

# Patrick Mitchell and Calico Printing in the West of Scotland, 1796–1864

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Calico printing was a major industry in Scotland in the nineteenth century. Today, many former works have been demolished and archival records are limited. Consequently, records documenting Patrick Mitchell's entire career as a calico printer, from apprenticeship to printworks owner, are a rare survival. They contain a wealth of information about printing practices and business management while preserving names of those who worked in the industry. However, the geographical dispersal of the records between repositories and limited detail in the catalogue listings hamper access and use. In particular, the records' rich visual contents are invisible to those browsing the catalogues. This article demonstrates the diverse research potential of these records and proposes a collaborative approach to cataloguing, involving archivists and textile heritage experts, to facilitate access and research.

Travelling past the hamlet of Milton on the north shore of the River Clyde in 1792, English traveller John Lettice's attention 'was arrested by a considerable fabric for the printing of linens and cottons'.<sup>2</sup> Shown round by the works superintendent, Lettice and his party watched the printers methodically dipping their foot-long pattern blocks in the colour tub and admired the expertise of the female pencillers.<sup>3</sup> Milton printworks had commenced operation in 1787.<sup>4</sup> Textile printing continued uninterrupted on the site until 1864, when the works closed. Records concerning Milton printworks and the career of Milton's long-term owner, Patrick Mitchell, contain a wealth of detail about calico printing in the West of Scotland in the first half of the nineteenth century. Now held by two repositories, standard title/date catalogue descriptions mask the riches within. Emergent mixed-method research approaches combining textual, visual, historical, and chemical analyses offer new modes of understanding evidence from textile pattern books and colourists' recipe books, and open further

<sup>1</sup> Prize-winning essay in the Scottish Records Association's Tunnock Prize, 2022.

<sup>2</sup> J. Lettice, *Letters on a Tour Through Various Parts of Scotland, in the Year 1792* (London, 1794), 192.

<sup>3</sup> Ibid., 196.

<sup>4</sup> The business was established by James Provand & Company, Glasgow: B. McDade, *A Brief History of the Village of Milton* (1999), 23. Milton printworks, by Dumbarton, is distinct from another site called Milton, established at Alexandria by Todd & Shortridge in 1772 as a bleachfield and yarn-dyeing works. Archibald Orr Ewing purchased Milton dye-works in 1850 and used it for Turkey red and fancy yarn dyeing: 'Industry in the Vale of Leven – Page 2', *The Vale of Leven* (2022), <http://www.valeofleven.org.uk/valeindustry2.html>.

possibilities for study and dissemination of the Mitchell/Milton records. Such research would be expedited by the inclusion of a brief overview of each record's contents in the finding aids.

The first printfields in Scotland were established in the 1720s along the Water of Leith. The industry subsequently took hold around Aberdeen, Perth and, in particular, Glasgow;<sup>5</sup> by the 1780s, the West of Scotland had become a major centre for calico printing.<sup>6</sup> The industry peaked in Scotland in 1851, when eighty-one printworks were in operation.<sup>7</sup> Scots were leaders in developing new textile finishing machinery, power systems and chemical agents.<sup>8</sup> Printing required copious amounts of clean water and works clustered along waterways such as the Cart, Clyde, Leven and Blane.<sup>9</sup> The soft, abundant water of the River Leven was particularly valued for Turkey red dyeing and printing, and the Vale of Leven became synonymous with this complex process, which produced a bright, colourfast red on cotton. Turkey red production in the Vale was dominated by three firms: William Stirling and Sons, John Orr Ewing & Co. and Archibald Orr Ewing & Co.<sup>10</sup> Their success has commanded most attention from researchers investigating textile printing in the West of Scotland.

The historical study of Scotland's textile printing industry has been intermittent. It was established in the late nineteenth century by parish and county histories such as D. MacLeod's survey of Dunbartonshire (1886) and J. Cameron's *Calico Printing in Campsie* (1892). R. A. Peel's account of Turkey red dyeing and printing (1952) was taken forward by N. Tarrant's research in the 1970s and 1980s, and subsequently by S. Tuckett, S. Nenadic and J. Wertz, among others. Other areas of printing, including calico printing, received attention from F. Irwin in the 1960s, then, from the 1980s onwards, V. Habib, A. J. Durie, S. Downie, S. M. Nisbet and others.<sup>11</sup> Yet, writing in 2008, Nisbet

<sup>5</sup> F. Irwin, 'Scottish Eighteenth-Century Chintz and Its Design – I', *The Burlington Magazine*, 107:750 (September 1965), 452–8, 456.

<sup>6</sup> Calico is a lightweight, plain weave cotton.

<sup>7</sup> A. Cooke, *The Rise and Fall of the Scottish Cotton Industry, 1778–1914: The Secret Spring* (Manchester, 2010), 93. In 1851, 40 per cent of Britain's printworks were in Scotland.

<sup>8</sup> *Ibid.*, 103.

<sup>9</sup> G. Turnbull and (ed.) J. G. Turnbull, *A History of the Calico Printing Industry of Great Britain* (Altrincham, 1951), 107, 110.

<sup>10</sup> S. Tuckett and S. Nenadic, 'Colouring the Nation: A New In-Depth Study of the Turkey Red Pattern Books in the National Museums Scotland', *Textile History*, 43:2 (2012), 61–182, 163; J. Wertz, 'Turkey Red Textile Dyeing in Glasgow: A Cross-Disciplinary Investigation into Scotland's Bygone Industry', *Scottish Business and Industrial History*, 29:2 (2014), 74–97, 89.

