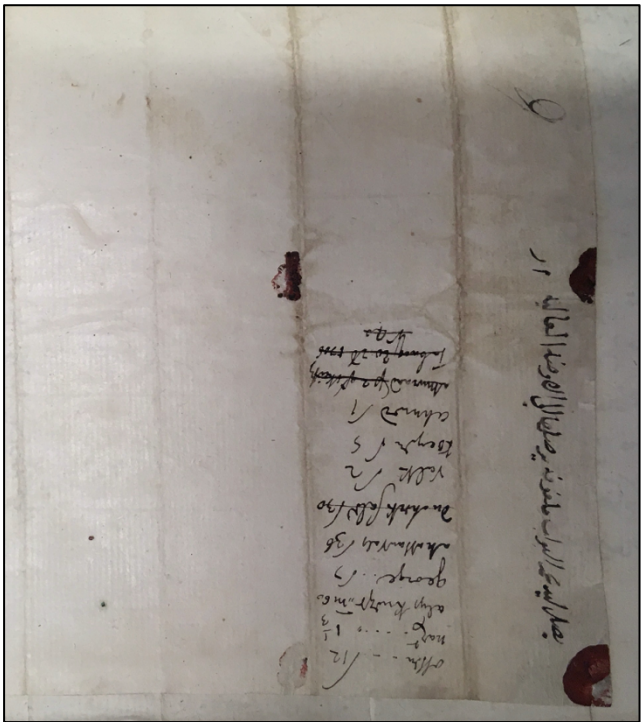

Plate 40. Back of document showing burnishing of paper. Persian MS913, number 202. By permission of The John Rylands Library, University of Manchester

According to established scholarship, paper used for firmans, public and private use and letters was burnished only on one side whereas paper used for books and registers were burnished on both sides of the paper.[330] This would make sense, as paper used for books and registers may have been written on both sides of the paper, thus the ability to protect the ink

[330] Mattozzi, p. 112.

from forgery would need to be applied to both sides of the sheet. The significance of this finding in relation to the overall study is that some users of paper in the Ottoman Empire may have not either noticed that they were writing on the ´wrong` side of the paper, or that they were unaware that writing on the unburnished side of the paper would render their writings susceptible to forgery, or that they simply did not care about what side of paper they wrote on.

Throughout this project it has been assumed that to some extent, and at least some of the time, the Ottomans were aware of watermarks in their paper and the use of European Christian symbols in their paper, and were aware of the significance of writing on the burnished side of a sheet of paper. The example with writing on the unburnished side suggests that under some circumstances this was not the case and that we should exercise caution in estimating the degree of ´paper awareness´ among Ottoman users.

Another unanticipated discovery from the manuscript survey was the manner in which the manuscripts had been folded. Folding of the manuscripts can be observed in the crease lines in the paper: for example, all four *buyuruldu*s were folded into a smaller rectangular piece of paper and some of the paper was discoloured to a greater extent in a certain portion (indicated by the grey shaded area in figure one) which indicates that this was the outside of the document once folded and would have been in greater contact with dirt and dust.

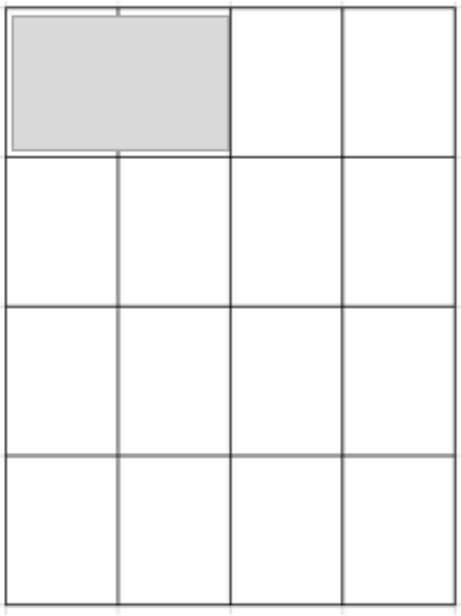

Figure 1. Illustration of crease lines indicating folding of paper. The grey shaded area indicates discolouration of the paper, where the document would have been in contact with dirt and dust. Buyuruldu, OR 11559, The British Library

Figure two illustrates how one of the *buyuruldu* was folded into smaller rectangles, but also folded diagonally across the sheet. This may have been the result of the writer folding the document one way, and then changing their mind and folding it another way, perhaps to fit into an envelope or container. There is evidence that official manuscripts were folded for transport: the document would sometimes be folded accordion-style (in a similar manner to above), so that when it was unfolded, the upper section of the document containing the title of the ruler, address and numerous formulas, would be viewed by the receiver first.[331] The document would then often be put into a small bag called *kese* for transportation, or wrapped in more paper.[332]

[331] Reychman and Zajaczkowski, p. 139.
[332] Ibid., p. 139.

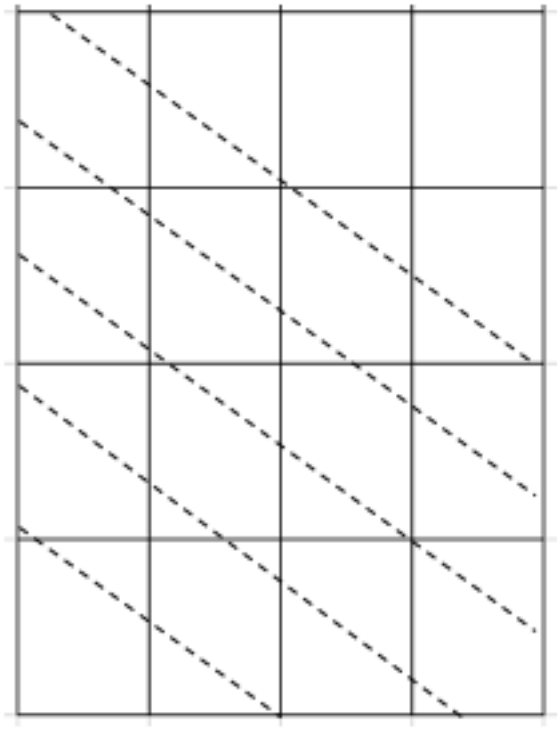

Figure 2. Illustration of the folding of a buyuruldu. OR 11559, The British Library

However, there were other styles of document folding that appeared in the survey. An imperial *berat* from 1659 was folded accordion-style down the length of the paper, then only once on the right edge (see figure three). A *berat* from 1859 was folded in exactly the same manner. What is interesting, is, firstly, the manner of folding *buyuruldu* is very different from the manner in which the *berat* were folded: the resulting folded sheet of paper was much bigger for the *berat* than for the *buyuruldu* which could indicate that the *buyuruldu* were intended to be placed into the small *keses* for transportation, whilst the *berat,* being a more important document, remained clear of crease lines. Secondly, there was exactly 200 years between the production of the *berat* in 1659 compared to the 1859 *berat* but both documents were folded in exactly the same manner, which suggests that the Ottomans had particular formulas for the treatment, and folding for transportation of specific types of manuscripts.

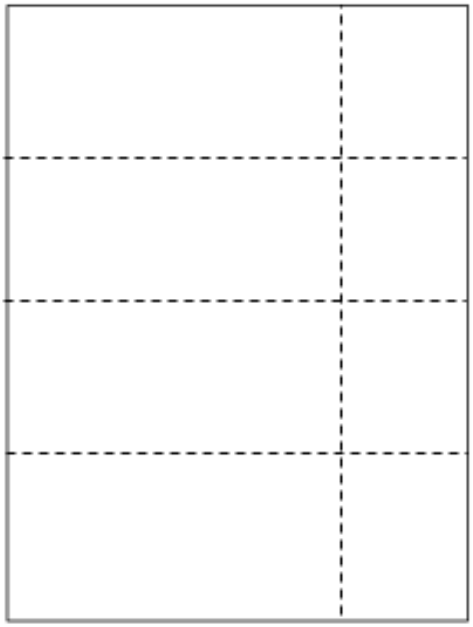

Figure 3. Illustration of the folding of a berat. OR 12091. The British Library

The implication of these unexpected discoveries in relation to the study is that more detail about how paper was used and transported can be collected by studying the physical characteristics of paper after the document has been written and sent to its intended recipient.

6. Acknowledgement of the limitations

Although this project was of a limited nature regarding the number of manuscripts surveyed and analysed it was only intended as an exploratory study into the paper trade between Europe and Ottoman Empire; as a result of this investigation I believe it has brought to light new evidence regarding paper use in the Empire and highlighted new avenues for future research. Even though it was not possible to survey a large number of original manuscripts for the project, copies of original documents still provide evidence of what kinds of paper were used in the Empire by copyists in the Ottoman chancery or consulates.

The limited nature of this study does not render this project inadequate, but serves to provide more rigorously tested avenues for future research; the project provides focus points for future study and proposes which methodologies should be followed to provide the research with the best chance of producing reliable and evidence-based results.

CHAPTER 7

CONCLUSIONS AND IMPLICATIONS

1. Introduction

The aim of this project was not to be a conclusive or comprehensive study of the way paper was used and traded in the Ottoman Empire between the sixteenth and nineteenth centuries, but to explore possible trends in the qualities of paper that the Ottomans imported into the Empire from both the East and West, and also to consider the state of the domestic production of paper. The scope of the study was not to complete a systematic survey of the paper use in the entire time period, but to make conservative estimations based on a limited study of Ottoman manuscripts.

The study explored from which countries the Ottomans preferred to get their papers, using watermark and paper evidence from Ottoman manuscripts. By looking at the paper and watermark evidence in Ottoman manuscripts, I investigated how much importance the Ottomans placed upon the specific papers they chose for specific purposes and this allowed me to consider whether or not these choices led to a wider understanding of the social, cultural and political context of the period.

Based on the evidence gathered from the study of Ottoman manuscripts, it can be determined that studying paper and watermark evidence in Ottoman manuscripts can reveal patterns and trends of paper use. The results indicate that the Ottomans were concerned

with what types of paper they used for specific types of document and that there was an infrastructure in place to import and prepare the paper ready for the market. The results indicate that the Ottomans preferred a specific type of surface finish to their papers and that gold pigment was used in writing inks for a variety of different types of state manuscripts. The project has also shown that the Ottomans imported paper from across Europe and the East and that it is possible to make suggestions as to the origin of these papers, but that the evidence does not provide conclusive proof of provenance due to the forgery of watermarks by mills across Europe. In addition, the results highlighted some insights into the Ottoman´s opinions regarding the use of European papers and how much we can link the production and importation of a specific type of paper into the Empire with the political context of the time.

2. Summary and reflection on the research

Filigranology, the study of watermarks, has been a field of research since the 1900s and continues to develop today; this project used watermarks in combination with paper analysis skills to develop a methodology of examining Ottoman manuscripts on a micro level, thereby increasing our knowledge of the paper´s journey from manufacture to consumption. A survey of Ottoman manuscripts held by British archives was undertaken, recording the paper characteristics of each sheet and documenting the watermark with photography. In order to understand how these paper characteristics are formed in a sheet of paper, it was necessary to study how paper and watermarks were manufactured and how paper was prepared for the market with different types of surface finishes.

