

Following the Mediterranean Paper Trail: A Study of European Paper in Late Medieval Cairo (c. 1350–1600)

by

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AS IS WELL KNOWN, PAPERMAKING TECHNOLOGY first spread from China and Central Asia into the Middle East during the eighth century CE. In subsequent centuries, it moved across Islamic lands and entered western Europe via Spain. By 1300, Italian papermakers had devised a new method of laid-paper production using metallic wire moulds. This technique allowed the introduction of watermarks to Italian paper, distinguishing it from the non-watermark paper still widespread in the Middle East and North Africa.¹ It is also well known that watermark paper began to reach Middle Eastern markets from Europe during the fourteenth and fifteenth centuries, eventually supplanting other paper in the region.² Many paper manuscripts produced in this period are extant from Middle Eastern communities, and the physical features of their paper can inform the material history of both Europe and the Ottoman Empire. However, despite its great potential for more in-depth analysis, scholars of European codicology generally do not take this evidence into account when

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¹ See discussion in Sylvia Rodgers Albro, *Fabriano: City of Medieval and Renaissance Papermaking* (New Castle, DE: Oak Knoll Press, 2016), pp. 39–41; Orietta Da Rold, *Paper in Medieval England: From Pulp to Fictions* (Cambridge: Cambridge University Press, 2020), pp. 31–32; and Marina Rustow, *The Lost Archive: Traces of a Caliphate in a Cairo Synagogue* (Princeton, NJ: Princeton University Press, 2019), pp. 116–18.

² François Déroche & others, *Islamic Codicology: An Introduction to the Study of Manuscripts in Arabic Script*, ed. by Muhammad Isa Waley, trans. Deke Dusinberre & David Radzinowicz, 2nd edn (London: Al-Furqān Islamic Heritage Foundation, 2015), pp. 50, 57; Adam Gacek, *Arabic Manuscripts: A Vademecum for Readers* (Leiden/Boston: Brill, 2009), pp. 186, 188–89; Sheila Blair, *Islamic Calligraphy* (Edinburgh: Edinburgh University Press, 2006), p. 47; Jonathan Bloom, *Paper Before Print: The History and Impact of Paper in the Islamic World* (New Haven, CT: Yale University Press, 2001), pp. 87, 203–13; Malachi Beit-Arié, *The Makings of the Medieval Hebrew Book: Studies in Palaeography and Codicology* (Jerusalem: The Magnes Press, Hebrew University, 1993), p. 37. See also Helen Loveday, *Islamic Paper: A Study of the Ancient Craft* (London: Don Baker Memorial Foundation, 2001).

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investigating the diaspora of watermark paper. Moreover, the past surveys of watermarks in Middle Eastern manuscript collections have been necessarily limited in geographic and temporal scope.³ These issues stem from the disciplinary barriers between European and Middle Eastern history: most historians of Europe are not trained to work with Arabic, Persian, Hebrew, or Turkish manuscripts, nor are scholars of Middle Eastern manuscripts trained in the history of European papermaking and codicology.

This article seeks to cross those disciplinary boundaries while examining watermark paper in the ‘Cairo Genizah’ manuscript collections at the Cambridge University Library. Mainly dating between 1100 and 1897, this corpus provides a continuous cross-section of Egyptian-Jewish literary activity during the entire transition to watermark paper, including samples of paper stocks used in Cairo, Alexandria, Rosetta, Guadalajara, Hijar, Lisbon, Faro, Salonika, Constantinople, and Jerusalem, among other places. As we shall see, Genizah data about these stocks can supplement the study of paper in Egypt, Italy, Iberia, and the Ottoman Empire between 1350 and 1600. It also presents new opportunities for collaboration between European and Middle Eastern historians that will enhance the current understanding of papermaking and trade around the Mediterranean Sea.

The corpus and methodological concerns

The Taylor-Schechter Collection, the Mosseri Collection, and the Lewis-Gibson Collection at Cambridge University Library contain close to 200,000 fragments of manuscripts and printed texts produced between 600 and 1900 CE. Nearly all these fragments come from what is known as the ‘Cairo Genizah’. A ‘genizah’ is a hidden space, often in a synagogue or cemetery, where Jewish communities deposit old, damaged sacred texts to prevent them from being profaned. The ‘Cairo Genizah’ refers to a specific corpus of texts that Cairene Jews preserved in this way, mainly within the Ben Ezra Synagogue of Old Cairo, for most of the second millennium. This genizah is significant because, in addition to ‘sacred’ texts such as bibles and prayer

³ For some previous work, see: Asparoukh Velkov & Stephane Andreev, *Les Filigranes dans les documents ottomans: Trois croissants* (Sofia: Nar. biblioteka Kiril i Metodii, Bŭlgarska arkeografska komisiia, Orientaliska sektsiia, 1983); Alan D. Crown, ‘The Morphology of Paper in Samaritan Manuscripts: A Diachronic Profile’, *Bulletin of the John Rylands Library*, 71 (1989), 71–94; Beate Wiesmüller, ‘The Watermarks from the Refaiya-Library’, trans. Steven Black (University of Leipzig, 2009); Sophie Lewincamp, ‘Watermarks within the Middle Eastern Manuscript Collection of the Baillieu Library’, *The Australian Library Journal*, 61 (2012), 95–104; Research Group on Manuscript Evidence, ‘Watermarks & The History of Paper with Specimen Samples’, *Manuscript Studies* (blog), 2020, <https://manuscriptevidence.org/wpme/watermarks-and-the-history-of-paper/>. Jonathan Bloom also suggests that a perception of the Islamicate world’s ‘failing’ to adopt the printing press contributed to the lack of interest among European scholars in Middle Eastern paper; Bloom, *Paper Before Print*, p. 217.

books, the Ben Ezra community also deposited thousands of non-religious texts from practically every genre they could access. Due to the actions of numerous individuals involved in the nineteenth-century Egyptian manuscripts trade, the Cambridge collections contain the majority of extant Cairo Genizah manuscripts.⁴ Other institutions, most notably the Bodleian Library (Oxford), the British Library (London), the Russian National Library (St Petersburg), the John Rylands Library (Manchester), and the Jewish Theological Seminary (New York), hold smaller collections. This article focuses on Cambridge material because it was physically accessible for examination by the authors, but our methodology could be expanded to these other Genizah collections.⁵

This is the first time that a study on the spread of watermark paper has been attempted with Cairo Genizah material. In the last 125 years, nearly all Genizah researchers have been scholars of Hebrew, Judaeo-Arabic, Middle Eastern History, and medieval Judaism. Their work has focused on the ‘peak’ period of the Cairo Genizah between the eleventh and thirteenth centuries. Accordingly, many later items on watermark paper remain uncatalogued, and many Genizah catalogues do not document the physical features of paper at all. It is thus difficult to conduct even a basic survey that represents the breadth of watermark paper stocks present among Genizah fragments.

The authors utilized the little data already available for the Cambridge collections to assemble a corpus for studying the emergence of watermark paper in medieval Egypt. This was a pilot, scoping project. Rather than surveying thousands of fragments to find every piece of watermark paper, we first focused on manuscripts that were internally dated to establish a chronology. Our initial source for identifying such manuscripts was Pierre

⁴ On the multiple Cairene *genizot* that contributed to this corpus, see Haggai Ben-Shammai, ‘Is ‘the Cairo Genizah’ a Proper Name or a Generic Noun? On the Relationship between the Genizot of the Ben Ezra and the Dār Simḥa Synagogues’, in *‘From a Sacred Source’: Genizah Studies in Honour of Professor Stefan C. Reif*, ed. by B. Outhwaite & S. Bhayro (Leiden/Boston: Brill, 2010), pp. 43–52; Rebecca J. W. Jefferson, ‘Deconstructing ‘the Cairo Genizah’: A Fresh Look at Genizah Manuscript Discoveries in Cairo before 1897’, *The Jewish Quarterly Review*, 108 (2018), 422–48. On the history of the Cairo Genizah ‘discovery’ and its transfer from Egypt to Western collections, see Stefan C. Reif, *A Jewish Archive from Old Cairo: The History of Cambridge University’s Genizah Collection* (London: Curzon, 2000); Adina Hoffman & Peter Cole, *Sacred Trash: The Lost and Found World of the Cairo Geniza* (New York, NY: Nextbook, Schocken, 2011); and Rebecca J. W. Jefferson, *The Cairo Genizah and the Age of Discovery in Egypt: The History and Provenance of a Jewish Archive* (London: I. B. Tauris, 2022).