<sup>11</sup> See, for example, D. MacLeod, *The Clyde District of Dumbartonshire* (Dumbarton, 1886); J. Cameron, *Calico Printing in Campsie* (Kirkintilloch, 1892); R. A. Peel, 'Turkey Red Dyeing in Scotland Its Heyday and Decline', *Journal of the Society of Dyers and Colourists*, 68:12 (1952), 496–505; Irwin, 'Scottish Eighteenth-Century Chintz and Its Design – I'; F. Irwin, 'Scottish Eighteenth-Century Chintz and Its Design – II', *The Burlington Magazine*, 107:751

still felt that ‘progress in bleaching and printing has received much less attention than other branches of the textile industry’.<sup>12</sup>

The piecemeal survival of records, especially for the pre-1850 period, has hampered research, as has their geographical dispersal in repositories across Scotland and England.<sup>13</sup> When printing businesses were taken over by other printing firms, the new owners often retained the design records as an asset, but non-current operational records were usually destroyed.<sup>14</sup> The survival of design, production and operational records across four printworks from 1808 to 1864 presents an opportunity to augment the story of calico printing in Glasgow and West Dunbartonshire. However, researchers face several challenges. The records are dispersed between the National Library of Scotland (hereafter NLS) and the Scottish Business Archive (hereafter SBA), University of Glasgow, complicating the process of comparing data and contextualising records.<sup>15</sup> A lack of detail in the catalogues obliges each researcher to view the documents to scope the contents, rather than using the catalogue as a tool to plan their research. The rich visual archive is invisible. As a researcher, an indication of the contents of a record helps me to identify items most relevant to my topic; as an archivist, I believe that providing such detail not only assists users, but also helps preserve documents and improve service efficiency by reducing unnecessary productions. This article reviews the Milton/Mitchell records’ provenance. It demonstrates the records’ potential to inform research into production, business operation and industry personnel. It concludes by proposing that a collaborative approach between archivists and textile heritage experts to amplify record descriptions could significantly enhance access.

Patrick Mitchell was born in Beith, Ayrshire, in 1784, the ninth child of the Reverend Andrew Mitchell and his wife Janet.<sup>16</sup> In about 1796, he became an

(October 1965), 510–15; V. Habib, ‘Edinburgh Printfields’, *Scottish Industrial History*, 8:2 (1985), 20–30; N. Tarrant, ‘The Turkey Red Dyeing Industry in the Vale of Leven’, in (ed.) J. Butt and K. G. Ponting, *Scottish Textile History* (Aberdeen, 1987), 37–47; A. J. Durie, ‘Textile Finishing in the North East of Scotland 1727–1860’, in (ed.) Butt and Ponting, *Scottish Textile History*, 1–18; S. Downie, ‘From Milton to Madras: A Life of Patrick Mitchell, 1784–1848, Calico Printer’, *Scottish Industrial History*, 11–13 (1990), 13–26; S. M. Nisbet, *The Rise of the Cotton Factory in Eighteenth-Century Renfrewshire* (Oxford, 2008); Tuckett and Nenadic, ‘Colouring the Nation’; Wertz, ‘Turkey Red Textile Dyeing’ (2014).

<sup>12</sup> Nisbet, *Rise of the Cotton Factory*, 30.

<sup>13</sup> Only six Scottish printing firms are listed in the Royal Commission on Historical Manuscripts, *Records of British Business and Industry 1760–1914. Textiles and Leather* (London, 1990).

<sup>14</sup> P. A. Sykas, ‘The North West Pattern Book Survey’, *Textile History*, 32:2 (2001), 156–74, 156.

<sup>15</sup> The catalogues of both the Scottish Business Archive and National Library of Scotland do not cross-reference each other’s holdings, so researchers may not realise that there are two groups of records.

<sup>16</sup> National Records of Scotland (hereafter NRS), CH3/1055/1, Beith Mitchell Street Anti-Burgher Church record book, 1761–1809. On 27 July 1796, the Reverend Mitchell

apprentice calico printer at William Gillespie & Sons' printworks in Anderston, Glasgow. When he completed his apprenticeship, he remained with the firm and was appointed general manager in August 1805. In 1811, Mitchell accepted the post of general manager at William Stirling and Sons. Then in 1817, he decided to purchase Milton printworks, near Dumbarton. Mitchell ran Milton until his death in January 1848, when the business passed to his nephews, Andrew Muter and James Millar. Muter and Millar operated the printworks until 1864, when they wound up the business and sold the site.<sup>17</sup>