In addition, the journey of paper from China to the Ottoman Empire was studied, providing insight on how the manufacture of paper was filtered down through artisans and traders to the West. As one of the research aims was to highlight the provenance of paper used in the Empire, the three main sources of paper used in the Empire was researched, providing insight into the domestic manufacture of paper, and the import of paper from Europe and the East. The early Ottoman attitudes towards the use of European paper in the Empire was discussed, highlighting how the presence of European symbols in watermarks had an effect on how much that paper was used in the Empire.

The analysis and discussion of the survey results firstly discussed the patterns of paper use in the Empire; the evidence showed that groups of different types of manuscripts produced by the state displayed similar physical characteristics. Similarly, a collection of original letters was written on very similar sizes of paper with similar paper characteristics. There was a distinct different between the thickness of paper used by the state and the paper used by merchants, which indicated a preference for better quality paper for official state documents.

In addition, the results highlighted the Ottoman preference for a smooth and shiny surface appearance to their paper, across all different categories of user. The physical characteristics of burnished paper prevents tampering with the ink, thereby suggesting that the Ottoman user was concerned with the safety of the information on the document and the paper´s ability to safeguard that information. The use of gold pigment in the ink of some of the manuscripts suggested a preoccupation with the presentation of a document; the fact that two private letters in the survey contained gold pigment in the ink implies that it was not only

the Ottoman officials who used this practice to elaborate and enhance their documents. It was clear from the results that the Ottomans did chose their paper supplies carefully and that paper was not just an item to write on, but a tradable commodity and a signifier of wealth and sophistication.

The results from the survey in some areas did not support certain hypothesis; knowledge of paper science and deterioration was not able to shine light on the provenance or dating of the paper in the survey. None of the manuscripts appeared to have been dated incorrectly, and there was only one example of where the colour of the manuscript may have not matched that of the paper immediately after manufacture.

The practice of stockpiling of paper and whether or not the Ottomans stored large volumes of imported paper was discussed; the research results did not highlight an obvious stockpiling of paper by the chancery, however one collection of letters written on very similar paper indicated that this particular user may have purchased a large volume of paper from the same ream or stock.

The second part of the discussion section highlighted how watermarks could be used to identify paper provenance. Each different type of watermark in the survey was analysed and traced using online watermark databases and suggestions as to why certain watermarks were omnipresent in papers sent to the Levant was discussed. It was surmised that many of the watermarks appeared to have originated in Italy, but that there was evidence that some may have been produced in France, Austria or within the Empire. It appeared from the survey

that, on a whole, the Ottomans preferred to use Venetian paper over paper from other nations or paper from their own mills; this assumption is derived from the evidence that Venetian mills made the production of Ottoman papers a speciality, and that they produced exactly the type of papers required for the production of official documents such as firman. However, due to the nature of the movement of papermaking moulds, the rivalry between mills and the importance of the Levantine paper trade to European economy, in reality, many of these papers that appeared to have been manufactured by Venice could have come from any mill in Europe producing paper for export to the Levant.

In addition, the history of the creation and use of the *tre lune* watermark was discussed in light of the political relationship between Europe and the Empire during the sixteenth century. The subject matter of the manuscripts was considered in relation to the type of watermark present in the sheet and it was decided that for this small study, there was no immediate correlation between the watermark and subject matter of the manuscript.

Several unexpected findings were described: the first suggested that based upon the presence of one manuscript where the letter was written on the unburnished side of the paper, we have to consider that some users of paper in the Empire were not aware of the significance of writing on the burnished side of the paper. Were this project to be expanded, this would be an interesting characteristic to explore further. Secondly, many of the manuscripts showed evidence that that they had been folded into smaller rectangular shapes, most likely for transportation: this result provided further insight into how the Ottomans used

paper in the Empire and that similar types of document displayed similar folding styles, suggesting a formulaic attitude towards the transmission of official documents.

3. The relevance of the project to the field of research

This project addressed the gap in knowledge about how the Ottomans used and traded paper between the sixteenth and nineteenth centuries, and highlighted how important a study of paper as a tradable commodity during this period is to the field of paper trade and Ottoman economic studies. The survey findings illustrated that a study of Ottoman manuscripts should not solely rely on watermark evidence, as was practiced by watermark and paper historians in the early years of research into the field, but that by looking at the paper sheet as a whole, more conclusions can be made about the patterns of use of paper. The research highlighted that alongside the existing work that has been done in Turkey on the Ottoman manufacture of paper, gaining a deeper understanding of the paper mills in the Ottoman Empire will inform our understanding of how much importance the Ottomans placed on domestic production of paper and what kind of impact Ottoman paper had on the paper used in the Empire. This project addressed the assumption that the failure of the Ottoman mills was due entirely to the European domination of paper production and trade in the Levant, and suggested that there were other factors involved in its demise.

The study on Terence Walz´s work on European paper imported into Egypt during the eighteenth and nineteenth centuries showed that it is very difficult to divide the importation of paper from Europe into the Empire into definite periods of time, whereby one nation or

another held a monopoly of the paper trade. An analysis of this case study showed that it was clear that no one trading nation controlled the entire paper trade into the Empire, but that the reality was more fluid depending on political circumstances of the time.

4. Recommendations for future research

In his study of watermarks in Ottoman documents in Bulgarian Libraries, Nikolaev draws our attention to two documents that highlight exactly the type of future research that this project would benefit from. Firstly a report written by Elhadj Mehmed Çelebi for Sultan Ahmed III in January of 1717 regarding office expenditures (Çelebi was in charge of the office supplies) reported that the paper used by the Grand Vizier during the last three months of the year 1716 was 126 quires of paper.[333] Secondly, a letter from Hussein Pasha, the governor of Diyarbakır to Mustapha Pasha, governor of Aydın in 1751, described how much paper is being send to Aydın, what the cost will be, and demanded that Mustapha Pasha send the money for the paper to Diyarbakır.[334]

Analysing the types of records that documented paper purchase and the movement of paper in the Ottoman Empire would be very valuable to the paper trade historian. Little is known about who was responsible for purchasing the paper in the state offices of the Porte, how much was paid for the paper imported from Europe into the Empire and where the paper was sold in the open market. For instance, all of the cloth sold in the Ottoman Empire was purchased by 3 categories of consumer:

[333] Nikolaev, p. 10.
[334] Nikolaev, p. 10.

1. Guild of clothiers
2. *Bâzırgânbaşı*s (merchants who purchased cloth for the palace and bourgeoise)
3. *Bitpazarlı*s (roughly translating as flea market; lower quality cloth for markets).[335]

The Guild comprised Greek, Jewish and Turkish and Armenian clothiers who (unofficially) controlled 70 percent of the trade of cloth in the Empire.[336] What the research on paper fails to address is whether or not the sale of paper in the Empire was controlled and administered in a manner similar to the trade and sale of cloth. One assumes that this may have been the case, because the trade in paper was as valuable to the Ottomans as the trade in other materials, however the research fails to address this point and to back this up with concrete archival evidence, on a scale similar to the studies that have been undertaken on the trade of cloth in the Ottoman Empire. Bringing together scholars on Ottoman paper-making history and paper trade and expert scholars in the required languages in a large-scale collaborative and multi-disciplinary project to decode and decipher archival documents on paper purchase, could be the breakthrough that this field needs.

In England in the eighteenth century stationers often controlled the distribution of paper; the stationer was sent large supplies of paper from the mill to be stored and distributed to the travelling salesman.[337] The selling of the paper was also done directly from the paper-mill by a specific worker called the paper agent, who acted as a middle man between the papermakers and the stationers.[338] In Egypt in the eighteenth century, paper was sold directly by foreign

[335] Eldem, pp. 45-6.
[336] Eldem, p. 47.
[337] A. Dykes Spicer, *The Paper Trade, (*London: Methuen & Co., 1907), p. 127.
[338] Ibid.*,* p. 131.

importers to individual consumers.[339] Was there a type of wholesale stationer or paper agent operating in the Ottoman Empire, or was the paper sold directly to the consumer such as from the European merchant directly to the administrative offices of the Porte? Locating and analysing this type of records extant in the Ottoman archives would prove a great deal more insight into the inner workings of the paper trade in the Ottoman Empire.

Alongside the financial records from the Porte, other records that would be valuable for this project would be port records for imports into the Empire; finding and interpreting this type of record in the Ottoman Empire, with the help and collaboration of scholars across all fields, would be extremely valuable for this project and for paper trade studies in general.

In addition, studying a range of different manuscripts produced by all departments of the Ottoman chancery will provide a broader view of the types of paper used for different documents; Beykoz paper mill (founded in 1804) produced a type of paper for the military called *hartuçluk* (roughly translated as cartridge paper).[340] Comparing this paper (if correctly identified) with paper used for documents such as the *berat, buyuruldu* and firman will enable comparisons to be made between the use of paper for different departments in the Ottoman administration. Furthermore, another area of research would be to study manuscripts written in the provinces; for example, inventories, wills, receipts and certificates, the purpose of which may have resulted in the use of less expensive and luxurious quality of paper than used for the firman or *berat.*

[339] Walz, p. 38.
[340] Ersoy, 1963, p. 45.

The analysis of watermarks and paper has not just been restricted to field of academic study; in Arthur Conan Doyle´s *A Scandal in Bohemia*, upon receipt of a sheet of paper from a prospective client, Sherlock Holmes examines the paper and watermark and in a matter of minutes, without hesitation, exclaims that the paper was made in Bohemia and that the man who wrote it was from Germany. This type of discovery is exactly what this project aimed to find; how much can we decipher about a sheet of paper and its origin from simply looking. However, Holmes makes a very important point when he states: ´I have no data yet. It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.`[341] This study highlights this fact: the analysis of paper should not be undertaken in isolation but combined with research on the purchase, trade and use of paper in the Empire. Just like Sherlock Holmes, this study reads the language of the paper rather than the language of the language, as a way of shedding light on the history of the Ottoman Empire.

[341] Arthur Conan Doyle, *Sherlock Holmes: His Greatest Cases* (London: White´s Books, 2010), p. 185.