⁵ The Friedberg Jewish Manuscript Society has made most of these collections freely accessible online. They maintain a database of Cairo Genizah images with cataloguing and bibliographic metadata at: <https://fjms.genizah.org> (accessed 9 February 2023). The Cambridge University Library’s Genizah Research Unit maintains a smaller digital catalogue at: <https://cudl.lib.cam.ac.uk/collections/genizah/1> (accessed 9 February 2023). Gottheil and Worrell identified two Genizah watermarks in the Smithsonian’s Freer Collection (Washington, DC) already in 1927; Gottheil, Richard, and William H. Worrell, *Fragments from the Cairo Genizah in the Freer Collection*, University of Michigan Humanistic Series, 13 (New York, NY: Macmillan, 1927).

Delbes' *Les documents datés de la Geniza du Caire*. We examined Delbes' list of dated documents for the period between 1250 and 1600 to confirm (or sometimes correct) his given dates and identify the types of paper. Most of these manuscripts do not have extant watermarks, but they do clearly depict an Egyptian transition to watermark paper during the fifteenth and sixteenth centuries (see Appendix below). We supplemented Delbes' list with the limited number of Genizah manuscripts that were already identified as 'watermarked' in the Cambridge University Digital Library catalogue.⁶ Further data on paper dated between 1480 and 1600 came from Posegay's previous survey of printed material in Genizah collections.⁷ Within the resulting corpus of approximately 300 classmarks, we recorded around 115 extant watermarks.⁸ This subset does not include all the watermark paper present in the Cambridge Genizah collections, and this number of surviving watermarks does not reflect the proportion of watermarked paper in the entire Cairo Genizah. In fact, we estimate that less than ten percent of the watermarks in Cambridge Genizah collections have been documented to any degree. Nevertheless, our survey uncovered significant new data for the historical distribution of paper around the Mediterranean Sea during the late medieval period.

The current physical condition of Genizah material further complicates the issues of a limited corpus. Most Genizah manuscripts are fragmentary, scraped, stained, water-damaged, or worm-eaten, and, at least in Cambridge, nearly all have been removed from their original quires for 'conservation'.⁹ The conserved fragments, such as they are, now reside within plastic folders that cannot always be easily measured or transversely lit. Most of these folders are large, cumbersome, and contain as many as several hundred unrelated fragments that must all be requested together from Cambridge University Library's manuscripts reading room.¹⁰

Finally, our designation of 'watermark paper' indicates rag paper produced using metallic wire moulds that could imprint watermarks, ultimately descended from thirteenth-century Italian methods. Watermark paper can be identified by the density and regularity of its laid and chain

⁶ See <https://cudl.lib.cam.ac.uk/collections/genizah/1> (accessed 20 February 2023).

⁷ Nick Posegay, 'Hebrew Printing and Printers' Colophons in the Cairo Genizah: Networking Book Trade in Europe and the Ottoman Empire', in *Literary Snippets: Colophons Across Space and Time*, ed. by Sabine Schmidtke & George A. Kiraz (Piscataway, NJ: Gorgias Press, forthcoming).

⁸ The Appendix lists 77 dated manuscripts from this corpus. About 35 items from among the 115 watermarks feature in the discussion below.

⁹ Although this fact proved advantageous to our study, as it allowed easy access to watermarks in the gutters of bifolia.

¹⁰ We are exceedingly grateful to the entire staff of the CUL manuscript reading room, especially Frank Bowles, for their assistance and patience. Further thanks to Marina Kruger-Pelissari and the rest of CUL Conservation for their help in viewing certain watermarks.

lines even if no watermarked image is present. It is thus possible to differentiate ‘watermark paper’, almost exclusively produced in Europe, from the ‘non-watermark’ rag paper more common in the Middle East and North Africa.¹¹ This study assumes that all or nearly all non-watermark paper found in the Cairo Genizah was made in Islamic lands.

Watermark paper in the Cairo Genizah

Every manuscript in our sample copied before *c.* 1375 is non-watermark paper. These items comprise all manner of genres found throughout Genizah history, including poetry, literary works, legal contracts, personal letters, prayer books, bibles, and court records. Some of these records are related to activity at the Egyptian court of Joshua Nagid (d. 1355),¹² the great-grandson of Maimonides and the *nagid* (‘prince, leader’) of the Egyptian Jewish community from 1334 to 1355. Joshua’s son, David, succeeded him and served intermittently as *nagid* until his death around 1415.¹³ At least two documents related to his tenure also survive in the Genizah, including a record of a real estate transaction dated to 1409.¹⁴ Despite the spread of new papermarking technologies in western Europe at this time, all of Joshua and David’s documents are still non-watermark paper. From the same period come a pair of documents dated 1359 and 1387, respectively.¹⁵ They are also on non-watermark paper, most likely produced in the Middle East.

These few fourteenth-century manuscripts reveal an issue with the Cairo Genizah when using it to trace the spread of paper. The corpus contains material that Cairene Jews deposited continuously from the eleventh century until the end of the nineteenth century, but the greatest concentration of deposits came before the second half of the fourteenth century. There is then a lull in manuscript deposits, followed by a second, smaller peak in the sixteenth century, caused in part by large numbers of Jewish refugees who fled Spain and Portugal in the 1490s.¹⁶ Aforementioned docu-

¹¹ Avoiding traditional designations such as ‘Western’ and ‘Eastern’ (‘Oriental’) paper, which fail under basic geographic scrutiny. Our terminology only refers to the method used to produce a sheet of rag paper.

¹² For example, Cambridge, University Library, MSS Taylor-Schechter 6J6.21, T-S 6J6.22, T-S 8J23.4, T-S K25.190, T-S 13J24.4, T-S 16.277, T-S 16.296, T-S AS 147.37, T-S Misc.8.18, T-S NS 31.7, Mosseri IV.37.1, and Mosseri IV.85; see cataloguing data at <https://cudl.lib.cam.ac.uk/collections/genizah/1> and <https://fgp.genizah.org/> (both accessed 28 February 2023).

¹³ Paul B. Fenton, ‘The Literary Legacy of David Ben Joshua, Last of the Maimonidean Nēgīdim’, *The Jewish Quarterly Review*, 75 (1984), 1–56 (pp. 39–40, 44).

¹⁴ T-S 8J26.19 and Moss. VIII.25a–d, the latter of which is dated to 1409; Fenton, ‘Literary Legacy’, p. 44.

¹⁵ T-S 13J4.15 (1359) and T-S Ar.54.52 (1387).

¹⁶ Eleazar Gutwirth, ‘Sephardi Culture of the “Cairo Genizah People” (Fifteenth to Eighteenth Centuries)’, *Michael*, 14 (1997), 9–34 (pp. 11–12); Dov Cohen, ‘Missing Treasures: Tracking Lost Ladino Books’, *Zutot* 17 (2020), 58–73 (pp. 62–63).

ments notwithstanding, the reduction in Genizah activity means that there are relatively few items that we can be sure were in Egypt between about 1355 and 1492. Our corpus does include a court record and a Jewish ethical text dated, respectively, to 1458/9 and 1481, but both are on non-watermark paper.¹⁷

Some of the earliest watermark paper in the Genizah that was used for writing in the Middle East is connected to Nathan Sholal, one of the last Egyptian *nagids*. He served from 1484 to 1502 and, notably, lived in Italy and Jerusalem before settling in Egypt.¹⁸ One legal document that mentions him is from 1489, written in Egypt but watermarked with the top half of a hand and small five-pointed star/flower.¹⁹ Another record is dated 1495/6, but this one is non-watermark paper, suggesting an ongoing transition in the late fifteenth-century Cairene paper market. There are also two letters sent to Sholal from Jerusalem, both on watermark paper.²⁰ The earliest dated document in our corpus unrelated to Sholal is a matchmaking agreement signed in Milig, a city in the southern Nile Delta, in 1492.²¹ For this one, another partial watermark survives: the top half of a hand with a large six-pointed flower (Fig. 1). It seems to belong with a family of watermarks widely attested in Spain during the 1490s. Whether or not a Spanish papermaker produced it, it almost certainly came from Europe before ending up in Egypt.²²

The Cairo Genizah also preserves numerous manuscripts that, while not internally dated, have known watermarks that allow us to estimate their period of copying. The following tables include some examples of watermark paper from our corpus, aiming to demonstrate new geographical data for the diffusion of European paper stocks for several different types of texts. Each table provides the classmark, measurements of watermarks in millimetres, comparable watermarks as traced from published albums, and comparative dates as listed by those albums.²³ These ‘comparanda’,

¹⁷ T-S 8.195 and T-S K6.46.