Andrew Muter's descendants, the Napier family, donated financial, legal and production records relating to Milton printworks to the SBA as part of their own archive of personal papers and records from the family's shipbuilding and marine engineering business.<sup>18</sup> Among the records is an early Milton pattern book, which was presumably acquired by Mitchell when he purchased the printworks from McDowall & Company in 1817.<sup>19</sup> The NLS purchased about forty items relating to Mitchell and Milton from a London antiquarian book dealer in 1961.<sup>20</sup> Their acquisition comprised day books relating to Mitchell's apprenticeship and subsequent career at William Gillespie & Sons, 1796–1808; one from his brief spell at a silk dyer's in Spitalfields in 1809; a dye recipe book for Cordale printworks, 1815, originating from Mitchell's employment with William Stirling and Sons, others from Milton printworks, 1823 onwards; and a Milton account book, 1841–61. The Gillespie-era and Spitalfields notebooks are in Mitchell's handwriting; some entries are also signed by him.<sup>21</sup> Entries headed 'Milton' in some of the Milton dye recipe books confirm their origin. Included in the purchase were six lengths of fabric and two printer's blocks, c.1840–60, which were found in the attic of Milton House.<sup>22</sup> These the NLS transferred to National Museums Scotland (hereafter NMS).<sup>23</sup>

Business success in calico printing depended as much on maintaining market appeal as fashion trends changed, as on meeting production and sales deadlines

noted that all but one of his surviving children were living with his son John in Anderston, p. 307.

<sup>17</sup> MacLeod, *Clyde District*, 148–52. SBA, DC90/7/6/1, Letter from Richard Gillespie to Patrick Mitchell, 26 March 1806; DC90/7/4/2, Contract of employment, William Stirling and Sons and Patrick Mitchell, 1811; DC90/7/4/2, Agreement, Archibald Buchanan to Patrick Mitchell, for Smallburn, Milton, 3 September 1817.

<sup>18</sup> SBA, DC90, Napier collection.

<sup>19</sup> SBA DC90/7/3/3, pattern book, Milton.

<sup>20</sup> NLS, MS.17961–MS.17997, Accounts, day books and recipe books, Milton printworks.

<sup>21</sup> Letters sent by Mitchell to his brothers provide verified samples of his handwriting. See SBA, DC90/7/6/3, Correspondence from Patrick Mitchell, 1815–1817.

<sup>22</sup> Mitchell's residence, which passed to Andrew Muter and later the Napier family. See Downie, 'From Milton to Madras', 23.

<sup>23</sup> NMS, A.1980.771–8, lengths of cotton and two printer's blocks, c.1840–1860. These artefacts, while valuable examples of Milton's output and catalogued in detail, are not the focus of this article, which concentrates on the documentary sources.

in what was a seasonal trade, and managing costs in a competitive industry.<sup>24</sup> Milton/Mitchell production records preserve textual and visual evidence of designs produced by the four companies. The earliest item is the Milton pattern book.<sup>25</sup> Although the catalogue places it in the 1780s, the assessment of art historian Francina Irwin, dating it from 1808 to 1815, is likely to be more accurate.<sup>26</sup> In fact, 'Glasgow 12 May 1808' is noted beside a pale blue pine cone design, although this could be a later annotation.<sup>27</sup> Irwin's dates place the volume within McDowall's tenure of Milton printworks. Day Hort McDowall purchased Milton in 1795.<sup>28</sup> He died, in considerable debt, in 1809; his family managed the business until 1817, when they sold it to Mitchell.<sup>29</sup> The pattern book contains painted designs for woodblock printing, mainly borders for long shawls and handkerchiefs. Each design was produced on a separate sheet of paper and pasted into the volume.<sup>30</sup> They are interspersed with a few fabric samples. Irwin recorded over thirty designs based on the pine cone motif within this volume. This form originated from a plant motif known as a *buta* or *boteh*, which Kashmiri weavers incorporated into luxurious wool shawls. In the 1790s, these shawls became desirable, but expensive, fashion accessories in Europe. European weavers and printers capitalised on demand, producing cheaper imitation versions and adapting the motif, which became known in Britain as a pine cone or paisley pattern.<sup>31</sup> However, McDowall's repertoire encompassed more than pine cones. There are shells, flowers, birds, geometric figures, chinoiserie and, in one red and yellow design, mounted huntsmen galloping across a tree-lined landscape accompanied by their hounds. Backgrounds range from white and beige to bright cerise, yellow and black. Bold orange underpins a large pattern of pale blue, daisy-style flowers and variegated green/yellow foliage (Plate 1). The pattern book contains no information about the intended use of these designs and no other business records are known which could shed further light on the matter.<sup>32</sup> Many

<sup>24</sup> P. A. Sykas, *The Secret Life of Textiles. Six Pattern Book Archives in North West England* (Bolton, 2005), 12–13.

<sup>25</sup> SBA, DC90/7/3/3, pattern book, Milton printworks.

<sup>26</sup> F. Irwin, 'Prelude to the Paisley Shawl', *Scotland's Magazine*, February 1966, 47.

<sup>27</sup> This fragile volume was recently withdrawn from public access. The author was therefore unable to revisit it to check for additional dates or attributions.

<sup>28</sup> McDade, *A Brief History*, 24.

<sup>29</sup> McDowall belonged to a long-established landowning and merchant family in Renfrewshire. In 1806, heavily in debt, he drew up a trust settlement to settle his affairs should he die (Glasgow City Archives, T-MJ/366). On 16 July 1809, obliged to put his Walkinshaw estate up for sale, he took his own life.

<sup>30</sup> Irwin, 'Prelude', 47.

<sup>31</sup> 'What's in a Name? The Paisley Pattern in Kashmir Shawls', *RISD Museum*, 5 November 2004, <https://risdmuseum.org/exhibitions-events/exhibitions/whats-name-paisley-pattern-kashmir-shawls>. As a major producer of imitation Kashmiri shawls, Paisley became synonymous with both the shawls and the pine cone motif.