APPENDIX ONE: Larger images of watermarks

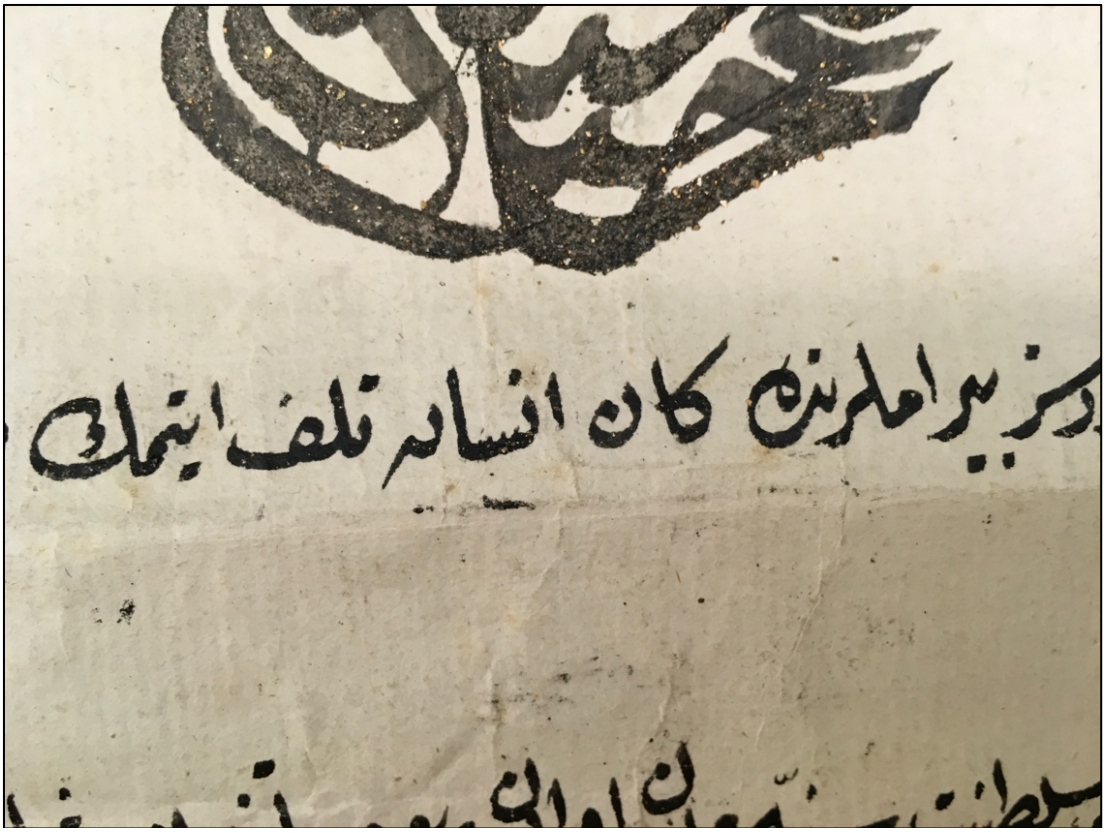

Plate 11. Illustration of gold pigment in ink on a firman from circa 1840. Turkish Manuscript Collection OR11688. By permission of The British Library

Plate 13. Genoese Coat of Arms Watermark, 1586, Italy. Daniel W. Mosser, Ernest W. Sullivan II with Len Hatfield and David H. Radcliffe. The Thomas L. Gravell Watermark Archive 1996- 2019. www.gravell.org

Plate 16. Letter displaying the tre lune watermark, circa 1791. Turkish MS53, number VII. By permission of The John Rylands Library, University of Manchester

Plate 17. Letter displaying the tre lune watermark, circa 1791. Turkish MS53, number XX. By permission of The John Rylands Library, University of Manchester

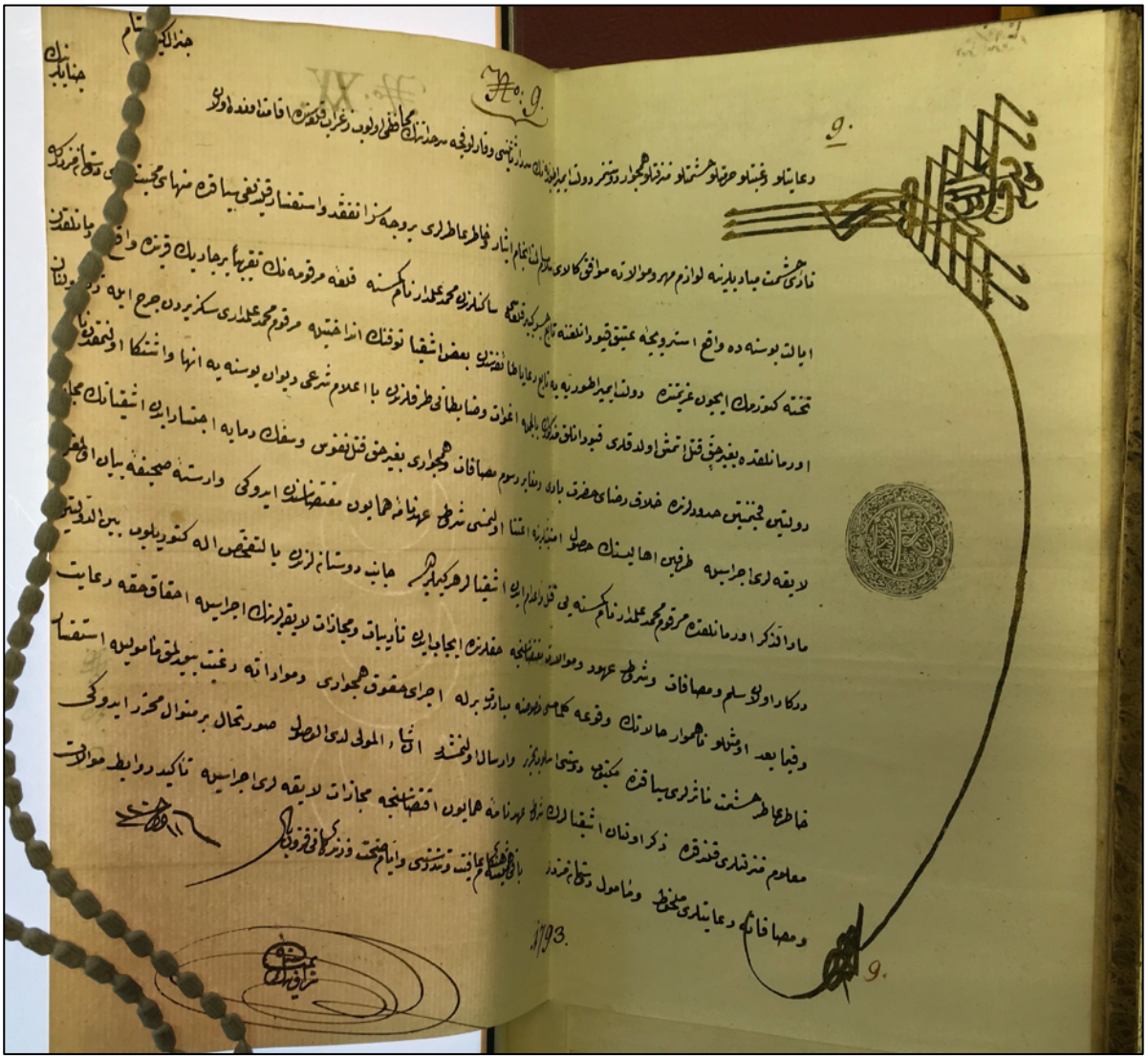

Plate 18. Letter displaying the tre lune watermark, Turkish MS53, number XXI. By permission of The John Rylands Library, University of Manchester

Plate 19. Letter displaying the tre lune watermark. Turkish MS53, number XXII. By permission of The John Rylands Library, University of Manchester

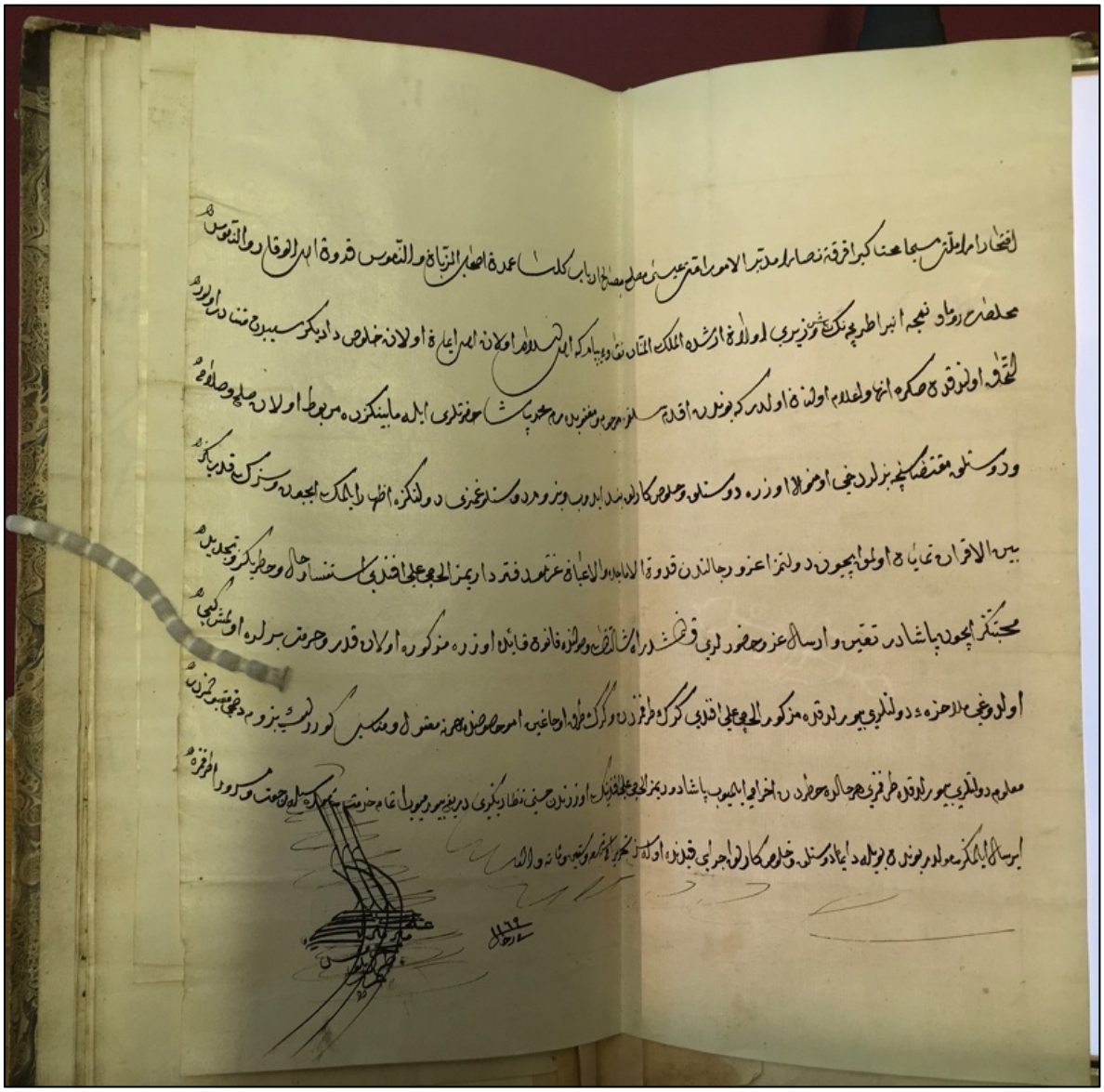

Plate 22. Letter displaying the crossbow watermark. Turkish MS53, number V. By permission of The John Rylands Library, University of Manchester

