

2 *Paper and Related Materials*

WE are now several decades into a technological revolution that has, amongst other things, enabled texts to be written and searched without paper. In most libraries, card indexes, annotated volumes, and pasted slips have been replaced with online catalogues. Electronic mail has not only substituted for, but significantly increased the volume of written correspondence. Newspapers and other media make their texts available in electronic form and update their sites regularly, in much the same way as there were once (and sometimes still are) 'early' and 'late' editions of the news. Most texts are now prepared on a keyboard and preserved in digital form. Narratives need no longer be sequentially organized. For some, this change heralds the end of the 'book' and the arrival of a 'paperless society', yet books and paper have been sturdily resistant to their imaginary impending doom. Recent technologies have only partly substituted for manuscript and print—perhaps manuscript more than print; otherwise, the creation and distribution of digital texts (which are regularly printed out) has involved an expansion of the mechanisms of communication and record. The global paper and publishing industries are rather evolving than in crisis and decline.

In truth, the technologies of communication have evolved in ways that only make access to texts more varied: at no stage has one form of communication completely replaced another. The 'paperless society' was that which had no form of record beyond human memory and the deliberate use of repetition and motifs to preserve narratives. As Plato observed, writing does not enable memory, it enables forgetfulness because the substance of what is written down is preserved beyond the life of any one individual and, therefore, no individual need remember all the details.¹ Modern forms of oral record (such as film and tape, as well as their subsequent mutations including digital encryption) are simply other surfaces on which we preserve text, sound, and sometimes action (sophisticated forms of 'paper', as it were, that require particular technologies for their reading), in order that we do not depend on the ritualized transmission of the spoken word.

It is important to recognize and account for the role of memory in the transmission of early modern texts,² however much we depend on the written and material record. We do not know what part Shakespeare acted in *Sejanus*, how he spoke, what his gestures were, or the lack of

¹ Plato, *Phaedrus*: see B. Jowett (ed.), *The Dialogues of Plato*, 4th edn., 4 vols. (Oxford, 1953), III.185. For a more extended comment upon this: Bland, 'Memory—Witness—Use', 11–34.

² Fox, *Oral and Literate Culture in England, 1500–1700*, 214–27 and 262–81.

them, although at least several hundred people knew this at the time of performance and, some, for many years after; nor can we recover an original performance of Dowland's lute music although we have texts of the music: we do know this of Bogart in *Casablanca*, and of Casals performing the Bach cello suites, although Bogart and Casals died before most people now alive were born. Thus, for the early modern period, it is in paper, parchment, and stone that we capture the texts both imaginary and factual, some transitory and ephemeral (such as plays), some intended for preservation (such as birth and death), that survive beyond the memory of that society as a partial record of its existence. Nor is it possible to fully understand those texts, and their meaning, if we do not understand the surfaces upon which they were inscribed and why they were preserved in their particular ways.

Parchment, Stone, and Paper

Paper was a comparatively late arrival as a surface for the preservation of texts. In the ancient world, papyrus was the lightweight durable writing surface; however, its structure required that it be rolled, and from the late first-century it began to be replaced by the parchment codex.³ Parchment is animal skin (goat, calf, sheep, and rabbit were all used) that has been washed in slaked lime (calcium carbonate), de-haired, stretched, rubbed smooth, and trimmed: the process takes several weeks to complete.⁴ The resulting skins are light and durable; however, it was also expensive if employed for longer texts. Parchment was therefore a premium surface for book production. Hence, in his final letter to Timothy, when St Paul asks for his cloak from Troas, he added that he would like his books, 'and above all the parchments'.⁵ What is new here is the emphasis that Paul gives to the artefact: the indication that the material on which a text was written was an important part of its identity as a document.

There were several advantages to the parchment codex. First, it could be folded, stitched, and bound. Second, it was economical with space. Third, it offered a more stable surface for illustration: a roll could only be illustrated with inks, as paint and gold would have fractured and peeled. Hence, it was inevitable that the codex would gain in both utility and sumptuousness, and that the perceived value of the text would determine the elaborateness of the decoration. For St Jerome, at least, this was a perversion of the scripture, and he complained that 'parchments are dyed

³ See, C. H. Roberts and T. C. Skeat, *The Birth of the Codex* (Oxford, 1983).

⁴ D. V. Thomson, 'Medieval Parchment Making', *The Library*, IV: 16 (1935), 113–17.

⁵ 2 *Timothy*, 4.13.

purple, gold is melted into lettering, manuscripts are dressed up in jewels, while Christ lies at the door naked and dying'.⁶ His asceticism was not shared by others, as late medieval books of hours lavishly illustrate.

Parchment continued in use during the early modern period for special copies of books, for the formal parish registers of births, deaths, and marriages, for wills and land deeds, and for other documents such as funeral placards. Most of these artefacts provide clear signs of when and why they were created. With printed books, parchment was only used for exceptional, highly important presentation copies; otherwise, the book-trade would have devastated the livestock of Europe. Thus, if paper first gained acceptance as a low-cost, durable alternative for non-premium book production, it later became an absolute necessity for all but the most important copies of texts or documents, with goatskin, sheepskin, and calf reserved as materials for binding.

The history of stone as a surface for texts goes back to the origins of written language: it was used for law, death, rituals, commemorations, dedications, ceremonies, decrees and injunctions, commerce, accounts, boundaries, calendars, and, inevitably, graffiti.⁷ Stone has always been utilized for inscriptions that are supposed to withstand nature and time, which is why the Romans chose it to mark distances. Other materials such as tree bark and wood have been written on in various ways as well; cuneiform texts were preserved on clay tablets, and since ancient Greece, script has often appeared on pottery; more recently, it has been etched in glass and plastics, and on metal. Texts have also been included within pictorial space since antiquity. What needs to be borne in mind out of this diversity is that, in the early modern period, paper was but one of many possible surfaces for a text. In particular, whilst parchment had replaced some of the earlier functions of stone so that the latter was mainly used for gravestones and commemoration, both parchment and stone continued to be selected for literary texts of high authority, especially when these related to the commemoration of the dead.

Since its introduction to the West, via Spain then Italy, paper has been (until recently) preferred for the preservation and transmission of texts intended for multiple users, as well as for private communication.⁸ The cellulose fibres of paper withstand folding, and make it uniquely

⁶ 'Inficitur membrana colore purpureo, aurum liquescit in litteras, gemmis codices vestiuntur, et nudus ante fores aerum Christus emoritur': St Jerome, *Selected Letters*, ed. F. A. Wright (Cambridge MA, 1933), XXII: 32, 130–3.

⁷ As a starting point, see, A. Petrucci, *Public Lettering: Script, Power, and Culture*, trans. L. Lappin (Chicago, 1993).

⁸ Paper was first made in Spain c.1150 AD. For its earlier history: J. M. Bloom, *Paper before Print: The History and Impact of Paper In the Islamic World* (New Haven CT, 2001).

adaptable to the codex (book) form, although it can be rolled if desired. It is durable and more compact than the alternatives. It can be produced in volume and quickly. It requires little preparation for writing or the press and is, in small quantities, easily transportable. As a general principle, if a text produced after c.1450 (until the 1980s) is not written on paper then this needs to be understood in relation to the physical characteristics of the document and its context.

The manufacture and distribution of paper has a long and complex history, and one almost as diverse as its use.⁹ For modern 'white' paper, both laid and wove, there are various grades, materials used in the making, sizes, coatings, thicknesses, weights, shades, chemical balances, and degrees of absorbency. There are different methods of manufacture. Smell, texture, and optical brightness vary from one type of paper to another, and prices for apparently similar sheets can differ markedly. We would recognize a newspaper, a glossy magazine, and a scholarly book as being so without any text having been printed upon it. The paper and its format (how it is folded) are part of the way a text communicates its meaning; and they relate directly to the kind of reading that is being engaged in. The relationship between the reflectivity (the brightness) to the design of the type, or the formal composition of a script, is what helps determine legibility and intelligibility, against which cost must be considered: for instance, small type printed in gold on black paper is very difficult to read; likewise a railway timetable that used opaque non-reflective paper and a seriffed font would lack the clarity desired.

Modern paper is mass produced and production methods seek to minimize differences between one sheet, or one batch, and another; in effect, the paper either effaces or standardizes the history within it, whilst the primary differences between types and grades of paper are generally apparent on the surface and to the touch. Paper like this can be weighed and have its thickness and reflectivity measured, but little would usually be achieved by creating a detailed photographic image of its internal fibrous structure. What distinguishes modern paper is the variety of its uniformity, and its varieties of uniformity.