¹⁸ Eliyahu Ashtor and Abraham David, ‘Sholal, Nathan (Jonathan) Ha-Kohen’, in *Encyclopedia Judaica* (Detroit, MI: Macmillan Reference USA, 2007).

¹⁹ T-S 10J13.25. Delbes mistakenly reads the date of this document (recto, line 14) as 1381; Pierre Delbes, ‘Les documents datés de la Geniza du Caire (Université de Cambridge) (Westminster College Cambridge): Liste chronologique des documents datés Répertoire’ (Institut National du Langues et Civilisations Orientales, Ecole des Hautes Etudes du Judaïsme, 1991), p. 152. The date of 1586 CE in the Cambridge University Digital Library’s catalogue (as of February 2023) is also incorrect (<https://cudl.lib.cam.ac.uk/view/MS-TS-00010-J-00013-00025/1>). The proper reading is 1489 CE (i.e., ט׳תרי״ט / 5249 AM).

²⁰ T-S 10J24.3/Or.1080.J174 and Or.1080.J246.

²¹ T-S Misc.28.71.

²² Comparable to IVC+R ES-ALC-DEN 1.1 74 (Denia 1492–98) and WIES IBE 2825.04 (Toledo 1494). Briquet 11154 (Palermo 1479, 1482; Catania 1480) is similar.

²³ Most of these manuscripts are fragments. Measurements and images are also available in Cambridge University Library Digital Library, <https://cudl.lib.cam.ac.uk/collections/genizah/1>. We have used the Bernstein Project to establish comparative links between paperstocks and provide the closest match from that database. See https://www.memoryofpaper.eu/BernsteinPortal/appl_start_disp.



FIG. 1. MS Cambridge University Library, T-S Misc.28.71. Reproduced by kind permission of the Syndics of Cambridge University Library, MS.

practically all from non-Genizah manuscripts, offer locations where paper with a given watermark has been attested. Those locations are not necessarily where that paper was produced. The earliest watermark in our corpus is a letter ‘R’ with a simple cross that appears in a Hebrew medical treatise (Fig. 2). It resembles paper previously documented in Genoa (1377) and Paris (1382).²⁴ Many other Genizah watermarks are datable to the fifteenth century (Table 1).

²⁴ TS K14.16 , P1 (watermark: 67 × 24 mm); see Briquet 8926. To a lesser degree, also Briquet 8921 (Grenoble, 1356) and 8958 (Padua, 1394 and 1395).

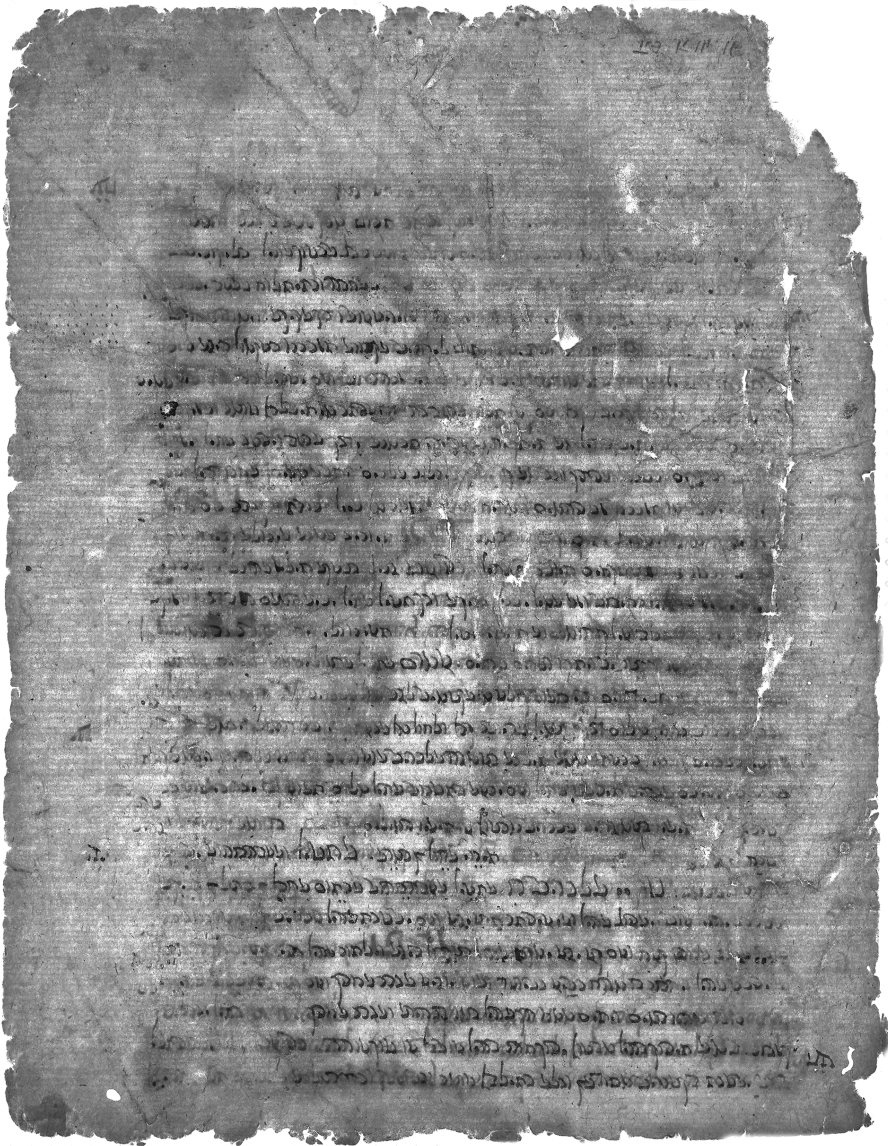


FIG. 2. MS Cambridge University Library, T-S K14.16 Pt. Reproduced by kind permission of the Syndics of Cambridge University Library, MS.

It is likely that many of these manuscripts were copied in Iberia and came to Egypt with Jewish refugees after 1492. They are primarily from large

Table 1. *Sample of religious and medical manuscripts with fifteenth-century watermarks*

CLASSMARK	COMPARABLE WATERMARKS	SIZE OF WATERMARK (MM)	COMPARANDA ATTESTED
T-S K14.1, P1	Bell: Briquet 4050	76 × 30	Naples (1397, 1404, 1407)
T-S K21.42, P1	Bull's head: Briquet 14292	48 × 28	Lautrec (1411)
Mosseri II.29	Scissors: Briquet 3659	69 × 31	Rotterdam (1426), Montpelier (1427), Serbia (1428), Fabriano (1430); Novgorod (1431); Braunschweig (1432)
T-S A26.190	Bell: Briquet 3984 ²⁵	60 × 28	Udine (1435), (Venice 1436, 1437), Palermo (1437), Bruges (1443), Fabriano (1444)
T-S K14.11	Cart: similar to Briquet 3544	75 × 47	Lucca (1434, 1463– 79), Damme (1452–56), Lille (1456–74), Rome (1459–60), Ulm (1473), Mainz (1473)
T-S K14.14, P1	Cart: Briquet 3533	70 × 39	Carpentras (1453, 1459–63), Utrecht (1454), Genoa (1454–58), Palermo (1456–60), Treviso (1457), Aix-en-Provence (1457–62), Landshut (1458), Pisa (1464), Venice (1470–71), etc.
L-G Misc.1	Ring: Briquet 692	67 × 26	Genoa (1483, 1509)
T-S K21.57, P1	Hand: close to WIES IBE 4488.15; 5668.31	92 × 29	Salamanca (1498); Zaragoza (1482)
T-S K14.19	Scissors: unidentified; somewhat similar to Briquet 3688	49 × 30	Venice (1484, 1496)

²⁵ Malcolm C. Davis, *Hebrew Bible Manuscripts in the Cambridge Genizah Collections: Taylor-Schechter Old Series and Other Genizah Collections in Cambridge University Library*, vol. 1, Cambridge Genizah Series 2 (Cambridge: Cambridge University Press, 1978), p. 124, pl. 16.