<sup>32</sup> Family papers are held by Glasgow City Archives; family and Court of Session records are held by the NRS.

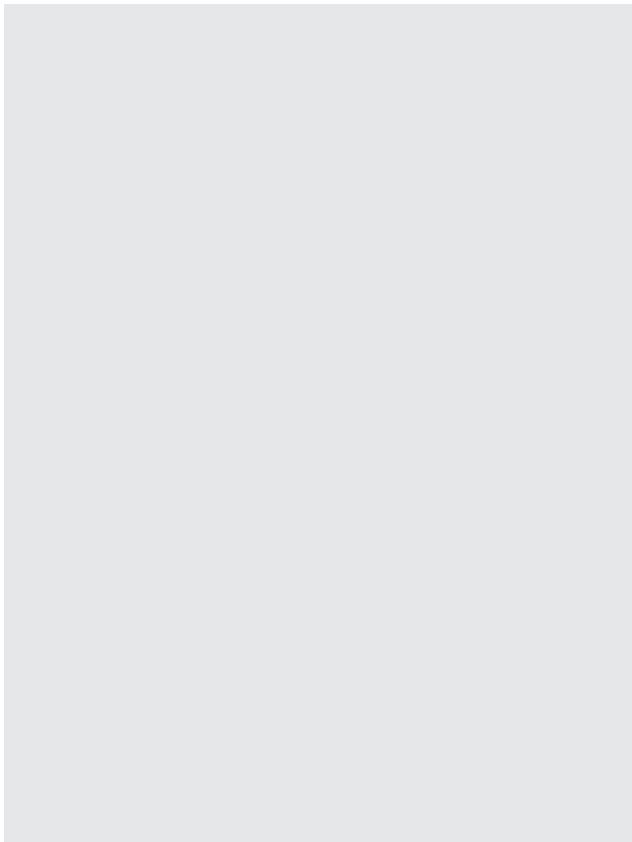


Plate 1 Design for printing on calico, McDowall & Company, Milton printworks, 1808–15. Paint on paper (DC90/7/3/3, reproduced courtesy of University of Glasgow Archives & Special Collections).

printers manufactured goods for both home and overseas markets.<sup>33</sup> McDowall's relatives were long-time merchants in the Caribbean<sup>34</sup> and McDowall had spent time in Indonesia,<sup>35</sup> so he no doubt took advantage of these existing networks. Patrick Mitchell concentrated on East Asian markets when he ran Milton and

<sup>33</sup> Sykas, 'Pattern Book Survey', 156.

<sup>34</sup> T. M. Devine, 'An Eighteenth-Century Business Élite: Glasgow–West India Merchants, c.1750–1815', *The Scottish Historical Review*, 57:163 (1978), 40–67.

<sup>35</sup> G. Crawfurd, *A General Description of the Shire of Renfrew* (Paisley, 1818), 155.

may have inherited McDowall's overseas business connections.<sup>36</sup> Expert study of this colourful visual record of Milton's early output may unlock more information about McDowall's products and their likely destinations.

William Gillespie & Sons' day books supply data about the firm's production processes, but lack visual evidence. William Gillespie set up his printworks in Anderston in 1772.<sup>37</sup> The day books relate to Mitchell's employment with the firm; no other records relating to Gillespie's appear to be in a public collection.<sup>38</sup> Just two fabric samples illustrate the company's work. One is a simple dark red, a reminder that printers produced plain as well as patterned fabrics.<sup>39</sup> The second sample was printed during trials for 'resisting gold', undertaken by Mitchell in September 1808.<sup>40</sup> A dark brown ground is speckled with tiny gold dots and cream/gold flowers. While fabric samples may be lacking, Mitchell's descriptions of colour combinations and fabric types allow researchers to build up a strong impression of Gillespie's output. There are trials to produce three-coloured dark shawls, in black, red and purple; orange and cinnamon blotch; and chintz samples in red and yellow, purple, or pale red.<sup>41</sup> Mitchell's 1806 day book exemplifies the broad colour palette employed, including pink, green on slate grounds, 'a Beautifull Lilliac Purple' and pale red on buff.<sup>42</sup>

An 1815 dye recipe book catalogued with Milton printworks items is nevertheless internally identified with Cordale printworks.<sup>43</sup> William Stirling built Cordale in the Vale of Leven in 1772.<sup>44</sup> The volume is associated with Mitchell's tenure as Stirling's general manager and must somehow have ended up among his papers. No other recipe books provenanced to Stirling's prior to the 1840s appear to have survived, or at least, are not in the public domain,<sup>45</sup> so this volume, full of fabric samples, contains valuable textual and visual evidence of the firm's earlier work. 'Ja: Pickup' is written on the thin paper cover of the volume. On folio 1, Mr Pickup playfully inscribed '(in the French tonge) Jaques

<sup>36</sup> Cooke, *Rise and Fall*, 80. Milton consignment records list Java and Singapore as destinations for goods leaving the works: SBA, DC90/7/11, Consignment book, 1848–1861.

<sup>37</sup> A. Smart, *Villages of Glasgow. Volume 1* (Edinburgh, 1996), 11.

<sup>38</sup> The only exception is Court of Session records held in the NRS, which document cases involving the firm.