In contrast with modern methods, early modern papermaking was a craft where the workmen made one or two sheets at a time on wire moulds: thus, the record of each and every mould is to be found within the paper, in the differences of chainlines and, usually, watermarks. In an absolute sense, there were fewer sizes and grades of paper than modern methods of manufacture allow; yet the material record is, in

⁹ See D. Hunter, *Papermaking: The History and Technique of an Ancient Craft* (New York, 1947). The URL for the International Association of Paper Historians is www.paperhistory.org.

many ways, more complex, as the tray is the unit of production and identification. A watermark can encode the place of origin, the mill that made the paper, on what tray it was made, and when it was made. Owing to wear and tear, the trays were regularly repaired, or replaced with similar but not identical substitutes (each was hand-made). These subtle changes in the watermarks and chainlines constitute a material record that can be measured, photographed, and analyzed against datable documents.¹⁰

The reason for the presence of watermarks in paper has nothing to do with their subsequent bibliographical usefulness, rather the purpose they served was practical and commercial in the same way as, in ancient Rome, brick-makers stamped their name and place of production upon their output. The Romans did this to identify the bricks made in shared contexts by different makers in the same location and sold on to a single purchaser: the result is that both the sources and dispersion of the bricks can be mapped.¹¹ Similarly, papermakers in the hand-press period had to identify what they sold to the merchants. Later, the marks sometimes served to assess excise, and taxes were levied accordingly.

The jug, or pot, to be found in paper from northern France, is the most familiar watermark in sixteenth- and seventeenth-century English

¹⁰ Some primary resources include C. M. Briquet, *Les filigranes: Dictionnaire Historique des Marques du Papier dès leur apparition vers 1282 jusqu'en 1600*, ed. A. H. Stevenson, 4 vols. (Amsterdam, 1968); W. A. Churchill, *Watermarks in Paper in Holland, England, France, etc., in the XVII and XVIII Centuries and Their Interconnection* (Amsterdam, 1935), and the *Monumenta Chartæ Papyraceæ Historiam Illustrantia*. Unfortunately, these catalogues are not sufficient for accurate analytical work, but they do suggest the complexity of the evidence. See also, J. Bidwell, 'The Study of Paper as Evidence, Artefact, and Commodity', *The Book Encompassed: Studies in Twentieth-Century Bibliography*, ed. P. Davison (Cambridge, 1992), 69–82; Gaskell, *New Introduction*, 57–77 (especially 60–6); E. A. Heawood, 'Paper Used in England after 1600', *The Library*, iv, 11 (1931), 274; P. Needham, 'Allan H. Stevenson and the Bibliographical Uses of Paper', *Studies in Bibliography*, 47 (1994), 23–64; A. H. Stevenson, 'Paper as Bibliographical Evidence', *The Library*, v, 17 (1962), 197–212; Stevenson, *The Problem of the Missale Speciale* (London, 1967), 26–99; Stevenson (ed.), *Briquet's Opuscula: The Complete Works of Dr. C. M. Briquet without Les Filigranes* (Hilversum, 1955), xxxiv–xliii; G. T. Tanselle, 'The Bibliographical Description of Paper', *Studies in Bibliography*, 24 (1972), 27–67; W. A. Weiss, 'Watermark Evidence and Inference: New Style Dates of Edmund Spenser's *Complaints and Daphnaïda*', *Studies in Bibliography*, 52 (1999), 129–54; W. P. Williams, 'Paper as Evidence: The Utility of the Study of Paper for Seventeenth Century English Literary Scholarship', in S. Spector (ed.), *Essays in Paper Analysis* (Washington DC, 1987), 191–9; D. Woodward, *Catalogue of Watermarks in Italian Printed Maps ca.1540–1600* (Florence, 1996). For those with German, there is also P. F. Tschudin, *Gründzüge der Papiergeschichte* (Stuttgart, 2002).

¹¹ See, for instance, K. Greene, *The Archaeology of the Roman Economy* (London, 1986); T. Helen, *Organisation of Roman Brick Production in the First and Second Centuries AD: An Interpretation of Roman Brick Stamps* (Helsinki, 1975).

books and manuscripts, to the extent that it was for many years the ordinary stock of the publishing trade, and a standard grade of writing paper.¹² Thus, when a printed book is not on pot this may be of interest: it could be a matter of scale (a large folio might be printed on crown), or the difference might represent a social or political statement, and a financial investment. All paper with the pot mark is c.305 × 400 mm untrimmed, which is why most folio books from the period are c.290–95 × 190 mm, and the typical quarto volume is c.190 × 140 mm after having been cropped during binding. From the eighteenth-century, larger presses and paper sizes changed the shapes of books.¹³ The pot watermark could have a half crescent with five baubles above, or a small bunch of grapes; there is usually one handle, sometimes two, the initials of the maker, and perhaps a letter to indicate the place of origin. The chainlines are generally spaced between 18 and 21 mm apart (and, at most, c.27 mm), and the pots vary in size, although c.75 × 35 mm is common. Such permutations allow for an extraordinary variety of specific detail.

With a printed book of some size, it is normal to find at least two stocks of paper and often more (remembering that every stock will have twin marks from related moulds), because concurrent activity depleted and replenished the paper supply. Where special copies were produced for patrons and friends, the same settings of type might also be printed off on two different stocks of paper: one large or fine (often crown) for presentation copies; the other ordinary (usually pot) for the remaining copies intended for commercial sale. Printers always had stocks of paper on hand, and whilst new supplies were brought in for new books according to the size of the edition and the number of sheets per copy (a ream per sheet giving an edition size of c.480–500 copies after wastage), older paper would generally get used first, so that the stock was replenished rather than being specifically allocated for each book. Hence, a special job can be identified by the homogeneity of its paper stock and its difference from the rest of the output at that time. With manuscripts, multiple paper stocks from different sources typically indicate that the document was built up in different stages.

A book like the first edition of Sidney's *Arcadia* clearly shows the changes in paper stocks during its production: the first, with the initials EO is found until gathering V, when it is mixed with another stock that has the initials SR (figure 2.1). A third paper, with the initials AA, was used

¹² See, J. Bidwell, 'French Paper in English Books': J. Barnard and D. F. McKenzie (eds.), *The Cambridge History of the Book in Britain, IV: 1557–1695* (Cambridge, 2004), 583–601.

¹³ D. F. Foxon, *Pope and the Early Eighteenth-century Book Trade*, rev. and ed. J. McLaverty (Oxford, 1991), 19–21 and 52–4 details Pope's concern with the qualities and sizes of paper.

from gathering 2E onwards. The shapes of the pots are quite distinct, with the width between the chainlines differing quite markedly as well.

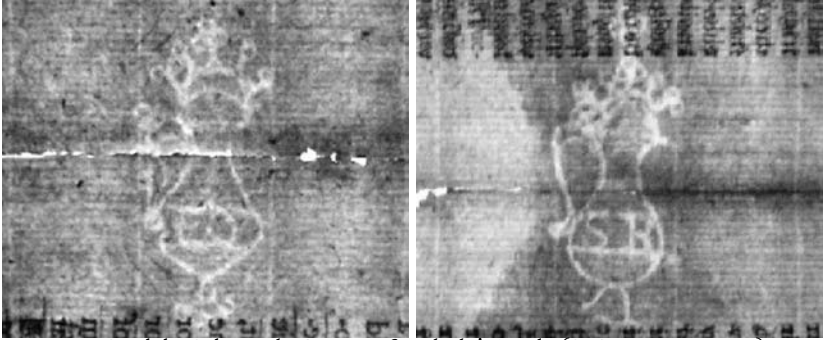


Figure 2.1 Sir Philip Sidney, *The Countesse of Pembroke's Arcadia* (STC 22539–39a; 1590), L4–5 & 2A3–6. Backlit photographs of EO and SR pot watermarks (personal collection, reduced).

With images like these, it is possible to compare the paper of other books printed by Windet during 1588–90 with the *Arcadia*. Together with information relating to entry and publication dates, as well as ornament and type damage, watermarks help to map the history of the book in the printing-house. Whilst any reconstruction cannot be exact, the paper will indicate those concurrent materials that are relevant to the history of a particular volume. All early modern printed books must be assumed to have been in concurrent production with other material unless there is overwhelming evidence to the contrary.