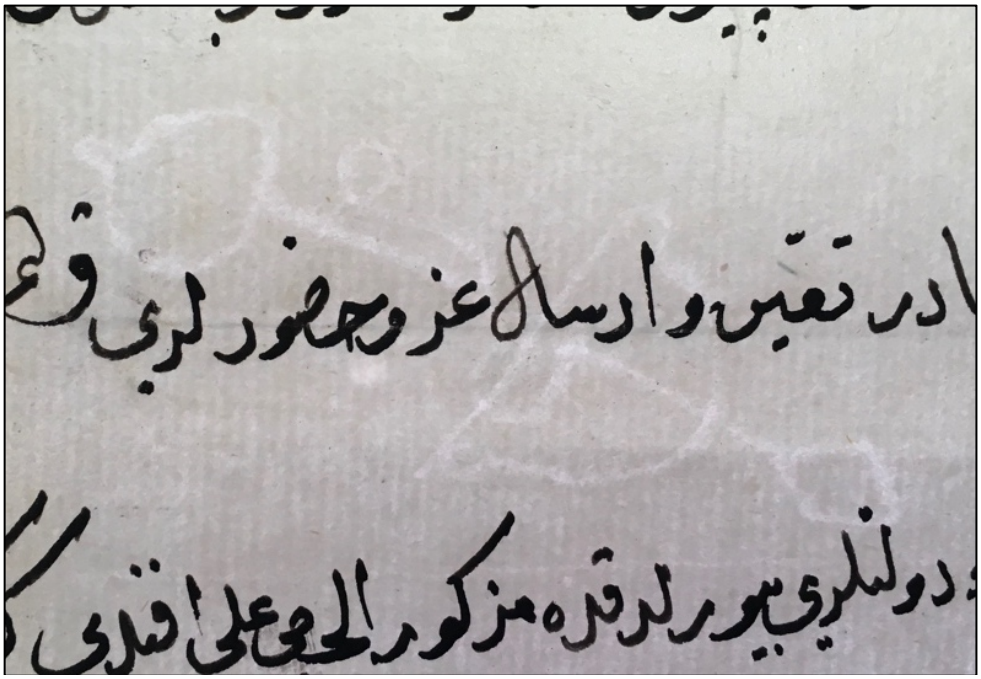

Plate 21. Close-up of crossbow watermark. Turkish MS53, number V. By permission of The John Rylands Library, University of Manchester

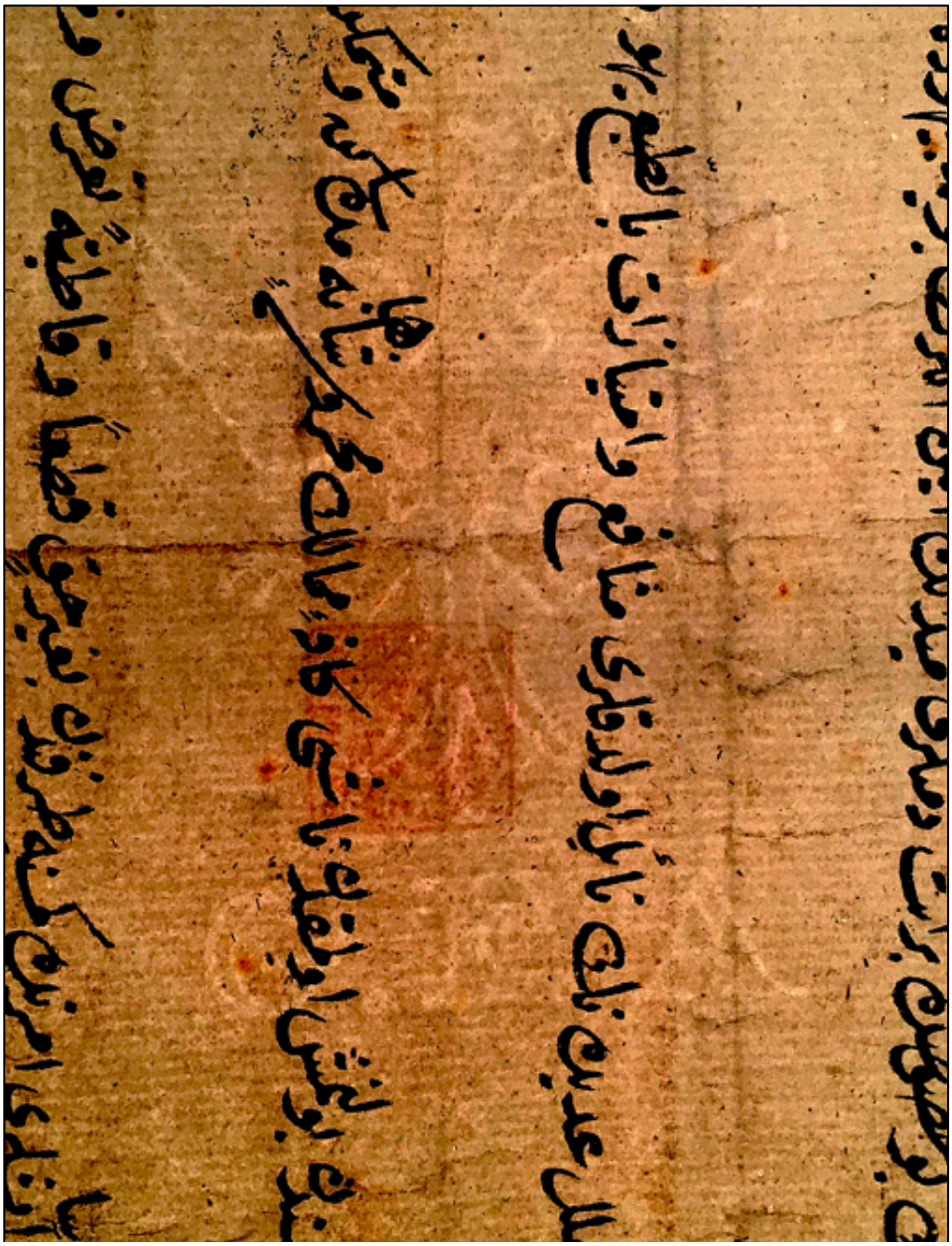

Plate 24. Eagle watermark with initials GFA, taken from a firman dated circa 1840. Turkish Manuscript Collection OR11688. By permission of The British Library

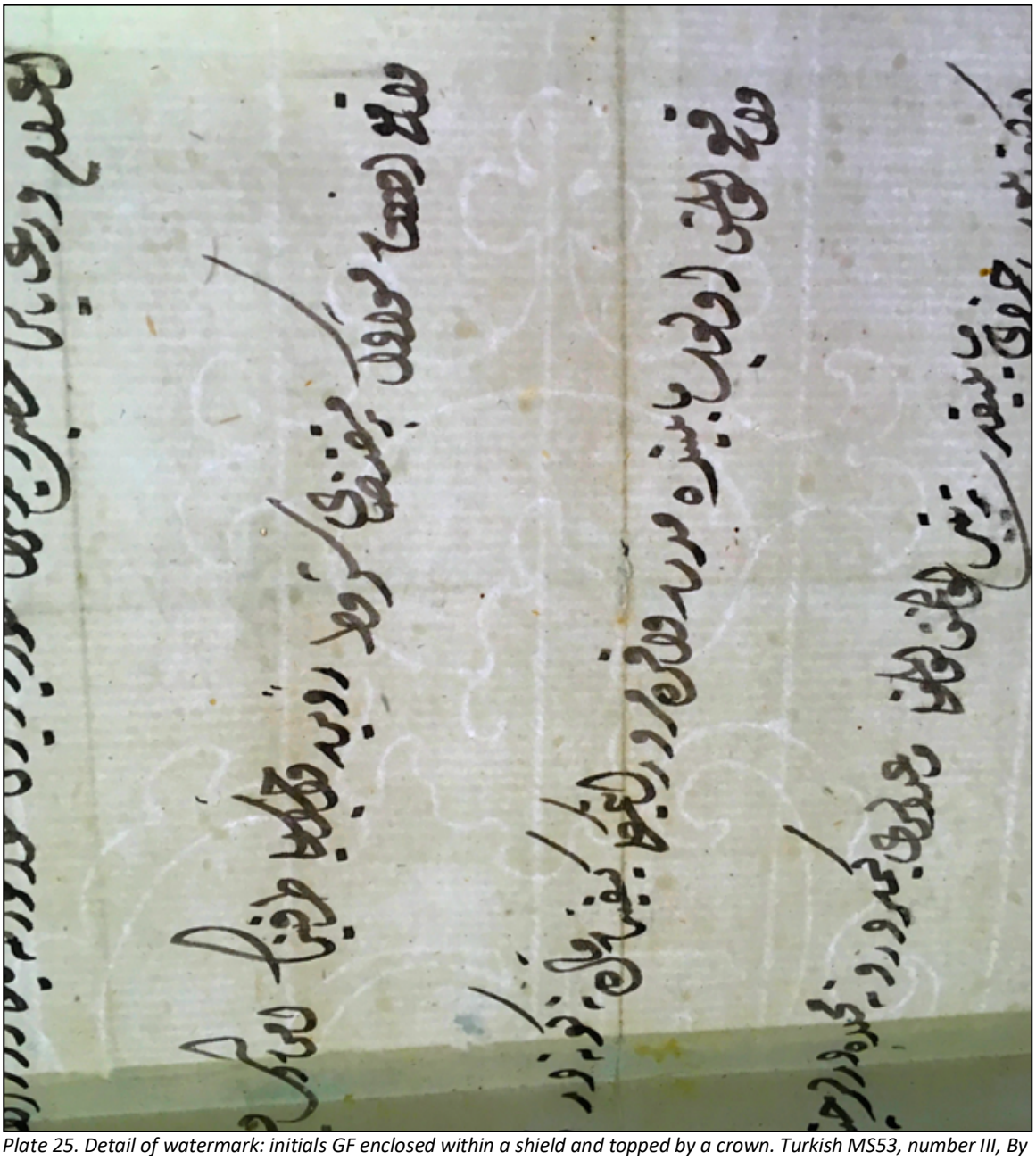

Plate 25. Detail of watermark: initials GF enclosed within a shield and topped by a crown. Turkish MS53, number III, By permission of The John Rylands Library, University of Manchester

Plate 26. Detail of watermark: initials GF contained within a shield and topped by a crown. Turkish MS53, number XXXII, By permission of The John Rylands Library, University of Manchester