CLASSMARK	COMPARABLE WATERMARKS	SIZE OF WATERMARK (MM)	COMPARANDA ATTESTED
T-S AS 180.199	Key: CCF Z01292	—	Fabriano (1488)
T-S K14.25	Cart: unidentified	80 × 41	—
T-S K9.17, P4	Mermaid: unidentified Twin mark on P5	60 × 34	—
T-S K14.24, P3, P5	Unicorn: unidentified	approx. 83 × 40	—

codices of medical and biblical texts copied in ‘Sephardic’ scripts,²⁶ typical of Jews in the western Mediterranean. These types of books would have held considerable value over multiple decades, which might explain their survival from the early or mid-fifteenth century until after the Iberian exile. It could then be assumed that much of their paper was first used in Spain or Portugal, ultimately sent there from Italy and France.²⁷ That said, some Genizah manuscripts do indicate that a small quantity of blank European-made watermark paper was already reaching Egypt in the middle of the fifteenth century. For example, T-S A26.190 (c. 1440, see Table 1) is from a fairly small Bible codex written in a more eastern Hebrew script style, suggesting it was copied in the Middle East. Another example is a note related to a dowry negotiation, also written in an eastern style, with a partial pinecone watermark that may match Briquet 12437 (Susa 1459, Pinerolo 1462).²⁸ Finally, T-S AS 180.199, which is an Arabic medical prescription, has a partial key watermark with a broken chain line matching a mould used in Fabriano in 1488.²⁹

In addition to manuscripts, the Cambridge Genizah collections contain hundreds of Iberian incunable fragments with known publication dates and

²⁶ On Hebrew script styles, see Ada Yardeni, *The Book of Hebrew Script: History, Palaeography, Script Styles, Calligraphy and Design* (London: British Library, 2002); Malachi Beit-Arié, Edna Engel, and Ada Yardeni, *Specimens of Mediaeval Hebrew Scripts*, 2 vols (Jerusalem: Ha-Akademiyah ha-Le’umit ha-Yisre’elit le-Mada’im, 1987).

²⁷ We did not attempt to correlate paper types with the language of each manuscript in this study. At first glance, there does appear to be a higher proportion of Hebrew manuscripts (as opposed to Judaeo-Arabic) on fifteenth- and sixteenth-century watermark paper. This pattern would correspond to Gabrielle Ferrario’s observations about alchemical manuscripts; Gabrielle Ferrario, ‘Alchemy in the Cairo Genizah: The Nachlass of an Untidy Jewish Alchemist’, *Études Asiatiques*, 75 (2021), 513–44 (p. 516).

²⁸ T-S AS 154.306. See also, Research Group on Manuscript Evidence, ‘Watermarks’, where the authors have identified several fifteenth-century watermarks on Mamluk and Turkish manuscripts in private collections. Wiesmüller likewise describes a few fifteenth-century European watermarks in Middle Eastern manuscripts of the Refaiya Collection (though not from Egypt); Wiesmüller, ‘Watermarks from the Refaiya-Library’, §4.3.2.

²⁹ Thank you to Lorenzo Bondioli for finding this watermark and sending it to us late in the production of this article.

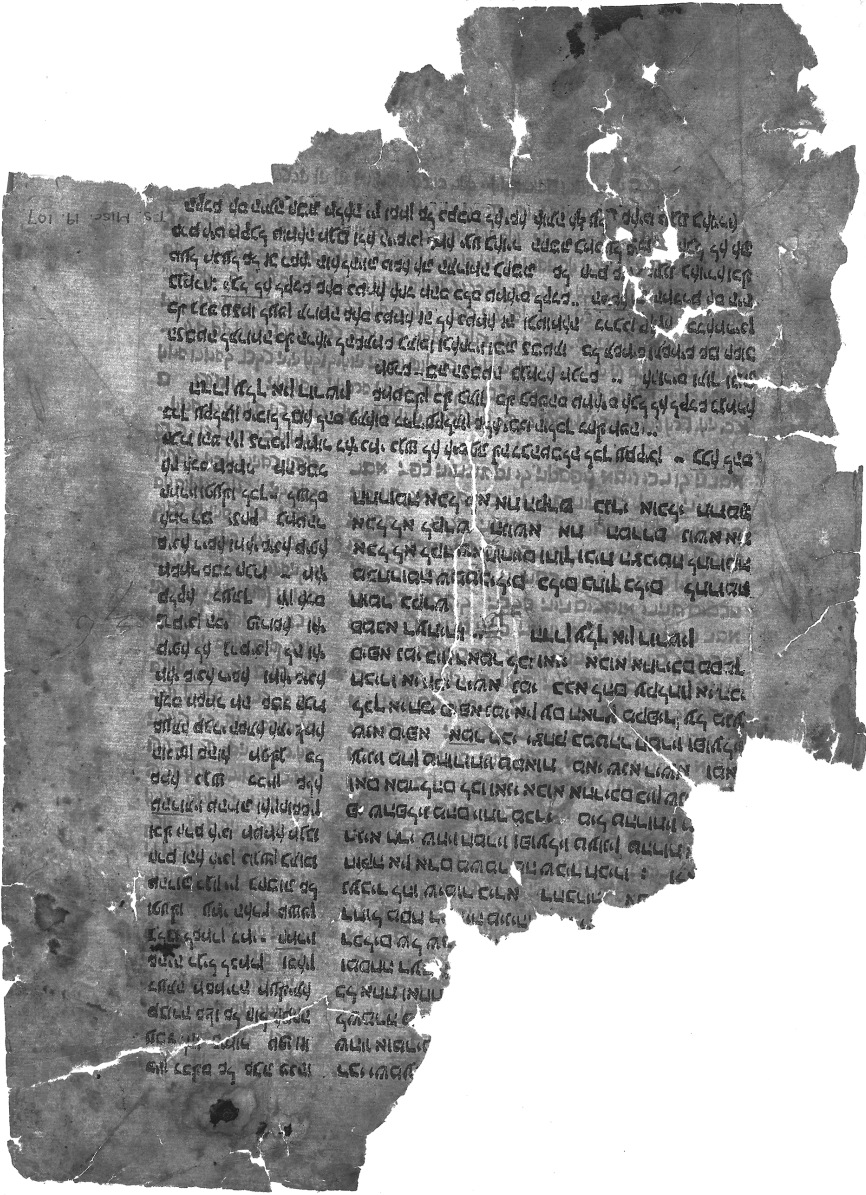


FIG. 3. MS Cambridge University Library, T-S Misc.19.107. Reproduced by kind permission of the Syndics of Cambridge University Library, MS.

locations. Some of these incunables have identifiable watermarks, enabling us to use Genizah material as a resource for studying the distribution of paper stocks within Europe itself. Some of this paper even appears from

European cities where it has not previously been documented. For example, there are numerous imprints of Talmud tractates that Solomon ibn Alkabe? printed in Guadalajara around 1480. We have recorded at least three different watermarks among them, including a hand with mounted crown (Fig. 3; measuring 85 × 25 mm) similar to marks known from Barcelona (1475) and Burgos (1475).³⁰ Other incunables are listed in Table 2.