Watermark analysis requires precision. The technical aspects of this can discourage scholars from attempting detailed reconstructions of the available data and often drawings are used. A drawing is a starting point for collecting related images, and is always helpful if combined with accurate measurements; it will not serve to distinguish one nearly similar tray from another; that, only photography and beta-radiography can do: thus, many paper studies lack the precision and detail to facilitate the scholarship that they imply is possible. With photographic images, we can begin to reconstruct the history of when paper from a given batch was most commonly used. Of course, only a few sheets from a batch can be traced; nevertheless, examples can be identified and recorded to establish useful concentrations of relevant data, and to identify where comparative material is to be found.¹⁴ This is possible because all hand-made paper preserves the information of its making and history.

¹⁴ For a useful collection of essays, see D. W. Mosser, M. Saffle, and E. W. Sullivan II (eds.), *Puzzles in Paper: Concepts in Historical Watermarks* (New Castle DE and London, 2000).

The Paper Trade

Much archival work on the early paper trade remains to be done.¹⁵ The centres of production have been studied, however less is known about the commercial aspects of the business. We know how much paper was imported into Britain in the late sixteenth and seventeenth centuries, where it came from, the physical aspects of how it was sold, in what sizes, and for how much. Prior to the late seventeenth-century, however, we have very little real feeling for the distribution networks, the identity of all but a few wholesalers, or the geography of going and buying a quire or ream from a stationer (particularly if the retailer was not a member of the Stationers' Company, and not in London); nor do we know the extent to which printers, publishers, and other booksellers relied on paper sales as a significant part of their commercial turnover.

Paper was produced in almost all of Western Europe, except Britain, by the mid-fifteenth-century, where sporadic attempts to achieve an economically viable business began soon after.¹⁶ The best-known mill was set up by John Spilman near Dartford, Kent, in 1588. This provided the ordinary paper for Jonson's *Sejanus* (large paper copies were also printed), but there is no evidence of this paper being employed for other printed books, and its appearance in manuscripts is rare.¹⁷ The domestic mills were not, it must be emphasised, a major source of supply for the white paper trade until the later seventeenth-century (they did make brown wrapping paper, but how much we do not know). Rather, the different sources for the paper used in English books and manuscripts is revealed by watermarks from the Low Countries, northern France, Burgundy, Switzerland, Italy, and, during the first decade, Spain.

The fact that Britain relied on imported paper for almost all of its writing and printing needs before the end of the seventeenth-century allows the growth of the trade to be mapped from the records in a way that would not be possible for domestic production. The population, in

¹⁵ See footnote 10 for the primary sources. An exemplary recent article is C. Fahy, 'Paper Making in Seventeenth-Century Genoa: The Account of Giovanni Domenico Peri (1651)', *Studies in Bibliography*, 56 (2007, for 2003–4), 243–59.

¹⁶ See, A. Stevenson, 'Tudor Roses from John Tate', *Studies in Bibliography*, 20 (1967), 15–34.

¹⁷ For instance, Sir William Cornwallis, the essayist, to John Donne: MS Tanner 306, ff.237–8. Also, T. Churchyard, *A sparke of friendship and warme goodwill. Whereunto is ioined a description of a paper mill, of late set up* (STC 5257; 1588); T. O. Calhoun and T. L. Gravell, 'Paper and Printing in Jonson's *Sejanus* (1605)', *Papers of the Bibliographical Society of America*, 87 (1993), 13–64. The paper for the Jonson quarto may have been bought when Spilman received his knighthood: A. H. Shorter, *Paper Making in the British Isles: An Historical and Geographical Study* (Plymouth, 1971), 16. Spilman may also have been responsible for some unwatermarked paper in English books: e.g. A. Dent, *The Ruin of Rome* (STC 6640; 1603).

1600, was approximately 4 million; by 1700, it was perhaps 5 million. Over the same period, the consumption of paper tripled. In the 1580s, paper imports were running at approximately 40,000 reams annually; by 1620, this had doubled to c.80,000 reams (suggesting a median of c.60,000 reams for 1600). By the mid-1630s imports were running at c.95,000 reams annually; by the 1660s, this had increased further to nearly 120,000 reams (with a peak of 154,000 reams in 1668 when paper stocks were replaced after the Great Fire, which suggests that the trade kept about three months' supply in hand). The annual imports for the last years of the seventeenth-century (when Dutch mills had replaced the French as the main source for paper) are more variable, oscillating around 180,000 reams.¹⁸ This growth reveals more than the sustained growth of the book-trade; it must represent a significant increase in manuscript use: not only were people using more paper, a greater proportion of the population as a whole used more paper. Thus, as a measure of the impact of widening literacy amongst all social classes, paper imports provide an inherently crude, but revealing picture of the scale of the changes taking place.

The diversity of supply, the differing requirements of personal and commercial use (including the way in which paper could convey social and economic status), ensured that not all paper was the same size, or the same quality. In their origins, the sizes of paper reflected the differences between various kinds of animal skins,¹⁹ as well as the physical constraints of the process by which paper was made. The grades were assessed for taxation at different rates. Of the sizes other than pot, crown was c.350 × 460 mm, and royal c.440 × 600 mm.²⁰ Royal was rarely employed before the eighteenth-century, although in 1600 a shipment was cut into half-sheets, and this appears in a number of books at different printing-houses.²¹ Between those mentioned, other sizes were available: Italian flag paper measured c.313 × 432 mm, a size that was generally associated with foolscap, and paper with a grapes watermark. Demy (c.380 × 500 mm), medium (c.420 × 520 mm), and imperial (c.700 × 500 mm) were all larger sizes of paper—the last, the largest practical size of tray that a vat-man could physically work with.

¹⁸ D. C. Coleman, *The British Paper Industry 1495–1860: A Study in Industrial Growth* (Oxford, 1958), 13 and 21.

¹⁹ G. Pollard, 'Notes on the Size of the Sheet', 105–37 esp. 110–15; also, E. J. Labarre, 'The Sizes of Paper, Their Names, Origin and History', in H. Kunze (ed.), *Buch und Papier: buchkundliche und papiergeschichtliche Arbeiten* (Leipzig, 1949), 35–54.

²⁰ Gaskell, *New Introduction*, 73.

²¹ Thus, the first edition of *Every Man out of His Humor* (STC 14766; 1600) should correctly be described as a royal octavo in fours.

Before 1690, imported paper was taxed at 5 per cent of the assessed value per ream (the actual price could, of course, be higher). The differences between the rates for various sizes of paper are quite revealing as to how paper reflected issues of use and status: whilst the assessed value for printing and ordinary paper increased by 80 per cent between 1604 and 1660, the rates for other papers, including foolscap, broadly tripled.

GRADE (per ream)	1604	1660
Brown	1s	3s
Blue	4s	10s
Pot (Printing and Copy)	2s 6d	4s 6d
Foolscap	2s 6d	7s 6d
Rochelle	3s	9s
Demy	4s	12s
Royal	6s 8d	20s

Source: D. C. Coleman, *The British Paper Industry* (Oxford, 1958), 123.

For high-quality paper, the actual cost of a ream could be far higher than the assessed value. A bill from Robert Barker, to Sir Thomas Smith for the House of Lords, dated 10 February 1603 (i.e. 1604), priced three reams of fine paper (i.e. Italian flag) at £1 10s, or 10s a ream, compared to the 2s 6d that was usual for foolscap.²² Whilst for most paper the assessed and real costs are likely to have been more closely aligned, this does suggest that the use of assessed rates is likely to understate the true cost of paper as a component of book or manuscript production.

Towards the end of the seventeenth-century, the trade underwent a period of transformation.²³ The war with France from the mid-1660s led to interruptions in supply and finally to a tariff regime against imports. Between 1690 and 1700, the tax was increased to 10 per cent; and, after 1700, to 15 per cent in order to protect the new domestic industry.²⁴ Local sources of production (at first sporadically, and at the cheaper end of the market) started to proliferate, resulting in different, local watermarks in English books and manuscripts.²⁵ At the same time, the replacement of presses after the Great Fire, and the impact of Stamp Duty in the early eighteenth-century led to the use of larger sheets, sometimes cut in half, and (owing to the iron press) larger platens.²⁶ The rapid expansion of

²² Beinecke Library, Yale University, MS Osborn fb 159, f.41r.

²³ For a detailed account: J. Bidwell, 'French Paper in English Books', 583–601.

²⁴ Coleman, *The British Paper Industry*, 66 and 122.