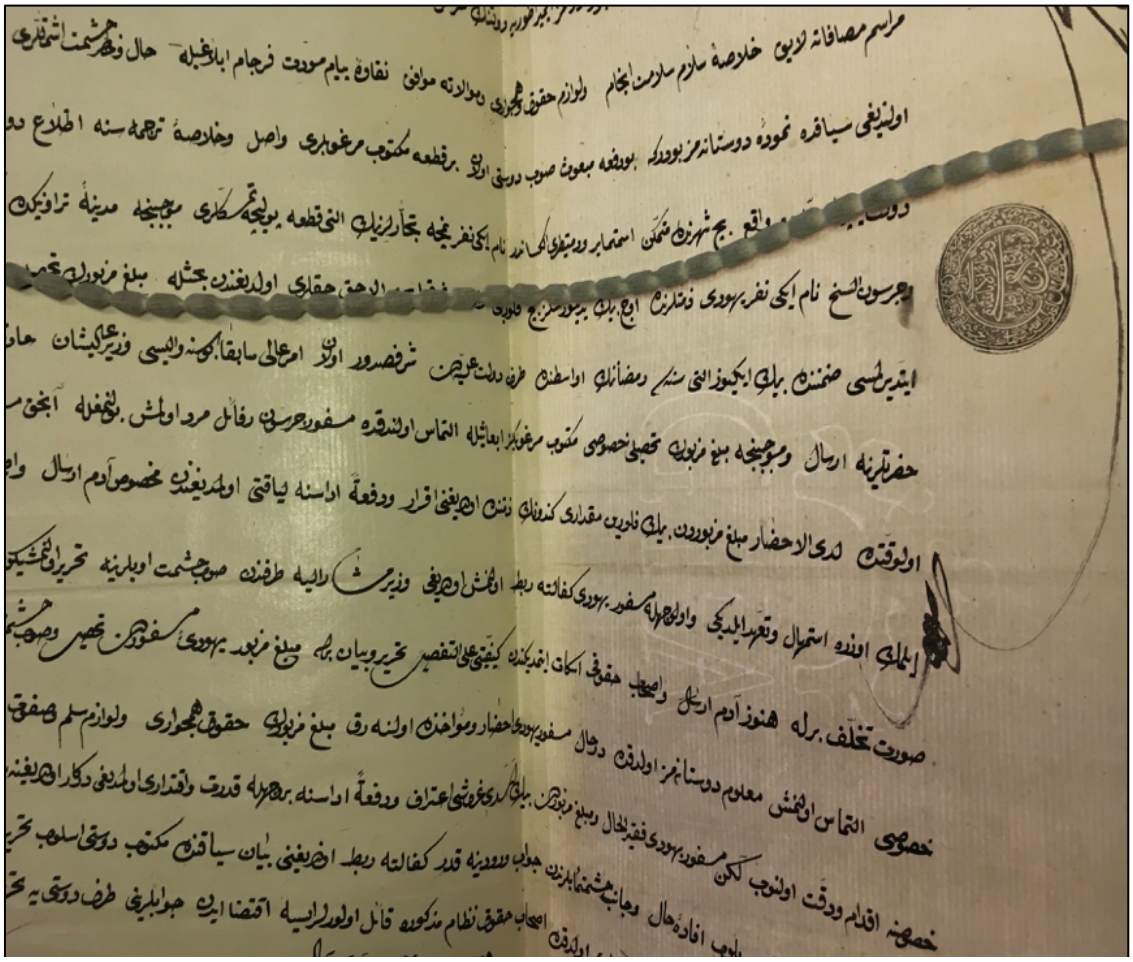

Plate 29. Detail of a watermark: initials GFA topped by a crown. Turkish MS53, number XXVIIII. By permission of The John Rylands Library, University of Manchester

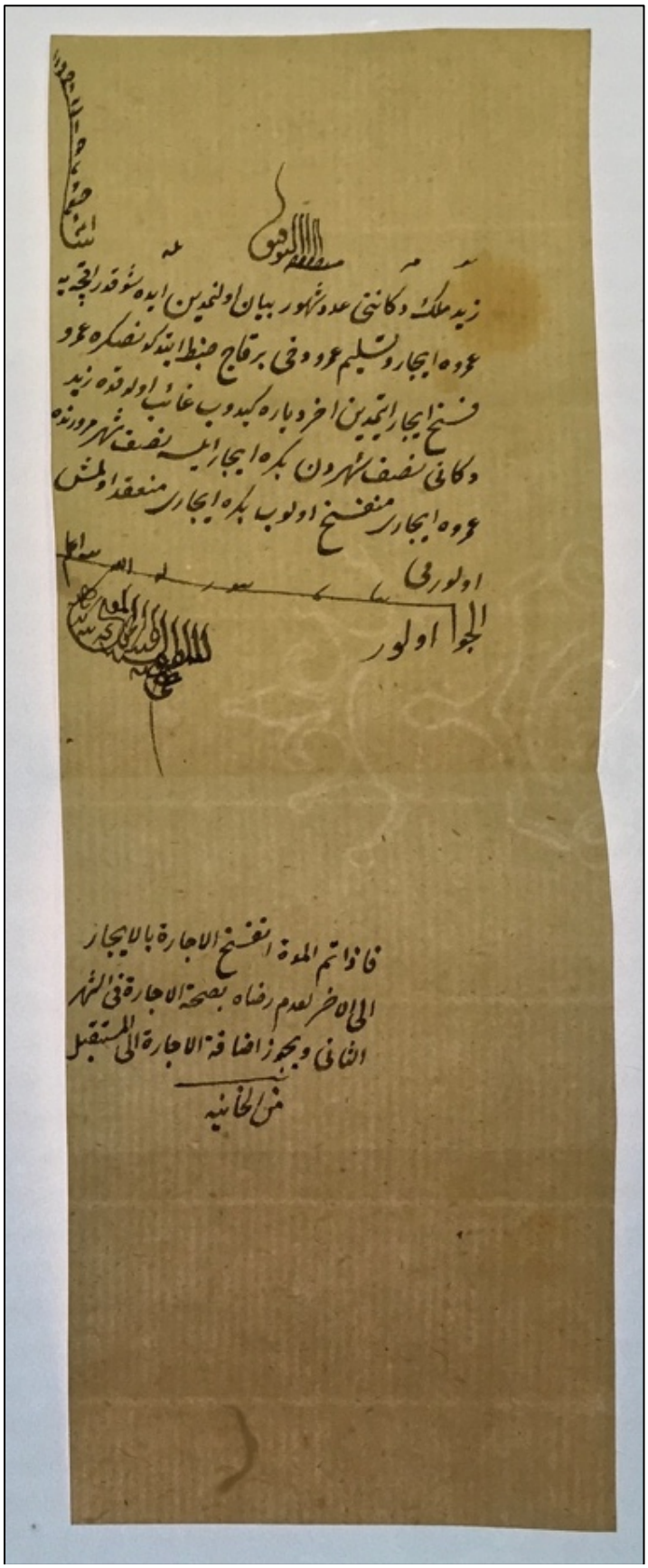

Plate 31. Detail of the moon-face watermark set within a shield. Fatwa circa early eighteenth century. Turkish MS95, By permission of The John Rylands Library, University of Manchester

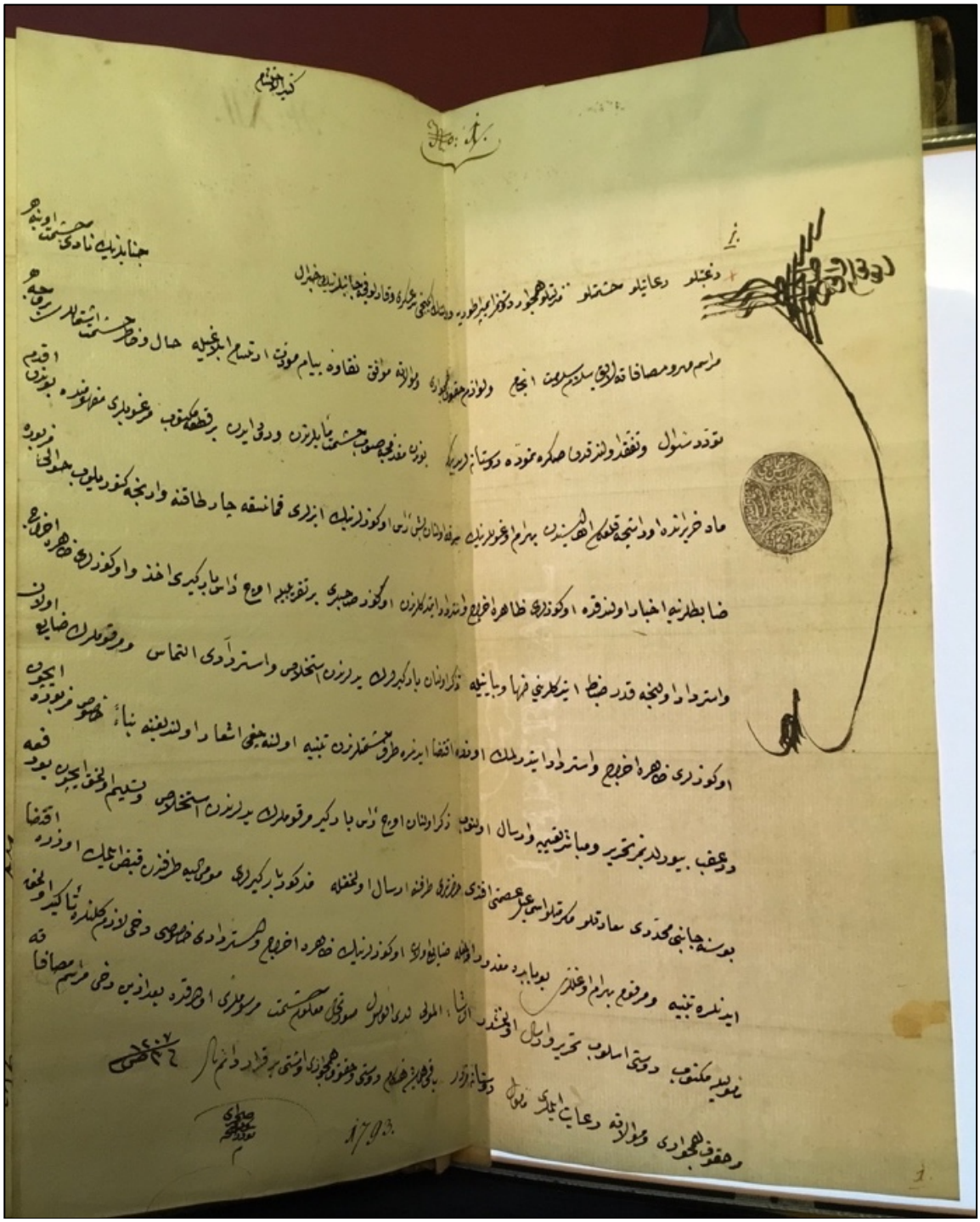

Plate 33. Letter dated circa 1791. Part illustration of watermark with word imperial. Turkish MS53, number XII. By permission of The John Rylands Library, University of Manchester

Plate 34. Detail of watermark: three crescent moons in a shield and topped by a crown. Turkish MS53, number XII. By permission of The John Rylands Library, University of Manchester

Plate 36. Detail of a watermark: initials GFA with words soto imperial. Turkish MS53, number XXXVIII. By permission of The John Rylands Library, University of Manchester