Table 2. Sample of watermarked Iberian incunables

CLASSMARK	PRINTER	COMPARABLE WATERMARKS	SIZE OF WATERMARK (MM)	COMPARANDA ATTESTED
T-S Misc. 12.33.3 p1 ³¹	Eliezer b. Alantansi (Hijar 1490)	Hand: WIES IBE 6147.10	88 × 28	Burgos (1490)
T-S Misc. 12.32.2 p7 ³²	Eliezer Toledano (Lisbon 1491)	Hand: similar to WIES IBE 1492.05	79 × 26	Valencia (1496)
T-S Misc. 14.37.1C; T-S AS 189.9	Unknown Spanish press (before 1492) ³³	Anchor: similar to CCF Z01568	37 × 26	Fabriano (1503)
T-S NS 331.9	Samuel Porteiro (Faro c. 1496) ³⁴	Hand: WIES IBE 0595.01	84 × 29	Zaragoza (1480)

Like the above manuscripts, most of these printed books probably came to Egypt with refugees fleeing the Iberian exile,³⁵ although it is also possible

³⁰ See T-S Misc.19.2, T-S Misc.19.107, and T-S Misc.19.116. For the paper stock of the watermark of the hand and crown, compare T-S Misc.19.107 with WIES IBE 2469.08 and WIES IBE 6272.12. For identifications of these imprints, see Zalman Haim Dimitrovsky (ed.), *S'ridei Bavli: Fragments from Spanish and Portuguese Incunabula and Sixteenth Century Printings of the Babylonian Talmud and al-Fasi* (New York, NY: Jewish Theological Seminary of America, 1979), pp. 3–6, 27–28, 268–69; also ISTC it00015060 and it00015200.

³¹ T-S Misc.12.33.1-9 all belong to the same copy of the Pentateuch with Targum Onqelos and Rashi commentary that Eliezer b. Alantansi printed in Hijar (July/August 1490; ISTC ib00525620). One bifolium (T-S Misc.12.33.9) is vellum. 18 folios are extant in these classmarks.

³² T-S Misc.12.32.1-6 all belong to the same copy of the Pentateuch with Targum Onqelos and Rashi commentary that Eliezer Toledano printed in Lisbon (July/August 1491; ISTC ib00525640). The imprint alternates between paper and vellum. Fragments of at least 30 folios are extant in these classmarks.

³³ This unknown printer produced multiple imprints that are extant in the Genizah. These two watermarked fragments are part of an early edition of Maimonides' *Mishneh Torah*. See J. L. Teicher, 'Fragments of Unknown Hebrew Incunables', *Journal of Jewish Studies*, 1 (1948), 105–10 (p. 106); Elazar Hurvitz, *Mishneh Torah of Maimonides: A Facsimile of an Unknown Edition Printed in Spain before the Exile Reconstructed from Fragments Found in the Cairo Geniza, Ancient Bindings and Rare Editions, in Commemoration of the 850th Birthday of Maimonides* (New York, NY: Yeshiva University: Cairo Geniza Institute, 1985).

³⁴ See Dimitrovsky, *S'ridei Bavli*, pp. 21, 24; and ISTC it00015100.

³⁵ Teicher even argues that one book from the unidentified Spanish press was incomplete and hastily gathered up as its printer fled Spain in 1492; Teicher, 'Fragments of Unknown Hebrew Incunables', p. 105.

that some reached the Middle East via book traders shortly before 1492.³⁶

In subsequent decades, Iberian Jewish refugees established new printing presses in Ottoman territory, especially in Salonika and Constantinople.³⁷ Their greatest local competitors were the famous Soncino family, led by Eliezer and Gershom Soncino, who themselves had left Italy in search of more favourable conditions for Jewish printers.³⁸ Many pages of sixteenth-century Ottoman Hebrew books thus survive in Genizah collections. We can use them to identify paper stocks in Salonika and Constantinople at the time of their printing (Table 3).

One interesting example is the earliest known Passover Haggadah printed with illustrations.³⁹ Its publisher and location are not known for certain, but Eva Frojmovic has argued that it was produced in Constantinople around 1506. She bases this conclusion on the Haggadah's watermark (Fig. 4), which matches the paper in a separate book that the Ibn Nahmias brothers printed that year in Constantinople.⁴⁰ Frojmovic finds no record of this watermark (a hand with spread fingers and an unusually rounded cuff) in Briquet, and the present authors have been unable to identify it in any catalogue. It is possible that this paper was produced by an as yet undocumented manufacturer using watermark papermaking methods in Constantinople, although the Ibn Nahmias brothers also used watermarked paper from southeastern France around the same time.⁴¹

It is here that we must carefully distinguish between the spread of paper and the spread of Italian paper-marking technology between Europe and the Middle East. It is generally accepted, both in Genizah studies and in Islamic codicology, that the introduction of European-made watermark paper to Middle Eastern markets disrupted and eventually eliminated local paper-

³⁶ Especially relevant for investigating this possibility is a cache of manuscripts of the fifteenth/sixteenth century in the Bodleian, MS heb. c 72. Not only do their contents attest to a book trade with Egypt, but further inspection is likely to identify watermarks among them that are comparable to the watermarks in this article. Thank you to Magdalen M. Connolly for directing us to heb. c 72.18 in particular. See Meir Benayahu, 'Book Trade between Candia and Egypt', in A. M. Habermann *Memorial Volume*, ed. by Z. Malachi (Lod: Habermann Institute for Literary Research, 1984), pp. 255–65 (in Hebrew).

³⁷ See 'Printing, Hebrew', in *Encyclopedia Judaica* (Detroit, MI: Macmillan Reference USA, 2007), pp. 351, 533; Eva Frojmovic, 'From Naples to Constantinople: The Aesop Workshop's Woodcuts in the Oldest Illustrated Printed Haggadah', *The Library*, vi, 18 (1996), 87–109 (p. 103, n. 27).

³⁸ David Werner Amram, *The Makers of Hebrew Books in Italy; Being Chapters in the History of the Hebrew Printing Press* (Philadelphia, PA: Julius H. Greenstone, 1909), pp. 134–36; Abraham Meir Haberman, *The Sons of Soncino Printers: Their Histories and the List of Books Printed by Them* (Vienna: David Frankel, 1933), p. 8; Abraham Meir Haberman, 'Soncino', in *Encyclopedia Judaica*, p. 10.

³⁹ T-S NS 168.5b, among several other fragments.

⁴⁰ Previous studies of this Haggadah have dated it to the first three decades of the sixteenth century. See Frojmovic, 'From Naples to Constantinople', pp. 91, 98, 103; see also, Alexander Scheiber, 'New Pages from the First Printed, Illustrated Haggadah', *Studies in Bibliography and Booklore*, 7 (1965), 26–36; Y. H. Yerushalmi, *Leaves from the Oldest Illustrated Passover Haggadah* (Philadelphia, PA: PRINTER??, 1974). On the Ibn Nahmias brothers, see Israel Moses Ta-Shma, 'Nahmias, Ibn', in *Encyclopedia Judaica*.

⁴¹ See Nigel Allan, 'A Typographical Odyssey: The 1505 Constantinople Pentateuch', *Journal of the Royal Asiatic Society*, 1 (1991), 343–52 (p. 344).