²⁵ P. Gaskell, 'Notes on Eighteenth Century British Paper', *The Library*, v: 12 (1957), 34–42;

²⁶ Pollard, 'Notes on the Size of the Sheet', 130–5.

the book-trade during the eighteenth-century, bolstered by exports to North America, underpinned this new manufacturing capacity and eventually forced the introduction of the first industrial methods. What remained consistent was the growth in paper use driven by the activities of a group of people who filled their leisure with novels, newspapers, histories, diaries, and correspondence, and a book-trade that (freed from licensing) catered for the conspicuous consumption of print and the formation of libraries as an index of civility and taste.

The Manufacture of Paper

Paper was made from the fibrous remains of linen and cotton rags. Wood pulp was not used until the mid-nineteenth-century. The way in which paper was made, on a wire tray, limited the size of the sheet to that of a tray that could be handled within a single person's arm-span, bent at about 120 degrees (i.e. c.700 mm: any wider and it would be both too heavy and too deep to manipulate and shake). These techniques continue to be preserved as several mills have been turned into working museums.²⁷

The rags for paper were rotted for four or five days, cut up, blanched with running water, and pulverized until the fibres had broken down; the process was then repeated two or three times depending on the quality of the paper.²⁸ From a modern perspective, the process seems laborious but it took less than half the time required to prepare parchment; hence, the early success and spread of paper mills. The pulp, once it had been washed clean, was poured into a vat with more water added until it was like porridge. The vat was c.1,600 × 800 mm and contained 1,500 litres (330 gallons): it was warmed by a fire to its side and occasionally stirred. During the eighteenth-century cutting with rotating knives replaced stamping (this speeded the process and created paper with shorter fibres that made it better for some applications than others), otherwise the technology remained the same. Paper production thus required a good supply of rags and plenty of running water.

Papermaking required three people to work as a group: a vat-man, a coucher, and a layer. Their tools were a pair of trays, a pile of felts, and a press. The tray was made up of fine wires running horizontally and thicker vertical wires (known as chains) spaced 18–30 mm apart. Onto

²⁷ Several museums have websites: www.museodellacarta.com, www.museodellacarta.it, and www.papiermuseum.ch are three of the best; also, www.paperhistory.org/museums.

²⁸ This is an abbreviated account of the process as described by Gaskell, *New Introduction*, 47–50.

the wires was stitched the mark that represented the size of the sheet, place, or quality, and usually the maker's initials. The outer edge of the tray had a thin frame that covered the edge or deckle. The vat-man would dip the tray in the vat, spread the pulp evenly, and give a shake in one direction and then the other in order that as much water would drop through as possible. He then passed the tray to the coucher, who removed the rim and turned the paper upside down onto the felt. Thus all paper has a felt side, and a wire side, the latter being slightly less smooth than the former. While the coucher flipped the sheet onto the felt, the vat-man would take a second tray and repeat the process. The two trays would alternate between the coucher and the vat-man.

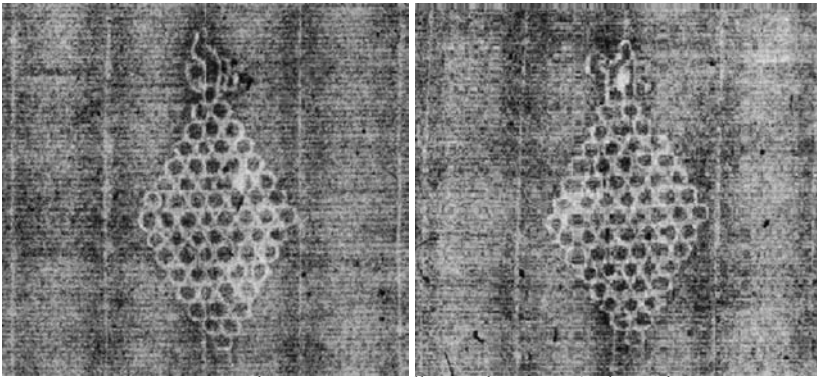


Figure 2.2 Grape watermarks, c.1633–4. Bodleian Library, Oxford, Rawlinson Poetry MS 31, ff.8 and 11 (beta-radiograph, reduced).

As a consequence of two trays alternating, all watermarks have a twin from the other tray that is very similar to, but not exactly the same as the first because the trays are hand-made.²⁹ In the example above, the 'GR' initials are placed differently against the stalks, and in the left image the bunch touches the chainline, whereas the other does not (figure 2.2). There are further subtle differences such as distances between the chainlines.

Once a pile of sheets has been accumulated, the layer took the pile to a press, where the workmen squeezed it firmly. After the paper had been pressed, the felts were separated from the paper which was pressed again, then hung out to dry. The sequence of the trays would therefore be shuffled. In this state the paper, known as waterleaf, was like blotting paper. Thus, it had to be dipped in size (i.e. gelatine), to fix it for writing or printing on (hence the existence of rag-and-bone men,

²⁹ See, A. H. Stevenson, 'Watermarks are Twins', *Studies in Bibliography*, 4 (1951), 57–91.

who collected the rags for the paper and the bones and leather for the gelatine from butchers and tanners). The paper was pressed once more, hung out to dry, and then pressed again. By this stage, the texture was dense and the sequencing of the marks irregular. Very occasionally, two sheets remained stuck together from the pressing; hence those copies of books where the recto of a leaf is on one sheet and the verso on another with two blank pages in between.³⁰ If the paper was primarily to be used for writing it might be hammered or rubbed smooth to give a finer surface finish. Both printing and writing paper were produced from exactly the same trays. It is how they were finished and used that distinguishes them, not the trays on which the pulp was laid. For a very common watermark such as pot, where the same trays might give rise to paper for both manuscript and print, the coincidence of origin and, therefore, supply and date is a useful fact to bear in mind.

A ream of paper was made up of 20 quires, each quire having 24 (in Britain and Holland) or 25 sheets (as in France and Italy), and weighed about 14 lbs for pot and twice as much for royal.³¹ The quires were usually folded in half for packing, storage, and shipment, and some outside leaves could be damaged in transport, so that the usable quantity of paper was generally slightly less than the 480 or 500 sheets implied. It is at this stage that the watermark served its original purpose to identify the mill that had made the paper, together with its size and grade, in order that what had been sent to the merchant could be identified.

Paper as Evidence

Paper provides information about the origins and creation of books and manuscripts for two reasons: first, because the trays engaged to make paper had to be repaired or replaced regularly and so can be distinguished from one another; and, second, because the signs of manufacture (the chainlines, wires, and watermarks that left their images in the sheet) are independent of the contexts and circumstances in which the paper was used. It is the coincidence of text, or image, with paper that is informative and significant. When paper is used, in manuscript, print, or art, it possesses both the evidence of its use, and the image of the tray that made the sheet to which that text or image is fused. Thus, the processes and traces of textual replication (the details and idiosyncrasies of script, type,

³⁰ Thus, R. Greene, *Pandosto* (STC 12288.5; 1609): Folger Shakespeare Library, Washington DC, STC 12288.2, sheet E.

³¹ D. J. McKitterick, *A History of Cambridge University Press: Volume 1, Printing and the Book Trade in Cambridge, 1534–1698* (Cambridge, 1992), 15.

or image) are quite separate from the details of the paper being used. This means that paper is informative as to where and when a document came to be, in that it can be matched to other documents with paper from the same tray that were used in other contexts. What we typically want to know is when and why paper and text or image became connected.

There are five pieces of information that a bibliographer needs to establish when studying paper in order to identify the date, or origins of a document: first, where the paper was made and, second, its quality (the two are generally related), in order to understand whether its use is conventional, out of the ordinary, or else in some way socially or pragmatically indicative of its history; third, an accurate tray image (watermark and chainlines) is required, in order to establish a precise point of reference; fourth, a list of similar datable examples should be made so that the relationship of the document being analyzed with other books and manuscripts that share the same batch, or batches, of paper in their making can be assessed; fifth, whether there are any other relevant examples of the paper, especially those that can be associated with the circumstances under which the document of interest was produced. In piecing together this puzzle, it is necessary to account for what is inconsistent or unusual as well as for the evidence that corroborates a date, or identifies responsibility, for any material.