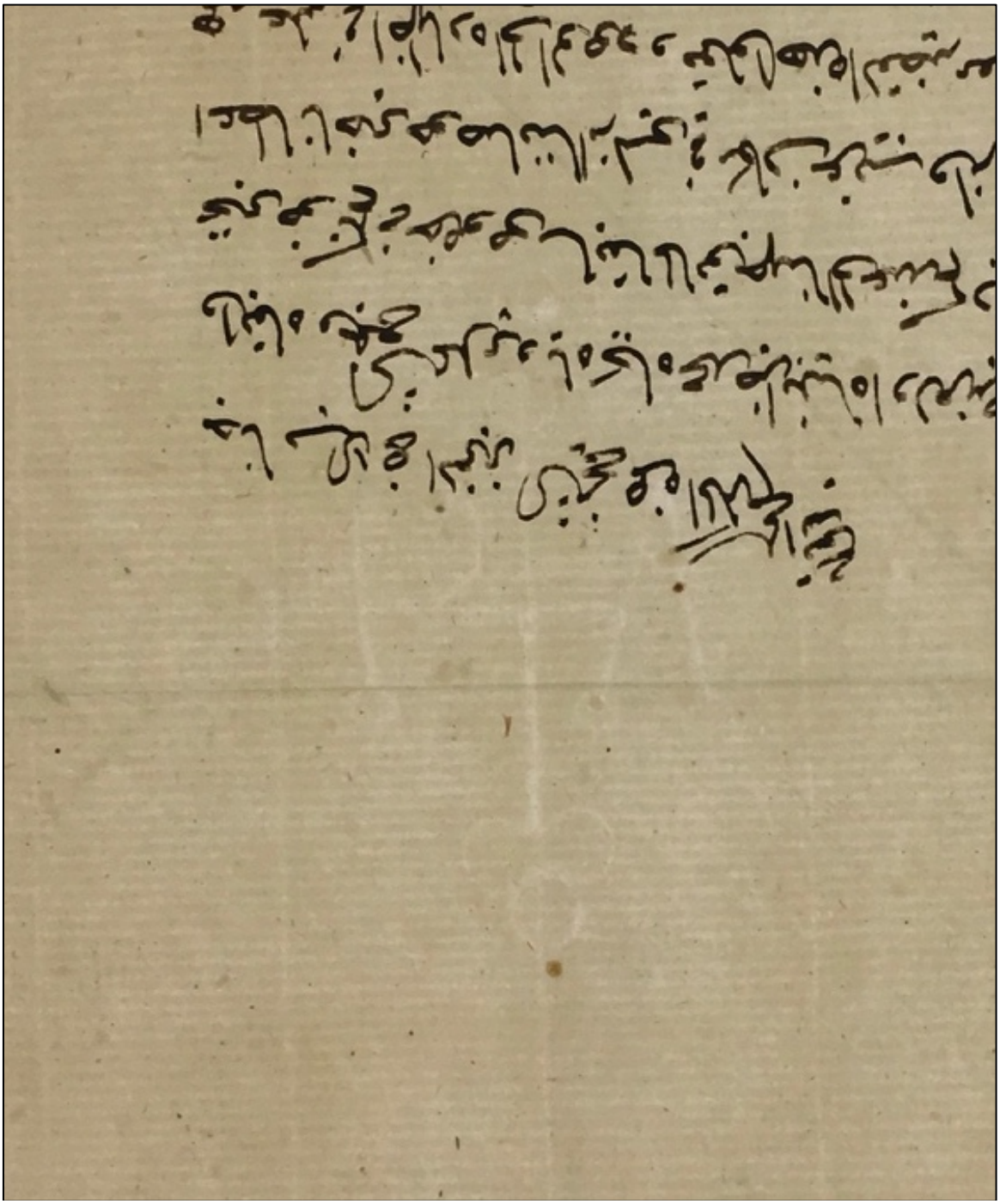

Plate 37. Detail of watermark: cross, three-leaf cover and the letters PA. Turkish MS913, number 201. By permission of The John Rylands Library, University of Manchester

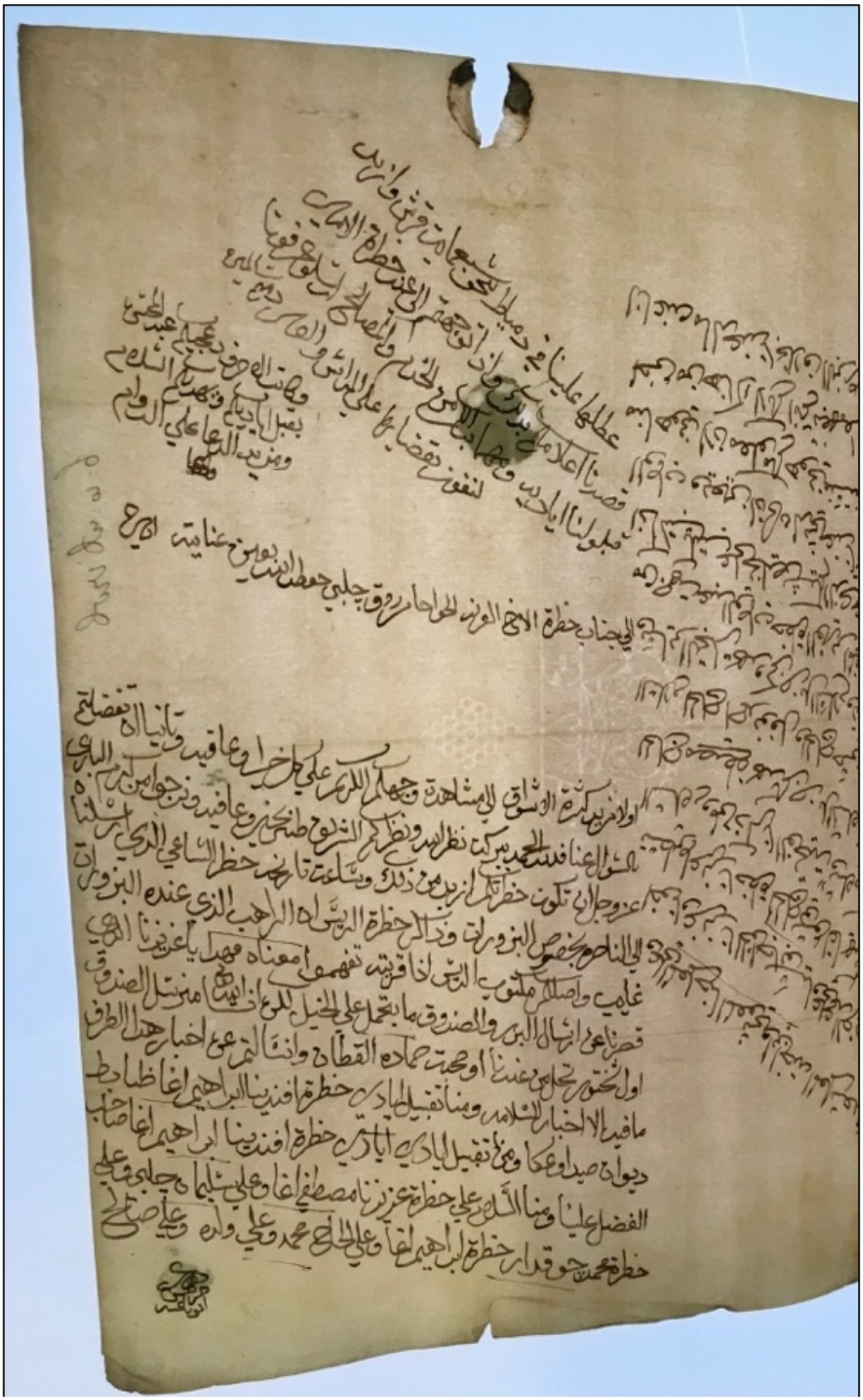

Plate 38. Letter sent to Paul Maashoek from Jurjī Abū Nā'isa concerning commercial transactions, circa early eighteenth century. Turkish MS913, number 209. By permission of The John Rylands Library, University of Manchester

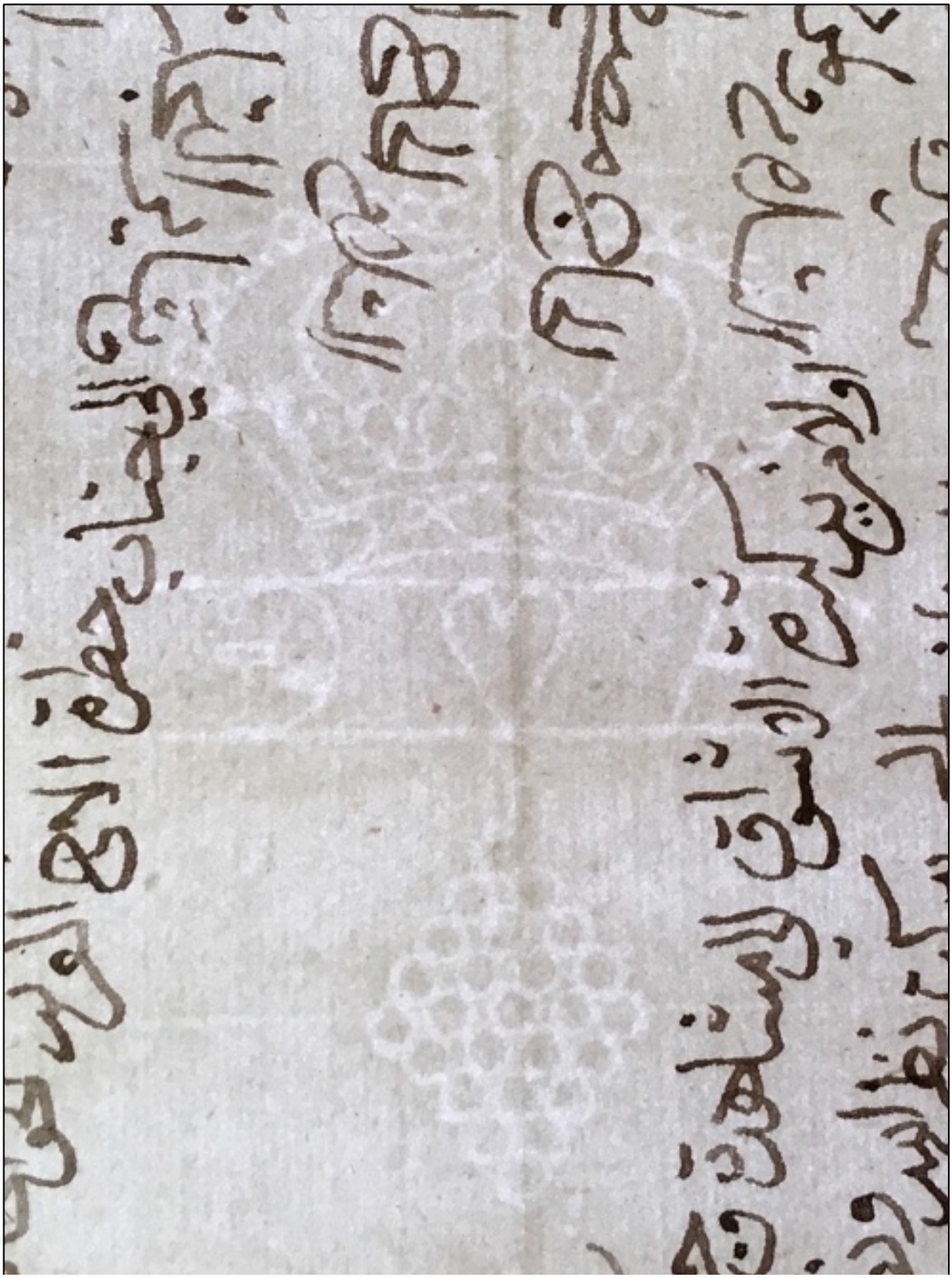

Plate 39. Detail of grape, crown and heart watermark. Turkish MS913, number 209. By permission of The John Rylands Library, University of Manchester