<sup>39</sup> NLS, MS.17963, Day book, William Gillespie & Sons, 1807.

<sup>40</sup> NLS, MS.17966, Day book, William Gillespie & Sons, 1808, f. 24.

<sup>41</sup> NLS, William Gillespie & Sons, MS.17962, Day book, 18 September 1806; MS.17966, Day book, ff. 15 and 19. 'Chintz' referred to a style of printed cotton furnishing and dress fabric: P. A. Sykas, *Identifying Printed Textiles in Dress 1740–1890* (Manchester, 2007), 8.

<sup>42</sup> NLS, MS.17974, Recipe book from William Gillespie & Sons, 1806.

<sup>43</sup> NLS, MS.17975, Recipe book from William Gillespie & Sons, 1815.

<sup>44</sup> Downie, 'From Milton to Madras', 14.

<sup>45</sup> No pre-1840 recipe books are listed under the United Turkey Red Co. Ltd entry in Royal Commission on Historical Manuscripts, *Textiles and Leather*, entry 852. Glasgow City Archives or West Dunbartonshire Archives hold none.

Enlever or Ja<sup>s</sup> Pickup his Book. Grocery near Dumbarton Scotland.<sup>46</sup> James signed off the final page 'December 4th 1815 Cordale Near Dumbarton North Brittan Europe J Pickup', providing a convincing provenance. Most recipes start 'how to dye this style', referencing the fabric exemplar affixed adjacent. White grounds printed with small flowers are reminiscent of the lightweight fabrics then in vogue for women's clothing. Red and white flowers festoon a rich yellow ground, while red stars stand out on black. Business correspondence sent to Patrick Mitchell in his role as Stirling's manager in 1811 offers further insights into the firm's output in this period, as well as the challenges of meeting deadlines and judging what might sell. William Stirling urged Mitchell: 'Surely no time need be lost with the Gold, the Gold/[Balloon?] & the Gold & Yellow.' He liked a red ground furniture pattern with blue and safflower, but did not consider it an immediate seller, suggesting 'a few may be done for sake of vanity'.<sup>47</sup>

About twenty dye recipe books survive from Milton printworks, illustrating how the company's output evolved over thirty years. The earliest volume starts in 1822.<sup>48</sup> Soft tan, beige and buff patterns contrast with crisp blue and white fabrics. There are florals, geometric shapes and spots. One recipe specifies that it is for cylinder printing. Recipes dating from 1834 to 1837, for cylinder and plate printing, generate deeper hues for bolder designs based on plants and geometric figures.<sup>49</sup> An 1840s notebook features striking bright chrome yellow grounds, patterned variously in purple, red and blue, as well as imitation lace patterns in turquoise.<sup>50</sup> Eight volumes are undated: comparison with the dated books and a review of the technological features discussed may enable them to be placed chronologically within the series. Taken collectively, these production records from all four firms form a rich body of data for studying West of Scotland printed calico designs and comparing them with output from other areas of Scotland and beyond.

The value of these recipe and day books is not just their visual and textual evidence of the patterns these firms were printing: they also document precisely *how* they achieved these outcomes. Each step is carefully logged. Ingredients are enumerated. This was still the era of plant-based dyes and ingredients included madder, peach-wood, brasil and safflower. Ingredient quality could vary, impacted by growing conditions or depreciation in storage, obliging the printworks to modify recipes during production to ensure they achieved the exact shade desired. Textual and chemical analyses of samples and recipes from Crutchley's, wool dyers in eighteenth-century Southwark, have revealed that the dyers were adept at utilising both sound cochineal and cochineal which had

<sup>46</sup> Until the nineteenth century, the village opposite Bonhill church was called 'Grocery'; it was later renamed Alexandria. See I. M. M. MacPhail, *A Short History of Dumbartonshire* (Stevenage, 1984), 66.

<sup>47</sup> SBA, DC90/7/6/1, Letters from William Stirling to Patrick Mitchell, 18 and 25 June 1811.

<sup>48</sup> SBA, DC90/7/3/1, Recipe book, Milton printworks, 1822–1828.

<sup>49</sup> NLS, MS.17982, Recipe book, Milton printworks, 1834–1837.

<sup>50</sup> NLS, MS.17985, Recipe book, Milton printworks, 1840–1847.

been affected by seawater during shipment.<sup>51</sup> Mitchell's notes may reveal similar accommodations. Another essential ingredient was water, whose characteristics impacted the process as much as the plants. A key finding from comparative analysis of red madder wool dyeing in London and the Languedoc was that the French and English dyers achieved chromatically the same colour using different methods, methods which were based around the particularities of their local water supply.<sup>52</sup> The recipes in the Milton/Mitchell notebooks contain precise directions for rinsing and soaking. Mitchell's 1807 recipe to produce the plain red sample discussed above specified the use of both 'soft water' and 'cold rain water'.<sup>53</sup> When Mitchell tested multiple recipes for grounding 'some dyed purple figures' with gold, the washing process proved to be decisive to success.<sup>54</sup> Investigation of the manipulation of water as an ingredient at Anderston, Milton and Cordale may reveal lost craft knowledge.