The reliability of paper evidence is sometimes doubted owing to the chance that a 'rogue sheet', or stock of paper might get used long after the rest of a batch. While this is possible, the argument assumes that this would suffice to undermine the analysis of all association by date, or origin, in a way that invalidates both the reasons for, and the results of, any comparison. This is to set a possible witness against all the material that accurately reflects its history. What the critique also fails to do is address the ways in which paper acts as a control against other assumptions that have been made. What has yet to be quantified is the incidence, and recurrence, of stray sheets amongst datable material (e.g. letters), and the distance of the stray from the implied normal result (i.e. the core group of identical watermarks that share a closely related date).³² In this respect, a study of flag watermarks over a 40-year period has indicated that whilst material can be misdated, rogue sheets are rare enough that one has yet to be found. The exception taken to paper evidence is, at best, an important caveat against carelessness.

³² For instance, it ought to be possible to analyze the watermarks of the correspondence in the State Papers, Cotton, Lansdowne, and Tanner manuscripts and calculate the number of strays against the number of items as a whole. Further, one could then calculate the average variance of a stray to the main group of dates for any given watermark.

A stray is a sheet of paper that was used more than five years after paper from the same tray first circulated. By that time, most paper from a given tray ought to have been either used or bound for occasional use as table books, miscellanies, commonplace books, and so on. Standard statistical probability indicates that 95 per cent of data ought to fall within two standard deviations of a mean, and 99.7 per cent of data within three standard deviations of that time.³³ The period from when a given watermark first appears (i.e. when the paper was imported) to when it ceased to be sold was usually no more than 8–12 months. That means that most examples of a watermark will fall within a two–three year period. After three years, no more than three reams out of 1,000 would not have been used at all, and most of those sheets would not be unbound quires, but a few sheets or singles; after five years, the number of unused sheets would have been very small, and the possibility of one or two unbound quires being available en bloc a very rare occurrence. Unless it is demonstrable from a date, or the history of a document, the notion that a block of loose paper might have survived 15 or 20 years before being used goes against all statistical probability. Rather, related historical and textual evidence is more likely to enable a document to be dated with greater precision within the two–three-year period of its known associative use.

The incidence of stray paper is less likely from sources where there was regular use (be it a printing-house, scrivener's workshop, political or private secretariat, and so on). In rural and private contexts outside the court and universities, greater inconsistency is inevitable as the extent of domestic activity varied. With a printing-house, where the turnover of paper stocks was rapid, it is theoretically possible that a ream or two could have sat in the warehouse, but unlikely. In that instance, a book might contain sheets that were printed some years before the rest of the volume. When paper evidence is inconsistent in this way, what needs to be distinguished is a late use of paper in a book where everything was printed over a limited time-span, from a book that contained material that was printed earlier than the rest of the volume.³⁴

If we assume, for a moment, that sheet E of a book is on older paper than the other sheets, then whether the difference proves significant, or not, would depend entirely on what it told us. If the book was entered in 1612, or has an imprint of 1612; perhaps manuscript annotations that it

³³ Any number of statistical studies could be cited in support of this, but for convenience, see: D. Freedman, R. Pisani, and R. Purves, *Statistics*, 3rd edn. (New York, 1998), 57–96. Of course, the distribution will be slightly skewed, as the paper could not be used before it was imported, but this detail is not so significant as to vitiate the principle set forth.

³⁴ Thus *Titles of Honor* (STC 22178; 1631) was started in 1621 and resumed a decade later.

was bought in that year; then there would be no reason to doubt that an older ream had been located and used, and that sheet E was produced at the same time as the rest of the book. The 'stray' paper would be an unused ream. However, if the book was a reprint, first published in 1606, then one would check whether the sheet was reset, or whether an extra run of copies had been printed some years before. In that case, the non-contemporary watermark would verify that the sheet was printed in 1606, rather than reset or reimposed on fresh paper six years later.

Not all books are created at once and paper can be a witness to this fact. A manuscript might start out as a booklet, and then have another block or two of paper added; it may even eventually have some of that paper removed. The evolution can be traced through a combination of the pagination, the variations in script and ink, and their association with different paper stocks. The chronological variation does not, in this case, indicate stray sheets but rather the history of the manuscript in its various stages of preparation.

A dash of scepticism, and a drop of incredulity, applied judiciously, will always serve as useful correctives to analytical narratives that seek to clarify the material and temporal contexts within which a document was prepared. Physical details, like archival records, need to be understood as corroborative forms of information that gain meaning from contexts that are more complex than we like to assume. With manuscripts, the ability to indicate a date range, such as 1610–12 compared to, say, the 1620s, generally suffices. The problem is not the material evidence itself, but the assumptions that are made about watermarks, often owing to carelessness. The issues that need to be faced are the need for exact detail; and a frank recognition of what the analysis is trying to achieve.

There are four main ways in which paper evidence can be used. First, it may alter assumptions about the relationship among documents that have been associated with one another. Used in this way, the study of paper is a tool for scepticism about the production history of texts. Thus, if it is claimed that several books in a sequence were all printed seriatim, but the items were printed in different fonts with the paper evidence suggesting that the books were connected with one another in specific ways, then we might wish to re-evaluate the analysis of printing-house activity with a view to remodelling the production sequence in line with the prevailing practice of concurrent activity.³⁵ Second, paper may independently corroborate links between documents in a group: if we know A, B, and C, to be written by the same person on the

³⁵ See pp. 141–8 below for a discussion of this in relation to the 1608 quarto of *King Lear*.

same supply of paper, and we suspect the anonymous document D to be written by that person owing to common scribal practices and idiosyncrasies, then if they all derive from the same stock of paper, that ought to increase our certainty that the attribution is correct because the paper is independent of the script. Third, we might want to know about the social history of paper as a commodity and whether its use can be associated with a specific group: for instance, c.98 per cent of paper employed in England in the early seventeenth-century was French, and Italian paper appears to have been most favoured by people associated with the court.³⁶ This kind of information is helpful when determining the history of an undated document, as it specifies a context and, therefore, a potentially fruitful direction for further investigative efforts. Fourth, we might want to fix a series of documents at points in time, often because we need to know the sequence they were written in, but sometimes for reasons of textual analysis as well: for instance, if the paper of a manuscript shows it to be earlier than a group of copies that it is generally associated with, then this may be an indication that that first manuscript is related to an earlier stage of the transmission process. This would appear to be true of British Library Harley MS 4064.

Commonsense will usually deal with the apparent exceptions should a watermark fall outside the period in which it might be expected. Most paper was used by, and by far the greatest volume of surviving evidence derives from, (semi-)professional writers who were highly educated: the nobility, court officials, secretaries, authors, academics, students, clergy, lawyers, scribes. The other main consumer of paper was the printed book-trade. In England, in 1600, the trade accounted for about 20 per cent of paper used; by 1700, overall consumption had tripled, and print made up perhaps 30 per cent of this.³⁷ Of course, some paper was wasted, and some served as scrap paper, but there is an immediate and apparent difference between a formally prepared manuscript, or letter, and some jottings on an old piece of paper. Similarly, if one is dealing with an irregular user that fact needs to be taken into account.

It may seem counter-intuitive, but most paper with a date other than that indicated by other examples of the same watermark often reveals that previous assumptions about a document were wrong, and that it was written later (not earlier) than had been assumed. For instance, a

³⁶ M. B. Bland, 'Italian Paper in Early Seventeenth Century England', *Paper as a Medium of Cultural Heritage: Archaeology and Conservation*, ed. R. Graziaplina (Rome, 2004), 243–55; import figures can be found in Coleman, *The British Paper Industry*, 18–21.

³⁷ See, M. B. Bland, 'The London Book-Trade in 1600', *A Companion to Shakespeare*, ed. D. S. Kastan (Oxford, 1999), 450–63.

letter from the Earl of Pembroke to Sir Michael Hicks, dated '8 May', requesting a six-month extension to a loan, was dated by a later hand as having been written on 8 May 1601 and so bound in the sequence of his correspondence. Hicks, however, was not knighted until the coronation in 1604, and the watermark indicates a date of 1607. There is another letter by Pembroke dated 14 November 1607, again deferring the loan. Textually, and historically, we might well infer that the letter is out of position, but the watermark is absolute evidence that this is so and that the two letters are related. Similarly, a formal copy of the secret negotiations between England and Spain from the early 1630s, dated 12 January 1631, is in fact a copy made c.1642—the flag paper has a rho-lambda countermark that otherwise did not occur prior to mid-1639.³⁸

Methods of Analysis and Description

The analysis of paper depends on the ability to acquire accurate images of the watermarks and chainlines. To begin with, it is necessary to look through the paper. Sometimes holding paper towards a window or a lamp is quite sufficient for the purpose; however, most libraries and archives have specific tools such as light-boxes on which loose sheets of paper can be laid, as well as flat light sheets that are inserted between the leaves of a manuscript or book. When these resources are available, they should be used, both in the interests of conservation, and because they free up the hands to hold a ruler for measurement.