Table 3. Sample of watermarked Salonikan and Constantinopolitan imprints found in Cairo

CLASSMARK	PRINTER	COMPARABLE WATERMARKS (MM)	SIZE OF WATERMARK	COMPARANDA ATTESTED
T-S NS 168.5b	Ibn Nahmias brothers(?)	Hand: no match or similar mark	partial: 57 × at least [26]	Constantinople (1506) (see below)
T-S Misc.14.25	Ibn Nahmias brothers(?) (Constantinople c. 1510) ⁴²	Crossed arrows: similar to CCF Z01609; CCF Z01623; CCF Z01642	59 × 30	Fabriano (1507; 1509; 1513)
T-S NS 331.17	Joseph b. Abraham b. Alnaqua (Salonika 1520)	Column: PFES 002513	51 × 17	Gerona (1537)
T-S AS 189.51	Unidentified (Salonika 1543)	Balance: lower part similar to Briquet 2485	partial: 40 × at least [40]	—
T-S Misc.19.108	Joseph Ya'beš (Salonika c. 1558–66) ⁴³	Anchor: similar to Briquet 485	partial: at least [49] × 42	Padua (1547); Parma (1553)
T-S NS 25.117 same sheet to T-S 25.116 (watermark in octavo visible on upper right and lower right corners)	Joseph Ya'beš (Salonika c. 1570) ⁴⁴	Anchor: partial, close to Likhachev 3426 or 1935	partial: at least [T-S 25.116: 31] + [T-S NS 25.117: 22] × 38	Venice (1561); Serbia (1571)
T-S NS 213.30	Undetermined (Salonika, before 1600) ⁴⁵	Fish: no match or similar mark	partial: at least [107] × 38	—

⁴² Cohen, 'Missing Treasures', pp. 67–68.⁴³ Nick Posegay, 'Hebrew Printing and Printers' Colophons in the Cairo Genizah: Networking Book Trade in Europe and the Ottoman Empire', in *Literary Snippets: Colophons Across Space and Time*, ed. by Sabine Schmidtke & George A. Kiraz (Piscataway, NJ: Gorgias Press, forthcoming). This imprint has the same watermark as T-S 16.342 (see Table 4).⁴⁴ Ora (Rodrigue) Schwarzwald and Dov Cohen, 'El Descubrimiento de la primera traducción impresa en Ladino de Pirqué Abot (Salónica, hacia 1570)', *Sefarad*, 80 (2020), 117–36 (p. 122); Cohen, 'Missing Treasures', p. 67, n. 44.⁴⁵ Cohen, 'Missing Treasures', p. 63, n. 23.



Fig. 4. MS Cambridge University Library, T-S NS 168.5b. Reproduced by kind permission of the Syndics of Cambridge University Library, MS.

making methods.⁴⁶ By about 1600, Europe supplied most Middle Eastern paper markets, and older non-watermark paper persisted mainly in peripheral regions. The large number of European crown-star-crescent, *tre lune*, and anchor watermarks that appear in the Ottoman Empire during the sixteenth and seventeenth centuries supports this conclusion.⁴⁷ It is only later, with rare exceptions,⁴⁸ that Middle Eastern papermakers began employing European techniques to create their own watermarks.⁴⁹

The assumption is that all, or nearly all, watermark paper extant from the Middle East from around 1350 to 1600 was physically produced in Europe. However, we should be cautious before drawing this conclusion for the

⁴⁶ Déroche & others, *Islamic Codicology*, p. 57; Lewincamp, 'Watermarks within the Middle Eastern Collection', p. 97; Bloom, *Paper Before Print*, p. 217; Beit-Arié, *Makings of the Medieval Hebrew Book*, p. 37; Crown, 'Paper in Samaritan Manuscripts', pp. 72, 84.

⁴⁷ Lewincamp, 'Watermarks within the Middle Eastern Collection', pp. 99–100; Velkov & Andreev, *Filigrares dans les documents Ottomans*; Gacek, *Arabic Manuscripts*, p. 192. Gacek notes that European paper had spread to much of the region already in the fifteenth century, but that older methods persisted in Egypt into the sixteenth century. Our data bears out this trend.

⁴⁸ Alice Shafi-Leblanc, 'Un exemple rare de contremarque du VIII^e / XIV^e siècle en langue et caractères arabes', in *The Trade in Papers Marked with Non-Latin Characters / Le commerce des papiers à marques à caractères non-latins*, Islamic Manuscripts and Books, 15 (Leiden: Brill, 2018), pp. 190–205; Crown, 'Paper in Samaritan Manuscripts', pp. 73, n. 10, 78.

⁴⁹ For instance, see the early nineteenth-century Arabic-script watermarks documented in the Topkapi Palace Museum Archives (HOLLIS 990152832230203941_0001 through HOLLIS 990152832230203941_0013). Ottoman papermakers at least imitated the *tre lune* watermarks of the seventeenth and eighteenth centuries; Crown, 'Paper in Samaritan Manuscripts', p. 72, n. 6.

Genizah corpus. The Jewish printers who left Iberia and Italy to settle in the Ottoman Empire would have been accustomed to working with watermark paper. Their eastward migration would have contributed to the increased demand for Italian paper in Ottoman territories, just as earlier centuries saw Italian paper sold to bookmakers in Iberia.⁵⁰ If Iberian and Italian Jewish printers brought their craft across the Mediterranean and established successful businesses in the Ottoman Empire, then papermakers (both Jewish and Muslim) could have done the same. If they produced paper with the techniques they had used in Europe, then we would expect their watermarks to look essentially the same as European ones, at least during the sixteenth century. This situation would mirror the use of Iberian and Italian typography at the early Hebrew printing presses in Salonika and Constantinople.⁵¹ More thorough documentation of paper stocks in Middle Eastern manuscript collections will clarify how much, if any, watermark paper was produced in places like Constantinople, Jerusalem, and Cairo before 1600.

With that in mind, we now return to Egypt, where watermark paper did become increasingly common after 1500. Many Genizah manuscripts are internally dated to this period, and by the end of the sixteenth century a large majority were on watermark paper (see Appendix below).⁵² Some of that paper has further identifiable watermarks. Several of the items in the following table were copied or sent outside of Egypt, but all were found in Cairo during the second half of the nineteenth century (Table 4).

These manuscripts indicate that Cairo and other Egyptian cities had access to various European (especially Italian) watermark paper stocks throughout the sixteenth century. This fact is again not surprising, as trade between Egypt and Venice in particular is well documented in both the

⁵⁰ For the movement of Italian paper in the Spanish peninsula, see, for example, Emanuela Di Stefano, 'European and Mediterranean Perspectives on the Paper Produced in Camerino-Pioraco and Fabriano at the Apogee of Its Medieval Development (14th–15th Century)', in *Papier im Mittelalterlichen Europa Herstellung und Gebrauch*, ed. by Carla Meyer, Sandra Schultz & Bernd Schneidmüller (Berlin: De Gruyter, 2015), pp. 47–69.

⁵¹ For example, by Judah Gedaliah, Gershon Sencino, and the Ibn Nahmias brothers; Jacob Hirsch Haberman, 'Gedaliah, (Don) Judah', in *Encyclopedia Judaica*; Allan, 'Typographical Odyssey', p. 345.

⁵² For example, the following manuscripts are all watermark paper: T-S 20.161 (1533, court record issued in Jerusalem, found in Cairo); T-S 16.112 (1534, marriage contract copied in Cairo); T-S 12.589 (1554, bill of testimony copied in Cairo); T-S 8J6.20 (1556, business contract copied in Damietta(?)); T-S 8J6.21 (1558, deed copied in Rosetta); T-S 8J15.30 (1560, letter copied in Jerusalem, sent to Egypt; possibly with watermark); T-S 13J5.6 (1560, legal document copied in Cairo); T-S 13J4.17 (1561, record of debts copied in Cairo); T-S 13J4.18 (1563, court record copied in Rosetta); T-S 8J6.22 (1563, loan note copied in Egypt); T-S 8J8.11 (1565, legal document copied in Cairo); T-S 13J4.20 (1569, business contract copied in Cairo); T-S 8J8.23 (1577, deed copied in Egypt); T-S 13J4.21 (1588, record of debts copied in Cairo). They are all cut from larger sheets and do not have extant watermarks.