One of the pleasures of archival research is encountering the unexpected. Mitchell defined himself as a calico printer,<sup>55</sup> so an 1809 day book assigned to Milton provides a beautiful surprise.<sup>56</sup> It opens, in Mitchell's handwriting, 'London March 13th 1809 [...] Entered the dye house of Mr R silk Dyer Spittal fields. Dyed some yarn blue.' After chronicling his initial dyeing tasks, Mitchell compiles a manual on silk yarn dyeing. He starts with instructions for boiling silk newly received from the spinners and making up skeins. Then he supplies recipes for dyeing the yarn a multitude of colours. Yellow, sky blue, pea-green (Plate 2) and 'Emperor's Eye, or Lavender' are followed by Maserine blue, olive, 'seaflower' (safflower, pale pink) and a sequence of reds. A skein of silk, presumably dyed by Mitchell, represents the outcome of each recipe, its sheen reflecting the light. Close study of these recipes and yarns could reveal valuable and possibly new information about silk yarn dyeing in early-nineteenth-century London.

Researchers are combining textual, visual and chemical analyses of recipes and fabrics, for example, by analysing the dyes and mordants<sup>57</sup> present in selected samples and seeing how they correspond to the written recipes. This is a relatively new area of research and its full potential is still being realised, but it is producing exciting new knowledge about historic dyes, dyeing processes and

<sup>51</sup> A. Quye, D. Cardon and J. Balfour Paul, 'The Crutched Archive: Red Colours on Wool Fabrics from Master Dyers, London 1716–1744', *Textile History*, 51:2 (2020), 119–66, 147.

<sup>52</sup> D. Cardon, I. Brémaud, A. Quye and J. Balfour Paul, 'Exploring Colors from the Past: In the Steps of Eighteenth-Century Dyers from France and England', *The Textile Museum Journal*, 47 (2020), 8–27, 25.

<sup>53</sup> NLS, MS.17963, Day book, William Gillespie & Sons, 1807, f. 1.

<sup>54</sup> NLS, MS.17966, Day book, William Gillespie & Sons, 1808, f. 15.

<sup>55</sup> Downie, 'From Milton to Madras', 14.

<sup>56</sup> NLS, MS.17968, Day book, Patrick Mitchell, Spitalfields silk dyeworks, 1809.

<sup>57</sup> Ammonia, acetic acid, clay and other products, called mordants, were used to make dyes more durable and colourfast. In printing, they were mixed with flour paste and gum, and applied to the printing blocks. See A. Clow and N. L. Clow, *The Chemical Revolution: A Contribution to Social Technology* (London, 1952), 226, 234.

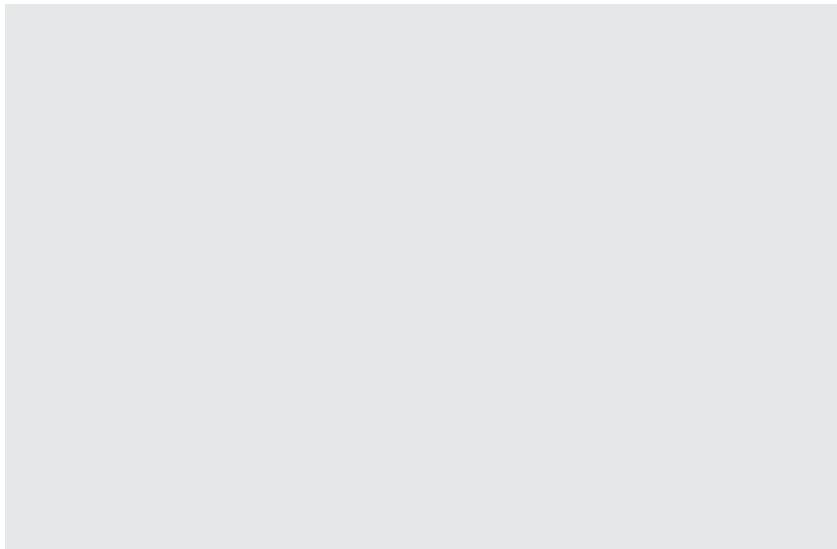


Plate 2 Skein of pea-green silk yarn dyed by Patrick Mitchell in Spitalfields, 1809 (MS.17968, by permission of the National Library of Scotland).

dyers' technical mastery.<sup>58</sup> Chemical analysis of Turkey red cottons dyed by Vale of Leven companies has improved understanding of how the process affects the cloth, and the implications for conserving these textiles.<sup>59</sup> Similar investigation of recipes and fabrics in these West of Scotland calico colourists' notebooks could deepen awareness of the complex chemistry at play and the skill of those who produced – and repeatedly reproduced – colour and pattern on cloth.<sup>60</sup>

Delivering highly technical, complex production processes efficiently and effectively while maintaining financial stability and a competitive edge

<sup>58</sup> Micro-chemical techniques used for historical dye identification include ultra-high performance liquid chromatography and mass spectrometry. Spectroscopy techniques can identify multiple components in textiles. Colorimetric measurements enable colours to be precisely classified. See, for example, Quye *et al.*, 'Crutched Archive'; Cardon *et al.*, 'Exploring Colors'; J. H. Wertz, D. J. France and A. Quye, 'Spectroscopic Analysis of Turkey Red Oil Samples as a Basis for Understanding Historical Dyed Textiles', *Coloration Technology*, 134:5 (2018), 319–26.