The first obvious thing about paper is its colour and, at touch, its texture: whether it is coarse or smooth, and its weight. Some paper may be subject to discolouration from water-staining or chemical washing (which turns it a pale brown), but most 'white' paper will vary from a milky opalescence through cream, to shades of yellow and brown if displaying signs of ageing. Inevitably, the better qualities of paper are less prone to visible ageing than the cheaper ones and, if they are bound in the same volume as other material they will either appear as dense but not coarse (as with Swiss paper), or lighter and brighter (as the Italian and Spanish papers are), than the surrounding documents.

When paper is backlit, the watermark and wires of the tray should be clearly visible. On a loose sheet, the watermark will be found to one side, so that when it is folded once, as with a printed folio or bound correspondence, it will be in the centre of one of the conjugate leaves; if the paper has been folded twice as a quarto, the watermark will be in the

³⁸ Respectively, British Library, Lansdowne MS 88, f.23; Lansdowne MS 90, f.67; and Bodleian Library, Clarendon MS 5, ff.50-1 and 54-5; see, Bland, 'Italian Paper', 243-55.

gutter of the binding; if the book is in octavo, the watermark will be on the inner top edge and have probably been cropped; and if it is a duo-decimo, it will be on the outer edge. For obvious reasons, it is more difficult to measure accurately watermarks in quarto, octavo, and the smaller formats, unless the sheet is disbound—as the earlier example from the first edition of Sidney's *Arcadia* illustrated. The countermark, if present, is a separate mark on the other side of the sheet, normally towards the bottom, that identified the mill if the main mark was of a more generic type.

The Society of International Paper Historians has set out a standard protocol for the description of watermarks, with an exhaustive list of criteria.³⁹ Many of the categories are concerned with modern machine-made papers. What follows is a synopsis of this standard as it relates to the hand-made period. First, the document needs to be given an identification number or tag, and the repository, the shelfmark (or call number), and the leaf number (e.g. f.37, or C2–3), of the watermark need to be recorded. If the paper can be dated through its text (e.g. if it is a letter, or book with an imprint), this is noted, as should any details, where known, about the author, scribe, recipient, printer, and/or publisher. Second, the size of the sheet (height then width) should be measured in millimetres, and whether it is uncropped, trimmed, or a fragment noted. If the sheet is folded and bound, its dimensions should be multiplied out by the format. If the paper is marbled or coloured it should be so identified. Third, the wire side of the sheet (i.e. the side impressed against the wires and watermark) should be identified and then the felt side, where possible, should be used for measurement.⁴⁰

The second stage in the description of paper focuses on the mark and chainlines, establishing the position of the watermark relative to the tray where this is possible. First, the main mark should be distinguished from the countermark if there is one, and their details should be recorded separately. If the paper is without a watermark, then all that can be recorded is the size of the sheet and the distance between chainlines. Preferably, it should be recorded whether the mark is on the left or right-hand side of the sheet, and where it is positioned, in the middle, or towards the top or bottom. This latter information is usually more helpful for countermarks. Next the image of the watermark is described (pot, pillar, French horn, arms of Burgundy, grapes, double pennant flag, and so on).

³⁹ See, www.paperhistory.org/standard.htm.

⁴⁰ The wire side of the sheet is discussed by A. H. Stevenson, 'Chain Indentations in Paper as Evidence', *Studies in Bibliography*, 6 (1954), 181–95.

The watermark is measured first by height, then by width, with the distance from the edge of the mark to the nearest chainline on the left. Measurements can also be taken of the distance between the right outer edge of the mark and the chainline to the right; and, where the sheet is untrimmed, the distance between the lower edge of the paper and the bottom of the mark, as well as the top of the mark and the upper edge of the paper. Next, the distance between chainlines is measured. Ideally, all chainlines ought to be recorded from left to right, although this is not always feasible. As an absolute minimum, if the mark is between two chainlines, then the distance of the compartments on either side of the central compartment with the mark should be measured (i.e. three compartments); if the mark is located on a chainline and across two compartments, then the distance of the compartments on either side of the two in which the mark is located ought to be measured as well (i.e. four compartments). Additional outer chainline measurements are always helpful.⁴¹ The ruler should then be placed against the chainline to the left of the mark, and the number of wires over 20 mm counted. Finally, it should be added that if the mark is a complex image, it may help to measure the component parts; and that initials, names, or the identity of the papermaker (if known) should be recorded as well.

Finally, it is desirable to have as accurate an image of the watermark and chainlines as possible. There are several methods. Drawing or tracing may suffice for private purposes, but for direct comparison it is necessary to resort to photography, digital imaging, dylux, or various forms of radiography, of which beta-radiography is the most common.⁴² With folios, it is usually preferable that the beta-radiograph have a horizontal (landscape) orientation in order to record the maximum number of chainlines as well as the mark. In part, the option chosen will depend on the resources of the library, and whether the image is easily accessible or hidden behind type or script. For obscured marks, beta-radiography presents the clearest image as it only preserves an image of the paper and not the text, but a number of libraries no longer offer this facility. If the watermark is obscured, and radiography is not available, then one option is to seek another source of the image, and then compare the two to confirm the match.

It is important to realize how subtle the changes between one mark and another can be; and that measurements alone will not enable the

⁴¹ R. L. Hill, 'The Importance of Laid and Chainline Spacing', in M. Zedoun Bat-Yehouda, ed., *Le Papier au Moyen Âge* (Tournhout, 1999), 149–63.

⁴² For a recent discussion, see: A. de la Chapelle, 'La Bêtaradiographie et l'étude des papiers: beaucoup plus qu'une belle image', *Gazette du livre médiéval*, 34 (1999), 13–24.

identification of different marks: what they will do, if all the images are not available, is provide a list of examples to confer with. In particular, it is important to distinguish between marks that derive from different states of the same tray, and those that derive from different trays. This is where the measurement of chainlines proves to be crucial, for marks that derive from different states of the same tray will always have exactly the same distance between their chainlines, even though there has been a shift in part of the image, whereas marks that derive from different trays will have different distances between the chainlines.

In the example below (figure 2.3), the watermarks are twins with grapes that appear to have been affected in the same way by the pressure of the pulp, with the one on the left illustrating the pressure of the pulp on the pillar as the tray is shaken by a right-handed workman. Despite

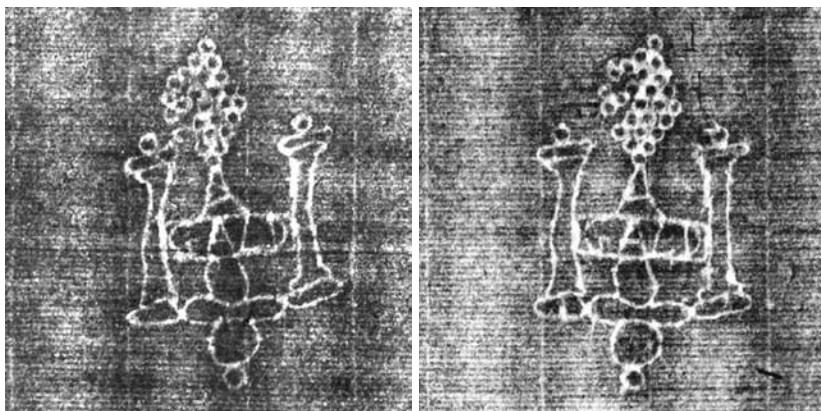


Figure 2.3 Pillar watermarks with grapes, initials GALD, c.1629–30. Bodleian Library, Oxford, Rawlinson Poetry MS 160, ff.53 and 168 (beta-radiograph, reduced).

their similarities, however, they are not variants of the same mark because the distance between chainlines differs from one to the other.

Both these watermarks measure 61×38 mm. The distance between the chainlines for the one on the left is 20, 20.5, 19 and 20.5 mm; the distance between the chainlines for that on the right, 20, 18.5, 20.5 and 20.5 mm.⁴³ In contrast, the two images opposite do represent different states of the same mark (figure 2.4). In this instance, it would appear that the tail of three circles has either come loose from, or been fixed to, the chainline (the right pillar in the left-hand image does show greater signs

⁴³ All the beta-radiographs for Rawlinson Poetry MS 160 are kept as REF XXII.97, together with an analysis of the manuscript by Bruce Barker-Benfield, prepared in 1987.

of wear, which suggests that it may be the later state). The distance between the chainlines for both images is 18.5, 20, 20.5, and 19 mm.