Table 4. Sample of sixteenth-century watermarked manuscripts found in Cairo

CLASSMARK	PLACE OF USE	COMPARABLE WATERMARKS	SIZE OF WATERMARK (MM)	COMPARANDA ATTESTED
T-S Fr(1).11, P1, P2 Twin: P3, P4	Found in Cairo	Anchor: Briquet 480–81	64 × 42 (twin: 65 × 41)	Arnoldstein (1508–14), Rome (1513), Vicenza (1515), Ljubljana (1514, 1519), Treviso (1514, 1519)
T-S 16.157	Found in Cairo	Cardinal's hat: Briquet 3407–8	52 × 57	Bergamo (1527, 1536); Udine (1531)
T-S 10J16.25 (fig. 5)	Copied in Rosetta, sent to Damietta ⁵³	Column: close to Briquet 4371	53 × 17	Avignon (1535–39); Provence (1535); Mornas (1539)
T-S 13J8.10 ⁵⁴	Copied in Egypt (1544)	Circled Mountain: lower part close to WZIS DE5580- Codgraec200_246; WZIS DE5580- Codgraec200_239	partial: at least [41] × 40	–
T-S 16.342	Found in Cairo	Anchor: Briquet 485	63 × 41	Padua (1547); Parma (1553); Salonika (c. 1558–66) ⁵⁵
T-S 13J4.19	Copied in Jerusalem (1564)	Three circles: Briquet 3265 ⁵⁶	partial: at least [56] × 32	Milan (1560)
Moss. 1a.10.2	Sent from Cairo to Alexandria ⁵⁷	Star in circle: WZIS DE8085- PO-161881	47 × 47	Venice (1600)

⁵³ This manuscript is a Hebrew letter that mentions Italian merchants and a French consul, even using some European loan words. It is marked by an Ottoman-era stamp seal. See the Cambridge University Digital Library description: <https://cudl.lib.cam.ac.uk/view/MS-TS-00010-J-00016-00025/1> (accessed 11 February 2023).

⁵⁴ With broken chain line.

⁵⁵ This manuscript has the same watermark as T-S Misc.19.108, which was printed in Salonika c. 1558–66 (see Table 3).

⁵⁶ Although missing the small crown device.

⁵⁷ This is an undated letter that refers to an ongoing plague in Cairo, which may be the bubonic plague outbreak of 1513/14, although the watermark suggests a date closer to 1600. See Nükhet Varlik, *Plague and Empire in the Early Modern Mediterranean World: The Ottoman Experience, 1347–1600* (Cambridge: Cambridge University Press, 2015), p. 151.

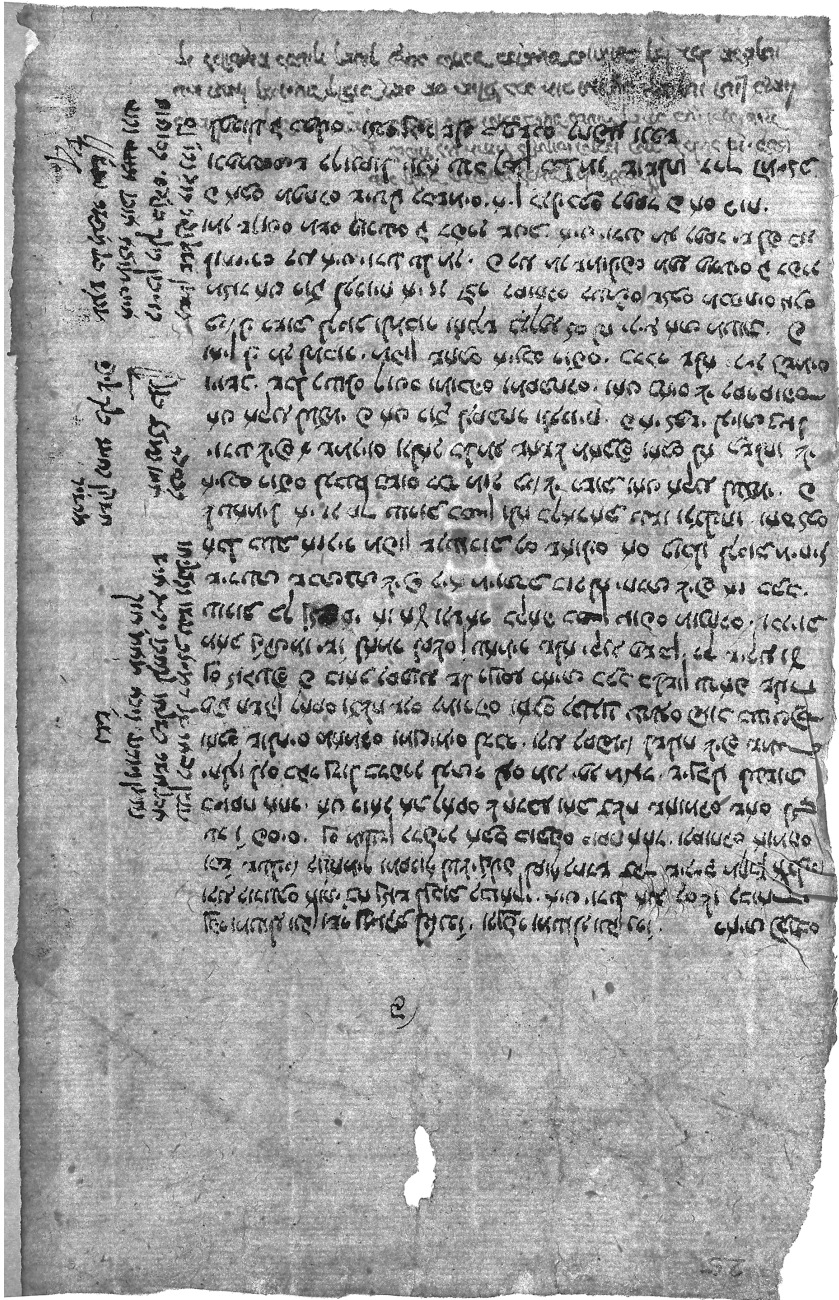


FIG. 5. MS Cambridge University Library, T-S 10J16.25.
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 University Library, MS.

Mamluk (pre-1517) and Ottoman (post-1517) periods.⁵⁸ Other Genizah material also attests to this commercial connection, including a significant Egyptian demand for Hebrew books printed in Italy.⁵⁹ Evidently, watermark paper outcompeted local non-watermark paper, contributing to the decline of older papermaking methods in Egypt. Our survey (see Appendix) confirms that by the second half of the sixteenth century, almost all paper used in Cairo was watermark paper, most likely imported from Europe.⁶⁰

There is, however, literary evidence that a group of people known as ‘papermakers’ or ‘stationers’ (*warrāqīn* in Arabic, sing. *warrāq*) existed in Cairo beyond 1600. Anthony T. Quickel notes several Arabic chronicles that refer to Cairene *warrāqīn* ‘just before and after the Ottoman takeover of Egypt’ and up through the eighteenth century.⁶¹ These *warrāqīn* provided various book-related services, including copying, binding, and selling, but the extent to which they manufactured paper in Cairo (both during the Ottoman period and in earlier centuries) is not precisely known.⁶² If, as our data supports (see Appendix), watermark paper supplanted other Egyptian paper during the early Ottoman period, then a Cairene *warrāq* of the late sixteenth century was likely more of a paper-seller than a paper-maker. If so, then most paper in sixteenth-century Egypt was produced by Italian and French papermakers, shipped by Venetian merchants, purchased by mainly Muslim *warrāqīn* in Alexandria and Cairo, and sold to local communities—including Jewish communities—for use in writing. It is not impossible that some sixteenth-century Cairenes adopted European papermaking tech-

⁵⁸ Eric Dursteler (ed.), *A Companion to Venetian History, 1400–1797* (Leiden/Boston: Brill, 2013), pp. 140, 229, 299, 936; Benjamin Arbel, ‘The Last Decades of Venice’s Trade with the Mamluks: Importations into Egypt and Syria’, *Mamlūk Studies Review*, 8 (2004), 37–86.

⁵⁹ For manuscript evidence of this commercial connection, see Abraham David, ‘The Role of Egyptian Jews in Sixteenth-Century International Trade with Europe: A Chapter in Social-Economic Integration in the Middle East’, in *From a Sacred Source*, ed. by Outhwaite & Bhayro, pp. 99–126; and Abraham David, ‘The Involvement of Egyptian Jews in Venice Trade in the Sixteenth Century as Reflected from the Cairo Genizah Documents and Other Sources’ (in Hebrew), *Proceedings of the American Academy for Jewish Research*, 60 (1994), 1–29. For Italian imprints in Cairo, see Posegay, ‘Hebrew Printing and Printers’ Colophons’. Book trade between Venice and the Jews of Ottoman Salonika has also been documented: Marvin J. Heller, ‘Unicums, Fragments, and Other Hebrew Book Rarities’, *Judaica Librarianship*, 18 (2014), 130–53 (p. 138). See also, Benayahu, ‘Book Trade between Candia and Egypt’ (in Hebrew).