<sup>59</sup> Wertz, 'Turkey Red Textile Dyeing in Glasgow'. See also J. H. Wertz, A. Quye, D. France, P. L. Tang and L. Richmond, 'Authenticating Turkey red textiles through material investigations by FTIR and UHPLC', in (ed.) J. Bridgland, *ICOM-CC 18th Triennial Conference Copenhagen, 4–8 September 2017* (Paris, 2017), 1–8.

<sup>60</sup> Cardon and Quye emphasise that the French and English woollen dyers' ability to consistently reproduce colours was a key marker of their skill, see Cardon *et al.*, 'Exploring Colors', 26.

required shrewd management skills, and a certain measure of luck. In 1811, the ongoing economic impact of the Napoleonic Wars on the cotton industry forced many firms into bankruptcy.<sup>61</sup> Managers like Mitchell were always looking for a competitive deal. Glasgow broker John Arneil procured ingredients for William Stirling and Sons, involving a busy round of chasing suppliers, inspecting products, negotiating prices and liaising with Mitchell, Stirling's manager. Ashes were used to remove grease from the newly woven cloth and prepare it for bleaching and dyeing.<sup>62</sup> A Mr Gillespie called on Arneil, offering ashes at 32 shillings a barrel. Arneil found the ashes badly crushed and rejected them. After inspecting 'a lott of Ashes', Arneil judged Robert Jaffery's to be the best, but hoped, he informed Mitchell, to negotiate down the price.<sup>63</sup> Published research based on the Milton/Mitchell documents has largely focused on this and other correspondence Mitchell received while Stirling's manager, and the technical records.<sup>64</sup> But Milton's operational records offer detailed insights into the business of running a calico printworks over a period of forty years. Hundreds of receipts, from 1828 to 1864, name suppliers and give prices paid for cloth, dung, pattern cutting, gaslights and numerous other essentials. Consignment notices list the quantities and types of product being despatched from the works. On 1 March 1850, 160 'salandang' pieces, 27 'kain panjangs' and 42 'Battick garments' were despatched.<sup>65</sup> Bills of lading name the ships carrying these consignments and their destination, principally Singapore, Batavia [present-day Jakarta], Manila and Calcutta.<sup>66</sup>

Patrick Mitchell's notebooks do not just capture technical information about calico printing. They also foreground people involved in the industry and provide insights into attitudes towards information-sharing among calico printers. The Turkey red industry in the Vale of Leven was known for its intense secrecy – and rampant piracy of competitors' designs.<sup>67</sup> Paisley shawl manufacturers objected to students at Paisley School of Design being taught

<sup>61</sup> Cooke, *Rise and Fall*, 54–5.

<sup>62</sup> Clow and Clow, *Chemical Revolution*, 226.

<sup>63</sup> SBA, DC90/7/6/1, Letters from John Arneil to Patrick Mitchell, 28 and 31 August 1811.

<sup>64</sup> The author has identified three articles drawing on these records, namely Downie, 'From Milton to Madras'; Irwin, 'Scottish Eighteenth-Century Chintz and Its Design – II'; Irwin, 'Prelude'. Irwin also wrote an unpublished article on Patrick Mitchell, referenced in NMS cataloguing notes for A.1980.771, fabric, Milton, 1840–1860, but the author has not had sight of this.

<sup>65</sup> The Selendang was an Indonesian shoulder shawl, while the Kain Panjang – Malay for 'long cloth' – was a length of cloth tied around the hips: 'Shoulder Cloth (Selendang)' and 'Hip Wrapper (Kain Panjang)', *Art Institute Chicago*, 2022, <https://www.artic.edu/artworks/27481/shoulder-cloth-selendang>, <https://www.artic.edu/artworks/180391/hip-wrapper-kain-panjang>. The Milton fabrics at NMS feature Javanese-style motifs and imitation batik.

<sup>66</sup> SBA, DC90/7/1/7–14, Vouchers, receipts, consignments and bills of lading, Milton printworks, 1828–1864.

<sup>67</sup> Tuckett and Nenadic, 'Colouring the Nation', 165.

textile pattern designing for fear they revealed company secrets in class.<sup>68</sup> Mitchell's notebooks suggest a more collaborative attitude existed among calico printers.<sup>69</sup> During his apprenticeship with Gillespie's, Mitchell visited Fereneze printfield in Renfrew, where he practised making strong whites with Mr McFarlane. He also studied blue dipping at a printfield in Kilmarnock, Ayrshire.<sup>70</sup> Throughout his career, Mitchell received recipes from other printers: Mr Penny in London provided details of 'How to Kill Aquafortis'; J. Powell, Lancashire, supplied the recipe for a complex blotched pattern.<sup>71</sup> These, and other, references in Mitchell's notebooks, also preserve the names of people who worked in the industry, which might otherwise be lost. While in London in 1809, Mitchell jotted down pithy notes about local dyers on the flyleaf of his notebook – 'Bryan dyer with Racine & Jackses first rate' and '[?] Laning who goes from one place to another unsteady'.<sup>72</sup> No employee records remain for Milton but a few have left their names. John Farrell recorded in his colourist's notebook that he started at Milton on 25 July 1837.<sup>73</sup> The names of forty-six company apprentices are preserved in another notebook because, on 30 October 1826, they 'left theire work and went to Dumbarten and behaved improperly'. Twelve apprentices 'stayed at their work', not all, Mitchell surmised, because of their diligence. 'Tod & Young was out on baile at the time otherwise would likely have been off with the rest', he noted sourly.<sup>74</sup> Glimpses of Patrick Mitchell's own character also emerge. His first employer, Richard Gillespie, praised Mitchell's 'diligence and exertions' and had sufficient confidence in this relatively inexperienced young man's abilities to appoint him as his manager.<sup>75</sup> Mitchell travelled twice to France to study its highly respected textile industry, visiting works in Paris, Rouen and Geneva, as well as Oberkampf et Cie's famous printworks at Jouy-en-Josas.<sup>76</sup> His notes show he was unintimidated

<sup>68</sup> M. Lochrie, 'The Paisley Shawl Industry', in (ed.) Butt and Ponting, *Scottish Textile History*, 95–111, 110.