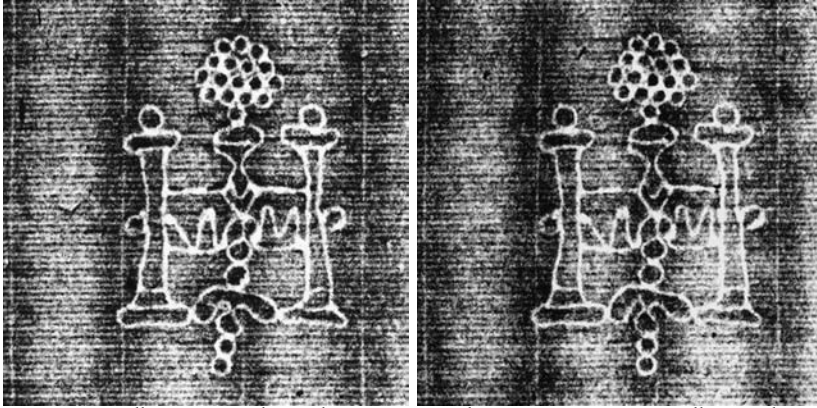


Figure 2.4 Pillar watermarks with grapes, initials MM, c.1629–30. Bodleian Library, Oxford, Rawlinson Poetry MS 160, ff.149 and 208 (bata-radiograph, reduced).

Fine Paper

Italian paper with a flag watermark is the most common fine paper in early seventeenth-century England. Other fine papers have a crossbow, the hat of a monsignor and, earlier, a lotus flower.⁴⁴ Papers with a cross enclosed by a pendant, or three vertical circles, are Spanish: they are rare after the first decade of the seventeenth-century because domestic shortages limited the Spanish export trade.⁴⁵ Spanish and Italian papers have wide chainlines, superior whiteness, and a light texture: Bacon and Northampton, as well as Jonson, had a taste for paper of this kind and used it almost all the time. Only rarely, as with Pope who chose ‘Genoa’ for fine-paper copies of his earliest books, was it used for printing.⁴⁶ The contexts of use indicates how more expensive paper was an index of social and economic status, as only those with access to it, with money and taste, would use or have texts prepared on paper of this kind.

⁴⁴ The lotus flower watermark is found, for instance, in Trinity College, Dublin MS 638: a collection of poems by boys at Westminster School for Queen Elizabeth, prepared c.1586. See also, G. Castagnari, *L’opera dei fratelli Zonghi: l’era del segno nella storia della carta* (Fabriano, 2003).

⁴⁵ See, M. B. Bland, ‘Italian Paper’, 243–55. Both kinds of Spanish paper are to be found in letters sent by John Digby, Earl of Bristol, from Madrid during the Spanish marriage negotiations: thus, Bodleian Library, Oxford, MS Clarendon 4, f.35 (pendant; 18 June, 1623); and f.44 (circles; 24 September, 1623).

⁴⁶ Foxon, *Pope and the Early Eighteenth-Century Book Trade*, 19–21.

Every few years, the flag watermarks would evolve in ways that help to identify an approximate period for their use. The earliest flags are draped around the pole rather than flying from it, the next stage was to have a bulbous base to the pole. At various later stages, this was shaped like a nail, then more angled like a screw and, sometimes, in the 1620s, it was flared like a trumpet or rifle-butt. From the late 1620s, the '3' was repeated twice, and in the late 1630s, a rho-lambda countermark was added. Both the examples, here, are from the 1620s (figure 2.5). The mark on the left is from a contemporary copy of a letter by Sir Thomas Roe to Secretary Calvert, dated 18 October 1624. Overall, the watermark is 52×44 mm; the G is 16.5 mm high, the 3 16 mm high, the distance from the left chain to the G measures 11 mm, and the inner distance between the G and the pole is 3 mm. The compartments are 27 mm and 26.5 mm wide. The mark on the right is found in a letter by John Davenant, Bishop of Salisbury, to Seth Ward dated 4 November 1628. Overall, this mark is 51×43 mm; both the G and the 3 are 14 mm high, the distance from the left chain to the G is 12 mm, and the inner distance between the G and the pole is 5 mm. The compartments are both 26 mm wide.

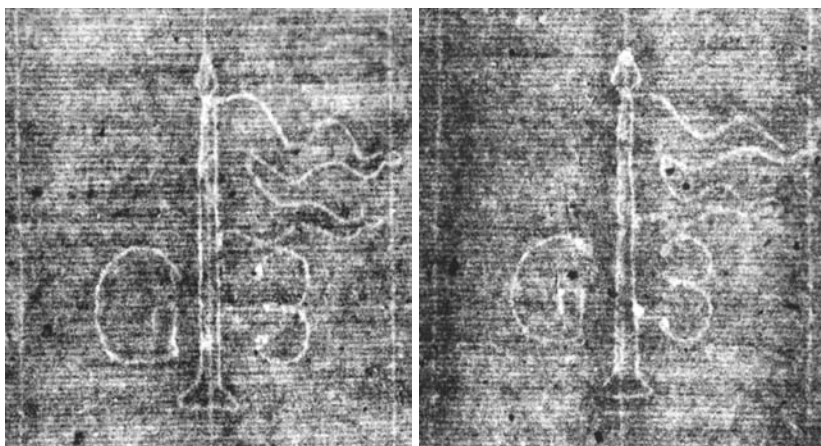


Figure 2.5 Flag watermarks. Bodleian Library, Oxford, MS Tanner 73/2, f.482 (18 October 1624); and MS Tanner 72, f.298 (4 November 1628: beta-radiographs).

A number of important literary documents were written on Italian paper, and this can be an indication of the context in which they were prepared and circulated.⁴⁷ In the following example

⁴⁷ For instance, John Fletcher to the Countess of Huntington (Huntington Library, San Marino, MS HA 13333); Folger Shakespeare Library, Washington DC, MS V.a.125.

(figure 2.6), which has been turned upside down, the flag is visible between the 'hon' of 'honest' to the 'w' of 'swear'.

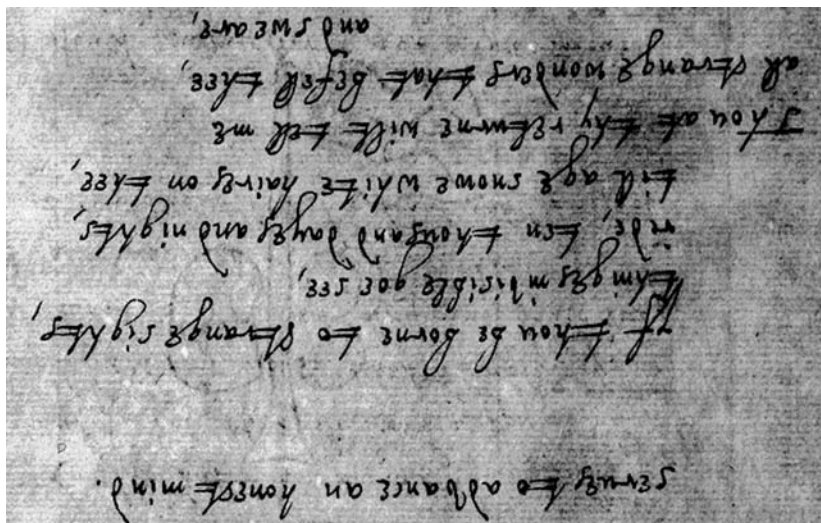


Figure 2.6 John Donne, 'A Songe' (Goe and catch a fallinge starre), scribe not identified: Houghton Library, Harvard University, MS Eng 966.4, f.203^r (photograph).