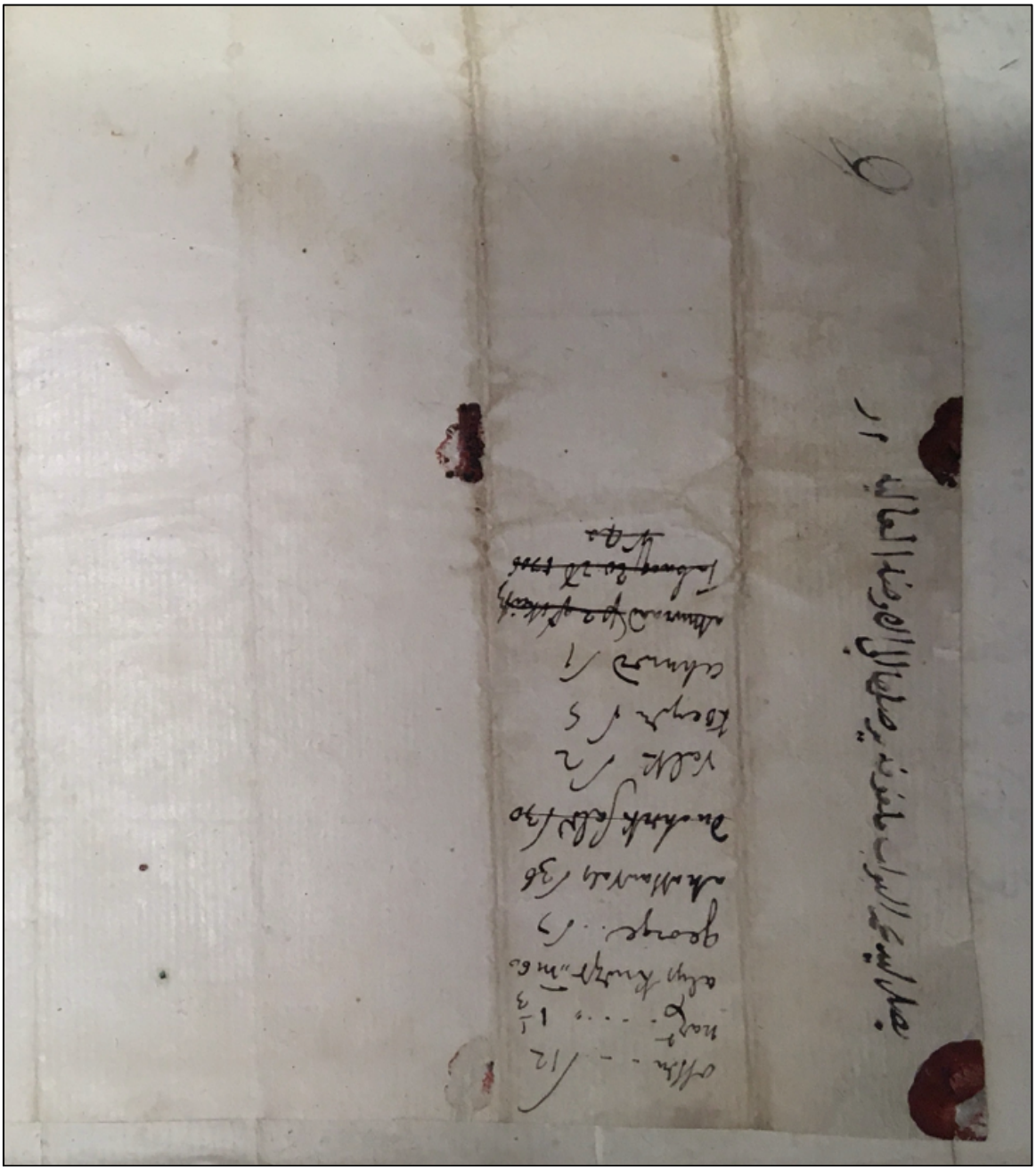

Plate 40. Back of document showing burnishing of paper. Persian MS913, number 202. By permission of The John Rylands Library, University of Manchester

APPENDIX TWO: Watermark Survey

Catalogue Number	Location	Type	Description of document	Original or Copy	Date	Number/subunit of sheet	Colour of the sheet	Smoothness	Thickness	Kind(s) of watermark(s) in the sheet	Position of watermark(s) in the sheet	Main motif of watermark(s)	Paper production type	Width between chain lines	Media	Has it been folded?
Egerton 3244	The British Library	Berat	Turkish papers from the Jomini-Onon Collection associated with Baron Alexander Jomini, First Councillor in the Russian Foreign Office and Michael Onon (husband of Baron Jomini's adopted daughter), First Dragoman and afterwards Councillor of the Russian Embassy at Istanbul.	original	1869-70 (1286)	28. A Berât conferring the Mecidîye Order, First Class on M. Onon	cream	Even smooth appearance. Coated surface? Very smooth recto and verso	Thin/light weight	NONE	NONE	NONE	Machine made? Under light sheen paper appears to have several diagonal chain lines, 2mm apart. Dandy Roll???	unclear	black ink with gold pigment	No
Egerton 3245	The British Library	Berat	Turkish papers from the Jomini-Onon Collection associated with Baron Alexander Jomini, First Councillor in the Russian Foreign Office and Michael Onon (husband of Baron Jomini's adopted daughter), First Dragoman and afterwards Councillor of the Russian Embassy at Istanbul.	original	1875-6 (1292)	33. A Persian berât conferring the Order of the Lion and the Sun, Second Class on M. Onon	cream	NOT/Cold Pressed	Thick/heavy weight	Main Watermark	top edge of sheet (the sheet was trimmed)	E.JOHANNOT	Machine made?	unclear	black ink with gold pigment	no
Or 12091	The British Library	Berat	An Imperial berat granted at the request of the English Ambassador at the Porte, Sir Thomas Bendish, to William Prideaux, appointed consul at Smyrna in place of John Edwards. Izmit. At the top is the Tugra of Mehmed IV.	original official document	1659	NA	cream	Cold pressed/rough. Not shiny. Uneven surface texture	medium/ thick	NO WATERMARK	NA	NA	unclear	unclear	black ink. Painted tugra. No gold pigment	yes, down only one edge.
Or14301	The British Library	Berat	A berat in the name of the Ottoman sultan Abdulmecid I. Its purpose waas as follows: Sultan Abdul Medjid Khan receiving Major Andrew Cathcart as H.B. Majesty´s Consul for the Province of Albania including Epirus - Upper and Lower Albania and the Pashalic of Scodra /Scutari in Europe) and confirming all privileges and immunities contained in the ancient Treaties and Capitulations dated in the year 1859.	original official document	1859	NA	brown	Was totally encapsulated so could not feel surface texture. Looked very smooth and even. Had been glued to a backing board, which has been removed.	could not measure	NO WATERMARK	NA	NA	unclear	unclear	black, red, gold ink. Gold pigment. English inscriptions in brown ink. Tugra painted in black. Scribe´s motif in black and gold, lower left corner. Decorative gold roundels between each line.	yes, down only one edge.
OR 11559 (No. 1 of 4)	The British Library	Buyuruldu	4 Buyuruldu - Document for the protection of Lord Sandon and Lord Carnarvon, travelling from Erzurum to Trabzon	original	1852-3 (1269)	I	dark cream	smooth shiny surface appearance	medium	none	NA	NA	Could be machine made - no chain or laid lines	unclear	black ink with gold pigment	yes
OR11559 (No. 2 of 4)	The British Library	Buyuruldu	4 Buyuruldu - Another safe conduct fot the same; this time directed to governors along the route between Trabzon and Istanbul	original	1852-3 (1269)	II	dark cream	smooth shiny surface appearance	medium	none	NA	NA	Could be machine made - no chain or laid lines	unclear	black ink with gold pigment (on the end signature)	yes
OR11559 (No. 3 of 4)	The British Library	Buyuruldu	4 Buyuruldu - Another document of the same nature in Arabic for the protection of the Fourth Earl of Carnarvon and Viscount Sandon travelling through Aleppo to Mosul	original	1852-3 (1269)	III	dark cream	Even, Smooth surface appearance	medium	none	NA	NA	Similar straitations as in previous versions - could indicate mould/wire/felt?. Mould or cylinder made?	unclear	black ink with gold pigment (but not on every character)	yes
OR11559 (No. 4 of 4)	The British Library	Buyuruldu	4 Buyuruldu - Another for a Mr Burgess(?) and his servent who have left for the "quay of Sayave" in Corfu	original	1834-5 (1250)	IV	cream	Not as smooth surface, a little rougher than previous 3 but still smooth and shiny. Not burnished on recto	Much thicker than previous 3	Main watermark (partial) in centre of sheet	partial watermark in centre middle of sheet	Single moon face	chain and laid lines. Could be handmade?	3.3cm	Black ink with interspersed gold pigment	yes