<sup>69</sup> With thanks to the anonymous reviewer, who observed that this may be linked to shared Masonic membership.

<sup>70</sup> NLS, MS.17971, Recipe book, William Gillespie & Sons, 1796–1806. Fereneze was owned by Robert Fulton in the 1790s: Nisbet, *Rise of the Cotton Factory*, appendix 3A.

<sup>71</sup> NLS, MS.17971, Recipe book, William Gillespie & Sons, 1796–1806; MS.17982, Recipe book, Milton printworks, 1835–1837. Aquafortis was concentrated nitric acid: *The Chambers Dictionary 13th Edition* (London, 2014), 72.

<sup>72</sup> NLS, MS.17968, Day book, Spitalfields, 1809. James Racine and James Jacques were silk dyers in Great Pearl Street, Spitalfields: London Metropolitan Archives CLC/B/192/F/001/MS11936/387/603439, Sun Insurance Office Limited policy register, 1792.

<sup>73</sup> NLS, MS.17981, Dye recipe book, Milton printworks, 1833–1839. He subsequently worked in Manchester: MS.17997, Letter from J. Farrell to Andrew Muter, 10 March 1845.

<sup>74</sup> SBA, DC90/7/3/1, Recipe book, Milton printworks, 1822–1828.

<sup>75</sup> SBA, DC90/7/6/1, Letter from Richard Gillespie to Patrick Mitchell, 26 March 1806.

<sup>76</sup> Downie, 'From Milton to Madras', 17–18.

by this eminent firm.<sup>77</sup> Undeterred by the fragile economic situation in 1817, Mitchell purchased Milton printfield and constructed fine new workshops, complete with a Gothick stairwell.<sup>78</sup> Notwithstanding, Mitchell's refusal to compromise with his employees during a year-long strike at Milton in 1833–34 places him in a less favourable light.<sup>79</sup>

The Milton/Mitchell records have great potential to inform research into several aspects of calico printing in nineteenth-century Scotland. But limited catalogue entries hamper discovery and use. It is noticeable that several hundred Milton vouchers have individual piece-level catalogue entries, listing the name and address of the business issuing the bill and details of the goods they supplied, but the pattern book lacks an account of its contents.<sup>80</sup> This situation is not unique to this group of records. Archivists are rarely textile heritage specialists and understandably lack the knowledge – as well as the time – to confidently identify fabrics, classify record types and summarise contents.<sup>81</sup> A collaborative project, bringing textile specialists and archivists together to review and catalogue the records, supported by student participation, could provide a way to amplify descriptions with industry-specific data. This model has been used successfully in other contexts. The Ballast Trust processes technical records on behalf of repositories. Core to the Trust's success are its subject specialist volunteers, who deploy their expert knowledge to interpret and catalogue these records.<sup>82</sup> University of Glasgow textile students added descriptions of designs and colours to catalogue entries for United Turkey Red Company sample books and Stoddard International plc design drawings. Involving students in enhancing Milton/Mitchell catalogue entries may increase the feasibility of this work, while offering opportunities for student development. The research community could also be invited to share information they have with staff via a form on the catalogue.<sup>83</sup> Collaborative cataloguing approaches have value not just for textile records and could be applied to records from other industries.

These fascinating, detailed and colourful records have much more potential than there has been opportunity to uncover thus far. They help illuminate an understudied area of Scotland's textile history, and merit enhanced attention.

<sup>77</sup> Correspondence and other papers in SBA DC90/7/6/1 and DC90/7/6/3 document Mitchell's journeys to France in 1815 and 1816.

<sup>78</sup> Irwin, 'Scottish Eighteenth-Century Chintz and Its Design – II', 514. William Donnelly painted a watercolour of Milton printworks in 1861, SBA DC90/7/8/1.

<sup>79</sup> MacLeod, *Clyde District*, 21–4.

<sup>80</sup> SBA, DC90/7/1/7, Voucher book, 1828–1831; DC90/7/3/3, Pattern book, 1780s.

<sup>81</sup> Philip Sykas recognised the same difficulty among custodians of pattern books in the north-west of England and proposed institutions pooled their expertise to advance listing: Sykas, 'Pattern Book Survey', 159–63.

<sup>82</sup> T. Slaven and K. King, *The Business of Archives. A Labour of Love* (Glasgow, 2018).

<sup>83</sup> The Victoria and Albert Museum invites users to suggest improvements to individual catalogue records and provides an online form for this purpose. See, for example, <https://collections.vam.ac.uk/item/O768624/textile-design-arthur-wilcock/>.