⁶⁰ The extensive commercial relationships, for example, between Venice and the Eastern Mediterranean offered clear opportunities for the diffusion of watermark paper in this region; see for example, Bernard Doumerc, ‘Il dominio del mare’, in *Storia di Venezia: dale origini alla caduta della serenissima*, ed. by Alberto Tenenti & others (Rome: Istituto della enciclopedia italiana, 1996). Paper often travelled with other items: see, for instance, Jong-Kuk Nam, *Le commerce du coton en Méditerranée à la fin du moyen âge* (Leiden: Brill, 2007), p. 258 and *passim*; see also the discussion in Jonathan Bloom, *Paper before Print: The History and Impact of Paper in the Islamic World* (New Haven, CT: Yale University Press, 2001), pp. 85–89.

⁶¹ Anthony T. Quickel, ‘Making Tools for Transmission: Mamluk and Ottoman Cairo’s Papermakers, Copyists and Booksellers’, *Eurasian Studies*, 15 (2017), 304–19 (pp. 312–13).

⁶² *ibid.*, pp. 313–14; see François Déroche, ‘Copier des manuscrits: remarques sur le travail du copiste’, *Revue des mondes musulmans et de la Méditerranée*, 99–100 (*La tradition manuscrite en écriture arabe*) (2002), 133–44 (p. 135); Beatrice Gruendler, *The Rise of the Arabic Book* (Cambridge, MA: Harvard University Press, 2020), pp. 105–7.

niques, thus maintaining a local supply of paper, but if they did, then it appears they did not also differentiate that paper with new watermarks. If it exists, any paper produced in this way would be indistinguishable from European-made paper in our survey.

Conclusion

This examination of paper in late medieval Cairo shows that the Cambridge Genizah collections are an untapped resource for the study of papermaking around the Mediterranean basin between 1350 and 1600. They contain undocumented samples of European paper stocks used in Egypt during the transition from non-watermark to watermark paper in the Middle East, as well as watermark paper used for letter-writing in Jerusalem and Hebrew printing in the Ottoman Empire. We can thus suggest that the first watermark paper to reach the Cairene Jewish community most likely arrived in books produced in the Iberian peninsula during the late fourteenth or early fifteenth century. The earliest watermark paper that Cairene Jews used for writing in Egypt appears to have arrived in the middle of the fifteenth century, but it was not until the late sixteenth century that it replaced almost all other paper in our corpus. It is also likely that the widespread adoption of European paper stocks in Egyptian Jewish communities is connected to the forcible expulsion of Jews and Muslims from Iberia in 1492 and 1497. Refugees of these events settled in Egypt and the Ottoman Empire, bringing with them books produced in Europe on watermark paper. Especially notable are Iberian Hebrew printers who (re-) established their presses in Salonika and Constantinople.

These conclusions offer paths for future collaboration between Genizah scholars and European codicologists to investigate paper-trade networks and the diffusion of European papermaking techniques in the Ottoman Empire. Furthermore, as we have seen, Genizah collections can even provide new data for the distribution of European paper stocks in Spain and Portugal prior to the Iberian exile. Although we have not examined them here, there are also numerous Italian imprints in the Genizah—up through the middle of the eighteenth century—which could be used to further chart the trade and production of paper in Italy. From the evidence collected thus far, we hypothesize that further studies of the Cairo Genizah corpus will reveal what paper stocks were available to Jewish scribes and printers in fifteenth-century Iberia, sixteenth-century Ottoman cities, and members of practically every level of Egyptian-Jewish society between 1400 and 1600.

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APPENDIX

CHRONOLOGY OF DATED PAPER MANUSCRIPTS IN
CAMBRIDGE GENIZAH COLLECTIONS (1250–1685)

This table is not an exhaustive list of all dated paper manuscripts in Cambridge Genizah collections; see the introduction above for a discussion of the authors' corpus. Every item below was found in Cairo.

CLASSMARK	DATE	PAPER TYPE
T-S 8.143	1250	non-watermark
T-S 8J6.16	1252	non-watermark
T-S 13J4.11	1252	non-watermark
T-S 8K22.12	1253	non-watermark
T-S 13J4.10	1253	non-watermark
T-S 6J2.1	1253	non-watermark
T-S 18J4.13	1253–54	non-watermark
T-S NS 320.97	1258	non-watermark
T-S 8J6.13	1260	non-watermark
T-S 8J5.25	1261	non-watermark
T-S 10J31.10	1264	non-watermark
T-S 13J6.11	1265	non-watermark
T-S 8J9.18	1265	non-watermark
T-S 12.543	1266	non-watermark
T-S 13J4.12	1269	non-watermark
T-S Misc.27.4.26	1270	non-watermark
T-S NS J226	1274	non-watermark
T-S NS J405	1275	non-watermark
Or.1080.J208	1278	non-watermark
T-S 6J1.23	1280	non-watermark
T-S 8J6.17	1281	non-watermark
T-S Ar.39.189	1284	non-watermark
T-S 20.109	1289	non-watermark
T-S NS J297a-b	1289–90	non-watermark
T-S 13J4.13	1292	non-watermark
T-S 12.573	1297	non-watermark
T-S 13J4.14	1313–14	non-watermark
T-S 12.39	1315	non-watermark
T-S Misc.28.26	1316	non-watermark

CLASSMARK	DATE	PAPER TYPE
T-S 18J1.34	1328	non-watermark
T-S K15.18	1335	non-watermark
T-S 13J2.18	1337; 1347	non-watermark
T-S 6J6.21	1334-55	non-watermark
T-S 6J6.22	1334-55	non-watermark
T-S 8J23.4	1334-55	non-watermark
T-S K25.190	1334-55	non-watermark
T-S 13J24.4	1334-55	non-watermark
T-S 16.277	1334-55	non-watermark
T-S 16.296	1334-55	non-watermark
T-S AS 147.37	1334-55	non-watermark
T-S Misc.8.18	1334-55	non-watermark
T-S NS 31.7	1334-55	non-watermark
Moss. IV.37.1	1334-55	non-watermark
Moss. IV.85	1334-55	non-watermark
T-S 13J4.15	1359	non-watermark
T-S 8J26.19	1355-75 or 1386-1415	non-watermark
T-S Ar.54.52	1387	non-watermark
Moss. VIII.25a-d	1409	non-watermark
T-S 8.195	1458-59	non-watermark
T-S K6.46	1481	non-watermark
T-S 10J24.3	1484-1502	watermark
Or.1080.J246	1484-1502	watermark
T-S 10J13.25	1489	watermark
T-S Misc.28.71	1492	watermark
T-S 8J6.19	1495-96	non-watermark
T-S Ar.38.116	1519-20	non-watermark
T-S 20.161	1532-33	watermark
T-S 16.112	1534	watermark
T-S 10J11.4	1540 or 1543	non-watermark
T-S 13J8.10	1543	watermark
T-S 13J37.1	1543	watermark
T-S 8J6.20	1556	watermark
Or.1080.J133	1559	watermark
T-S 12.589	1559	watermark

CLASSMARK	DATE	PAPER TYPE
T-S 8J15.30	1560	non-watermark
T-S 13J5.6	1560	watermark
T-S 13J4.17	1561	watermark
T-S Misc.24.187	1561	watermark
T-S 13J4.18	1563	watermark
T-S 13J4.19	1564	watermark
T-S 8J8.11	1565	watermark
T-S 8J6.22	1563 or 1566	watermark
T-S 8J6.21	1567	watermark
T-S 13J4.20	1569	watermark
T-S 8J8.23	1577	watermark
T-S 13J4.21	1587	watermark
T-S J2.29	1685	watermark