Catalogue Number	Location	Type	Description of document	Original or Copy	Date	Number/subunit of sheet	Colour of the sheet	Smoothness	Thickness	Kind(s) of watermark(s) in the sheet	Position of watermark(s) in the sheet	Main motif of watermark(s)	Paper production type	Width between chain lines	Media	Has it been folded?
OR 13026	The British Library	Firman	Firman allowing British ships "Crescent", "John Tudor" and "Bianco" to pass the custom-house and the Dardanelles. Turkish	original	1835-6 (1251)	NA	cream	Shiny and smooth surface texture on recto. Burnished recto.	Med-thick weight	Main watermark and countermark	watermark in centre middle, each side of sheet	Single moon face main watermark; eagle and GFA countermark	could be machine made but presence of chain lines suggests handmade	3.3cm	black ink with gold pigment	yes
OR11320	The British Library	Firman	Firman ordering the customs and harbour authorities of Istanbul to allow the British vessel Proteus, comanded by Captain John William James, to proceed with its cargo to the Black Sea	original	1818-19 (1234)	NA		shiny and smooth surface texture on recto. Verso not shiny. NOT/Cold Pressed?	unclear	Main watermark	watermark in top of sheet, centre middle	three moons	chain and laid lines. Could be handmade?	3.5cm	black ink with gold pigment	yes
OR11688	The British Library	Firman	Firman to the Kadi of Istanbul commanding him to do all in his power to deal justly with the Jewish population, and protect them from molestation. At that time Jews had been persecuted at Damascus and Rhodes owing to the popular superstition that they drank the blood of freshly-killed human beings at the Passover. The Sultan states that all Ottoman subjects, whether Muslim, Christian or Jew are equal in his sight.	original	1840-1 (1256)	NA	cream	Smooth shiny surface appearance. NOT/cold pressed	medium - thick	Main watermark and countermark	Main watermark in centre of one half of sheet. Countermark in centre in other half of sheet	Main watermark single moon face. Countermark is a eagle with GFA	Chain and laid lines. Handmade?	2.7cm	black ink with gold pigment	yes. Now rolled
OR12216	The British Library	Firman	Firman ordering the Customs and Harbour authorities to allow a Russian vessel commanded by Ippolit Sevelin (Severin?) to proceed with its cargo to the Black Sea. There is a note to the effect that the document has been inspected by the Gümrük-emîni.	original	August 1825 (1241)	NA	cream	Smooth but bumpy texture. Shiny on recto. Verso NOT shiny. NOT/Cold pressed?	Medium	Main watermark and countermark	Main watermark in centre of one half of sheet. Countermark in centre in other half of sheet	Main watermark bird/eagle with CEA or CFV or CEV on underneath. Countermark is an empty crest/urn?	Chain and laid lines. Handmade?	3.2com	Black ink with gold pigment on Tugra and on bottom signature. Main text had little gold pigment	Yes
OR13508	The British Library	Fatwa	Collection of imperial ordinances and fatwa concerning the land tenure, fiers, evkaf and taxation in Budin and other vilayets. These date from the reign of Sultan Süleyman I but was compiled under Selim II (1566-74) and contains later fatwa.	copy	1566-1574	NA	cream	Medium smoothness. Slight surface sheen. Cold pressed?	medium	Main watermarks and countermarks	watermarks in spine of book, mostly. Some WM in the middle of the sheet.	Floral crown type decoration next to CWF or GVF or CVF. Funny cross symbol	chain and laid lines. Handmade	2.7cm to 2.8cm	black and red ink	no
MS95	John Rylands Library, University of Manchester	Fatwa	Collection of law codes (which dates from the early 18th century) and fatwa of the late 17th century (at the time of Sultan Süleymân The Magnificent). Questions containing feudal and agricultural law, land tax, inheritance, the judiciary and trusts in mortmain. A loose sheet of paper between ff47-8 contains a fatwa concerning the lease of a shop.	copies? The loose sheet must be original	Copied in the early 18th century	NA	cream	NOT/Cold pressed. Slight sheen to surface with raking light. Some sheets feel smoother than others. Hot pressed?	Medium weight	ONLY on the loose sheet of paper between ff 47-8. Main watermark	In the centre fold of the paper	Moon face within shield with crown on top.	Loose sheet is possibly handmade. Rest of the book may be machine made if early 18th century	3cm	black and red ink	no
Egerton 3243	The British Library	Misc	Turkish papers from the Jomini-Onon Collection associated with Baron Alexander Jomini, First Councillor in the Russian Foreign Office and Michael Onon (husband of Baron Jomini's adopted daughter), First Dragoman and afterwards Councillor of the Russian Embassy at Istanbul.	original	1878 (1295)	1. A Petition from Mahmud (f) asking for news of his brother, a prisoner of war in Russia	light cream	Even surface texture, matt surface, not shiny. NOT/Cold Pressed?	Heavy weight	Main watermark	Centre of sheet	J WHATMAN with the numbers 022 (f) underneath	Chain and laid lines. Handmade? Very regular chain lines.	2.9cm	black ink	Yes
Egerton 3243	The British Library	Misc	Ibid	original	1879-80 (1297)	5. A Letter, presumably directed to M. Onon reporting the loss of an passport. The writer wishes to go to Varna by sea but states that he has no passport	light brown	Matt, dull texture, not shiny. Smooth and even surface texture	Thin/light weight	NONE	NONE	NONE	Handmade?	2.7cm	black ink	NO
MS46	John Rylands Library, University of Manchester	Misc	An undated collection of letters. Copies. Mostly of an official (diplomatic and political) nature and concerning French interests in The Ottoman Empire. Contains models of opening and concluding passages of letters addressed to various functionaries from the Grand Vizier down to the chief dragoman of the Porte and the Patriarch of the Greek orthodox Church.	Copies. By clerks at the French Embassy at Istanbul.	Letters composed between 1671 and 1730	NA	Brown/yellow to cream	Smoth surface. HOT pressed.	Thin/light weight	main or countermark, cannot see	middle centre of sheet	crown?	Possibly machine made	unclear	Black ink with red border	no
MS52	John Rylands Library, University of Manchester	Misc	A collection of letters and state documents.	Copies of original documents or model letters	No date and name of copyist. Not sure where this was copied.	NA	cream	unclear	Medium weight	End paper main watermarks and countermarks	Countermark and main watermark in middle of sheet.	GR countermark. Pro Patria ILH watermark in centre of end paper sheet. Same paper characteristics. (Pro Patria WM manufactured in UK in 18th century	Handmade? Because of shadows on chain lines	2.5cm	Black Ink	no

Catalogue Number	Location	Type	Description of document	Original or Copy	Date	Number/subunit of sheet	Colour of the sheet	Smoothness	Thickness	Kind(s) of watermark(s) in the sheet	Position of watermark(s) in the sheet	Main motif of watermark(s)	Paper production type	Width between chain lines	Media	Has it been folded?
MS53	John Rylands Library, University of Manchester	Misc	A collection of 42 original copies of documents. Most documents are letters sent by Ottoman governers of Bosnia (they bear the pençe and seal of the respective officials) to the Austrian military commanders at Karlofça (Croatia) and Agram (Zagreb) concerning the implementation of the Peace Treaty of Sistova of 1791 (1205), particularly the establishment of the new border in Bosnia, in which Franz von Dombay, the owner of the MS, was closely involved as interpreter.	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. III	cream	Burnished - sheen on surface	thick/heavy weight	main or countermark, cannot see	middle centre of sheet	Possibly GF within a shield, topped by a crown	Handmade?	2.8cm	black ink with gold pigment	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. V	cream	Burnished - sheen on surface	thick/heavy weight	main or countermark, cannot see	middle centre of right hand side of sheet	Crossbow?	Handmade?	2.7cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No.VI	cream	NOT/Cold pressed.	thick/heavy weight	main watermark	bottom half of left hand side of sheet. Centre	Three moons	Handmade?	unclear	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. VII	cream	Glazed? Shiny surface? NOT/Cold pressed	Thick/heavy weight	main watermark	middle centre of sheet	three moons	Handmade?	3cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XII	cream	Glazed, shiny surface only on one side	Thick/heavy weight	Main watermark	middle centre of sheet	Three moons watermark inside a shield. Topped by a crown. The words IMPERIAL underneath	Handmade?	2.9cm	black ink with gold pigment	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XIX	cream	Glazed, shiny surface only on one side	Thick/heavy weight	Main watermark	middle centre of sheet	three moons	Handmade?	3.2cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XX	cream	Glazed, shiny surface only on one side	Thick/heavy weight	Main watermark	centre middle of one half of sheet	three moons	Handmade?	3cm	black ink with gold pigment (on the end signature)	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XXI	cream	Glazed, shiny surface only on one side	Thick/heavy weight	Main watermark	centre middle of one half of sheet	three moons	Handmade?	3cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XXII	cream	Glazed, shiny surface only on one side	Thick/heavy weight	Main watermark	centre middle of one half of sheet	three moons	Handmade?	3cm	black ink	yes

Catalogue Number	Location	Type	Description of document	Original or Copy	Date	Number/subunit of sheet	Colour of the sheet	Smoothness	Thickness	Kind(s) of watermark(s) in the sheet	Position of watermark(s) in the sheet	Main motif of watermark(s)	Paper production type	Width between chain lines	Media	Has it been folded?
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XXVI	cream	Burnished - sheen on surface on recto. Verso is rougher	Medium weight	Main watermark	centre middle of one half of sheet	GF set within shield	Handmade?	3.1cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XXVII	cream	Burnished - sheen on surface on recto. Verso is rougher	medium	Main watermark	Centre of sheet	Top of a shield?	Handmade?	3.1cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XXVIIII	cream	Burnished - sheen on surface on recto. Verso is rougher	medium	Main watermark	centre middle of one half of sheet	GFA with a crown on top	Handmade?	2.7 - 2.9cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XXXII	cream	Burnished - sheen on surface on recto. Verso is rougher	medium	Main watermark	centre middle of sheet	GF or GE set within shield	Handmade?	3cm - 3.1cm	black ink	yes
MS53	John Rylands Library, University of Manchester	Misc	Ibid	copies of original letters	No date of when these were copied. Documents refer to period 1791	No. XXXVIII	cream	Burnished - sheen on surface on recto. Verso is rougher	medium	Main watermark	Centre middle of one half of sheet	GFA with SOTO IMPERIAL underneath	Handmade?	2.9cm - 3cm	black ink	yes
Persian MS913	John Rylands Library, University of Manchester	Misc	A miscellany. A Collection of mostly, original official and private letters, documents and various texts. Originally belonged to Dutch Protestant minister, orientalist and professor at Leiden University, Johannes Heyman (1667-1737). The papers were partly collected by Heyman himself and partly acquired by him from the estates of his predecessors.The Heyman papers: consist of letters, almost all in Arabic, addressed to or sent by Paul Maashoek, a Dutch merchant and entrepreneur who lived in Aleppo and Acre.	original letter with a seal	Circa early 18th century (1700-1710)	No. 206. Letter sent to Maashoek with illegible signature or without signature (received 15th October 1707)	cream	Glazed on recto and verso	unclear	Main watermark	centre middle of sheet	Three Moons	Handmade	3cm	black ink	yes
Persian MS913	John Rylands Library, University of Manchester	Misc	Ibid	original letter with a seal	Circa early 18th century (1700-1710)	No. 209. Letter sent to Paul Maashoek from Jurjī Abū Nā'isa concerning commercial transactions	cream	NOT/Cold pressed.	Thin weight	Main watermark	Centre of sheet, more towards on side than the the other	Crown on top of love heart. On either side of love heart is A and G. Or could be V and G. Underneath is a bunch of grapes	Handmade	2cm	black ink	yes
Persian MS913	John Rylands Library, University of Manchester	Misc	Ibid	original letter with a seal	Circa early 18th century	No. 202. Letter sent to Paul Maashoek from Hājjī Muhammad Shahbi. Includes a list of names and amounts of money in Roman script on the outside	cream	Glazed on verso. They wrote on the recto, which was unglazed. So they wrote on the wrong side of the paper!	unclear	Main watermark	Centre of sheet, more towards one edge than the the other	Three moons	Handmade	2.5cm - 3cm	black ink	yes
Persian MS913	John Rylands Library, University of Manchester	Misc	Ibid	original letter with a seal	Circa early 18th century	No. 201. Letter sent to Paul Maashoek from Ahmad Agha. Concerning commercial transactions	cream	Glazed on recto.	Thin weight	Main watermark	centre middle of sheet	A cross ending in a 3leaf clover. Letters P and A on either side of cross	Handmade	2.9cm	black ink	yes

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