This manuscript of Donne's poems, together with three sermons and the paradoxes and problems, was probably written c.1624–6.⁴⁸ It is one of a number of Donne manuscripts on fine paper—an aspect of the manuscript tradition that has been little commented upon. It suggests not only that these texts by Donne were valued, but that the source of the texts (a few poems, mainly by Sir John Roe, are included) was thought to be reliable, although the underlying copy must have descended via an intermediary. Similarly, two Group One manuscripts have unusual, high-quality paper stocks, and are written in highly practised hands. The Leconsfield manuscript (Cambridge University Additional MS 5778) is on paper with a circular peacock watermark that is particularly rare in English manuscripts; whilst the Dowden manuscript (Bodleian Library,

⁴⁸ The sermons are on Psalm 38.9 (spring/summer 1618), Ecclesiastes 12.1 (21 February 1619), and Matthew 21.44 (18 April 1619), the last dedicated to the Countess of Montgomery before Donne's departure to Germany. The presence of 'To Christ' ('A Hymn to God the Father') indicates a date after 1623. The paper indicates a date c.1624–6. See also, M. Potter, 'A Seventeenth Century Literary Critic of John Donne: The Dobell Manuscript Re-examined', *Harvard Library Bulletin*, 23 (1975), 63–89; E. M. Simpson and G. R. Potter (eds.), *The Sermons of John Donne*, 10 vols. (Berkeley and Los Angeles, 1953–62), x, 428–30

Oxford, MS English Poetry e.99) is on paper manufactured by the firm of Nicholas Heusler in Basle that has a house and dragon watermark.⁴⁹ A small stock of that paper is also to be found in Huntington Library MS HM198 part 2, mixed in with the main arms of Burgundy paper.⁵⁰ The Huntington manuscript includes poems by Donne, but is more broadly a miscellany connected with the Inner Temple.⁵¹ Both manuscripts were prepared c.1615–18, which is earlier than has been assumed, and both were clearly prepared for a person of some importance. The date is of some significance as it means that the manuscripts were prepared very close to the time that Donne took holy orders.

What these examples indicate is that unusual paper is a sign that a manuscript was prepared with greater care and expense than most: it may suggest that the manuscript could have been the work of an author, a scrivener working to specific requirements, an aristocratic household, or that it may have been especially prepared for a particular patron whose identity may not always be apparent; at which point, both the character of the hand, and its consistency, is of singular relevance. Further, whilst the origins of these manuscripts are yet to be established, the determination of a likely period in which they were prepared, and an understanding of their context, is the first step towards resolving the identity of those responsible for preparing them.

As well as the rarer papers from Italy, Spain, and Switzerland, better and larger papers were available from France. The two most common watermarks are the fleur-de-lys and the arms of Burgundy (the crest having three-quarters with horses rampant, and the maker's initials in the fourth) surmounted with a crown. These are the usual forms of large paper found in most printed books and manuscripts. For example, Trinity College, Dublin, MS 877 was prepared on paper of this kind c.1620 (figure 2.7). This manuscript was half-completed with poems by Donne before being used in the early 1630s as a miscellany. These later additions indicate that the manuscript had associations with the south-west of England. It is possible that the empty half had been intended for prose works by Donne, in much the same way as is found in the Dobell manuscript, as the paper belongs to a single stock. As can be seen, the differences between the twin watermarks of this manuscript are more clearly pronounced than, for instance, Bodleian Rawlinson Poetry 31 (figure 2.2, above) as they are set at different angles from each other; what is

⁴⁹ W. F. Tschudin, *The Ancient Paper-Mills of Basle and Their Makers* (Hilversum, 1958), 177 (mark 294).

⁵⁰ The paper is at ff.31–6 and ff.41–56 of the manuscript.

⁵¹ For a description see pp. 125–6 and figure (127) below.

equally apparent from the images are the ways in which the continual pressure of shifting pulp against the wires gradually distorts the shape of the mark during the life of a tray.

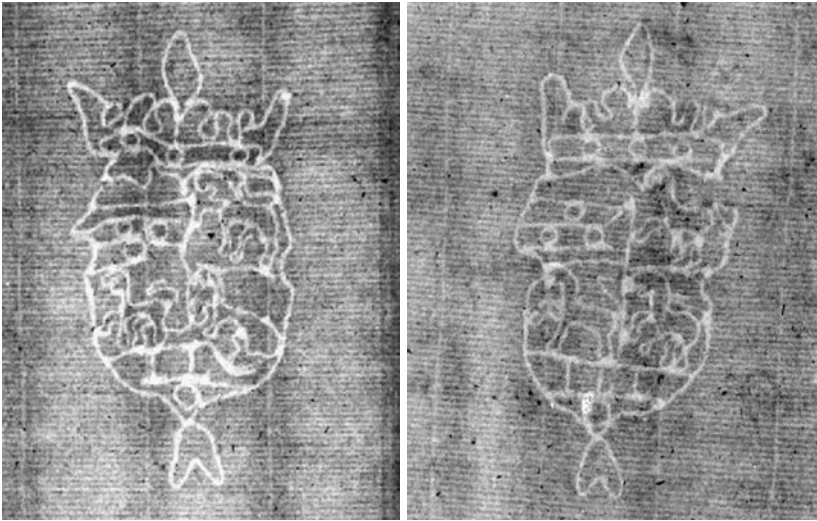


Figure 2.7 Crown watermarks (arms of Burgundy), c.1618–20. Trinity College, Dublin, MS 877, ff.9 and 105 (backlit photographs, reduced).

Large paper copies of printed books came to replace parchment as the premium medium for presentation copies. There are, nevertheless, a few early examples of books printed on parchment, notably the Vatican copy of Henry VIII's *A Vindication of the Seven Sacraments against Martin Luther* that the king later repudiated.⁵² The exceptional nature of this book, its polemical as well as its political purpose, underlines its unique status in the context of commercial book production. In more typical circumstances, a dozen or so special copies were printed on a grade of paper one size larger than the main run. In general, this practice appears to have become more common after 1600. When books were printed on pot, large copies would be printed on crown, as with Jonson's *Workes*.⁵³ There are exceptions: the ordinary copies of Samuel Daniel's folio *Works* (1602) and Michael Drayton's folio *Poems* (1619) are on a smaller than

⁵² Henry VIII, *Assertio septem sacramentorum adversus Martinum Lutherum* (STC 13078; 1521). For an illustration, see A. Grafton (ed.), *Rome Reborn: The Vatican Library and Renaissance Culture* (New Haven CT and Washington DC, 1993), 69–71 (plate 62).

⁵³ B. Jonson, *Workes* (STC 14751–2; 1616). Large paper copies (by STC sigla) include: L.O³⁹.CAL.F(2).HN.PML.PN.TX(2). At least five large paper copies remain in private hands.

usual paper with a unicorn watermark;⁵⁴ it is the large paper copies that were printed on pot. More uncommonly, it would appear that all copies of Isaac Casaubon's *A Response to the Letter of the Illustrious Cardinal Perron* are not only set in great primer but printed with wide margins on crown paper,⁵⁵ the latter being another case of a monarch paying for a special commission. Sometimes, however, there were books that had to be printed on crown, such as Shakespeare's *Comedies, Histories, and Tragedies*. The sheer volume of text to be set required the shift up from pot to crown paper, and the trade seems to have been reluctant to print large paper copies on demy. There are, however, some continental examples of both folios and quartos in demy for important classical texts.

As with many things about the early book-trade, paper use drew upon a series of commonly accepted conventions. Understanding the principles that informed those conventions is relatively simple, in that special items required special paper, and that paper could also reflect social and economic patterns of use. The problem in studying paper is how we might sift the evidence in ways that are productive rather than exhaustive, and exhausting. There are, in fact, at least two methods that can be employed most fruitfully to address this problem: first, by focusing on and mapping the use of fine and large papers in order that the various differences in paper use can be understood, particularly with regard to what might be thought of as either not conventional, or deliberate in some way; second, with paper such as pot and pillar, by focusing on localized and resolvable problems in order that specific reference points can be established and so expanded upon. By sharpening the focus in this way, the diversity and complexity of the information can be made more manageable. In the end, it is this ability to control the information that will lead to greater descriptive and analytical clarity in the study of early modern paper and its uses.



⁵⁴ S. Daniel, *Works* (STC 6236–7; 1601–2); M. Drayton, *Poems* (STC 7222–3; 1619). Also, B. Juel-Jensen, 'Fine and Large-Paper Copies of S.T.C. Books and particularly Drayton's *Poems* (1619) and *The Battaile of Agincourt* (1627)', *The Library*, v: 19 (1964), 226–30; and, 'Fine and Large-Paper Copies of S.T.C. Books: A Further Note', *The Library*, v: 23, 1968, 239–40. Daniel's presentation copy of his *Works* to Queen Elizabeth is now Pierpont Morgan Library PML 15592. At least 12 other presentation copies survive.

⁵⁵ *Isaaci Casauboni ad epistolam illustr. cardinalis Perronij, responsio* (STC 4740; 1612).